

# INTEREST 2024

INTERNATIONAL CONFERENCE ON  
HIV TREATMENT, PATHOGENESIS,  
AND PREVENTION RESEARCH IN  
RESOURCE-LIMITED SETTINGS



2024

## ABSTRACT BOOK

**International Conference on HIV Treatment, Pathogenesis, and Prevention Research in Resource-Limited Settings**

Cotonou, Benin | 14 - 17 May 2024

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**International Conference on HIV  
Treatment, Pathogenesis, and Prevention  
Research in Resource-Limited Settings**

**INTEREST 2024**

**14 – 17 May 2024  
In-Person Meeting  
Cotonou, Benin**

**Abstracts  
Oral Presentations**

1

## Inability-To-Walk-Unaided - A Single WHO Danger Sign Predicts In-Hospital Mortality in People Living with HIV in a Low-Resource Setting

Malunda C<sup>1</sup>, Kapenga D<sup>1</sup>, Mseke B<sup>1</sup>, Rambiki E<sup>1</sup>, Huwa J<sup>1</sup>, Steffen H<sup>2,3</sup>, Wallrauch C<sup>1</sup>, Heller T<sup>1,4</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>Department of Gastroenterology and Hepatology, University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany, <sup>3</sup>Hypertension Center, University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany, <sup>4</sup>International Training and Education Center for Health, University of Washington, Seattle, United States of America

**Background:** People living with HIV (PLHIV) admitted to hospital with advanced HIV disease carry high risks of mortality. Serious illness may be identified using danger signs: respiratory rate >30/min (RR>30), heart rate >120/min (HR>120), temperature >39°C (T>39) and being unable-to-walk-unaided. As the evidence-base for these WHO suggested parameters is not strong, our study aims to assess the predictive value of parameters for in-patient mortality in PLHIV.

**Materials and Methods:** All PLHIV admitted to medical wards at Kamuzu Central Hospital, Lilongwe, Malawi were assessed and CD4 counts done. We recorded WHO danger signs at first encounter and followed outcomes of hospital stay to determine mortality. Receiver-operator-curves (ROC) to predict in-hospital mortality were constructed and area-under-curves (AUCs) compared.

**Results:** From Nov 2022 to May 2023, 401 adults aged ≥18 years were seen, 50.1 % were female; median age 39 years [IQR 30-49], median CD4 167 cells/μl [IQR 76-338], median BMI 21.5 kg/m<sup>2</sup> [IQR 19.1-23.8]. Overall, in-hospital mortality was 25.7% [95%CI 21.3 - 30.0%]; neither sex, age, CD4 count nor BMI<18.5 were significantly associated with mortality.

Inability-to-walk was found in 212/401 clients (52.9%), HR>120 in 18/395 (4.5%, missing in 6), RR>30 in 3/375 (0.8%, missing in 26) and T>39 in 3/388 (0.8% missing in 13). Only inability-to-walk

was significantly associated with mortality (p<0.001).

The complete WHO danger score was available for 359 clients: 189 (52.6%) had one WHO danger sign; 9 (2.5%) had two; more danger signs were not observed. Increasing scores were significantly associated with increasing mortality (score 0: 11.8%, score 1: 34.4%, score 2: 66.6%; p<0.001). ROC analysis revealed an AUC of 0.68 [95%CI 0.61-0.75]. Including BMI or CD4 did not improve AUC significantly. Using only the individual danger sign "inability-to-walk-unaided" yielded a similar AUC of 0.68 [95%CI 0.61-0.75].

**Conclusions:** Increasing WHO danger sign scores are associated with in-hospital mortality; adding BMI or CD4 did not improve predictive accuracy. Even simple vital signs were not comprehensively obtained, likely due to required time and equipment. Predictive information derived from a single parameter - inability-to-walk-unaided - was as good as the complete WHO danger score and was at the same time easier to obtain.



2

## Eligibility for Long-Acting Cabotegravir/Rilpivirine and Archived Drug Resistance Mutations Among People Living with HIV-1 Subtype C in Botswana

Maruapula D<sup>1</sup>, Bareng O<sup>1,2</sup>, Choga W<sup>1,2</sup>, Moraka N<sup>1,2</sup>, Anderson M<sup>1</sup>, Phinius B<sup>1,2</sup>, Mokgethi P<sup>1,3</sup>, Zuze B<sup>1</sup>, Gaolathe T<sup>1</sup>, Shapiro R<sup>1,4</sup>, Moyo S<sup>1,4</sup>, Lockman S<sup>1,4,5</sup>, Gaseitsiwe S<sup>1,4</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana, <sup>2</sup>School of Allied Health Professions, Faculty of Health Sciences, University of Botswana, Gaborone, Botswana, <sup>3</sup>Department of Biological Sciences, Faculty of Science, University of Botswana, Gaborone, Botswana, <sup>4</sup>Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, United States of America, <sup>5</sup>Division of Infectious Disease, Brigham and Women's Hospital, Boston, United States of America

**Background:** Long-acting injectable (LAI) cabotegravir (CAB)+rilpivirine (RPV) (CAB/RPV) may improve adherence and viral suppression on antiretroviral therapy (ART) but is not an option for all people with HIV (PWH). We aimed to assess eligibility of PWH for LAI CAB/RPV and prevalence of archived CAB and RPV drug resistance mutations (DRMs) in Botswana.

**Materials and Methods:** We included a subset of former Botswana Combination Prevention participants enrolled between 2013 and 2018 who were adult PWH from 30 rural/peri-urban communities across Botswana and who had (at enrollment) HIV viral load (VL) and ART data, hepatitis B surface antigen (HBsAg) results, and HIV-1 proviral sequences covering HIV Pol. PWH who had negative HBsAg and VL= $\leq$ 400copies/mL while on ART (primarily efavirenz/lamivudine/tenofovir) were defined as eligible for LAI CAB/RPV. Predictors of eligibility for LAI CAB/RPV were assessed with univariate/multivariate logistic regression. We also described the prevalence of major archived (provirus) CAB and RPV DRMs (Stanford Database) but did not include these in defining eligibility, as HIV proviral genotyping is not standard of care.

**Results:** Of 6075 participants on ART in BCPP, 1953 (32%) had HBsAg, VL, and provirus sequence results and were included, with median age 42

years, median ART duration 6.2 years (IQR: 3.0-9.0), 1451 (74.3%) female. Among the 1953 included, 1719 (88.0%, 95 CI: 86.5-89.4) were eligible for LAI CAB/RPV (i.e. HBsAg-negative, VL<400copies/ml). Among the 234 (12.0%) ineligible individuals, 177 were HBsAg positive, and 60 had VL $\geq$  400 copies/ml. 162 (8.3%) of the 1953 overall participants had a major CAB or RPV DRM, (135 [7.9%] of the 1719 persons eligible for CAB/RPV, and 27 [11.5%] of the 234 CAB/RPV-ineligible persons).

**Conclusions:** Approximately 88% of PWH on ART (primarily Tenofovir, lamivudine, efavirenz (TLE)) across Botswana were eligible to receive LAI CAB/RPV. However, an additional 8% of these individuals exhibited archived CAB and/or RPV DRMs. Future studies are warranted to investigate the potential impact of these mutations on LAI CAB/RPV treatment outcomes.



3

## Tenofovir and Doravirine Are Potential Reverse-Transcriptase Analogs for Combination with the New Reverse-Transcriptase Translocation Inhibitor (Islatravir) Among Treatment-Experienced Patients in Cameroon: Designing Future Treatment Strategies for Low-And Middle-Income Countries

Nka A<sup>1</sup>, Bouba Y<sup>2</sup>, Gouissi D<sup>1</sup>, Teto G<sup>1</sup>, Ngoufack Jagni Semengue E<sup>1</sup>, Ambe Chenwi C<sup>1</sup>, Takou D<sup>1</sup>, Tommo Tchouaket M<sup>1</sup>, Pabo W<sup>1</sup>, Tambe Ayuck Ngwesse D<sup>1</sup>, Kengni Ngueko A<sup>1</sup>, Armenia D<sup>3</sup>, Colizzi V<sup>3</sup>, Santoro M<sup>3</sup>, Ceccherini-Silberstein F<sup>3</sup>, Perno C<sup>4</sup>, Fokam J<sup>1</sup>

<sup>1</sup>"Chantal Biya" International Reference Center for research on HIV/AIDS Prevention and Management, Yaounde, Cameroon, <sup>2</sup>Central Technical Group National AIDS Control Committee, Yaounde, Cameroon, <sup>3</sup>University of Rome "Tor Vergata", Rome, Italy, <sup>4</sup>Bambino Gesù Pediatric Hospital, Rome, Italy

**Background:** Islatravir is a new antiretroviral that inhibits HIV-1 reverse transcriptase through multiple mechanisms. M184V mutation have been shown to reduce the in-vitro antiviral activity of islatravir. Thus, long-term exposure to nucleoside(NRTI) and non-nucleoside(NNRTI) reverse transcriptase inhibitors could reduce the susceptibility of islatravir. Our objective was to evaluate the predictive efficacy of islatravir and potentially active antiretrovirals for combination therapy among patients failing ART in Cameroon.

**Materials and Methods:** Using the CIRCB Antiviral Resistance database in Cameroon, 1716 sequences were analysed from patients failing first-line ART (2NNRTI+NRTI, n=1016) and second-line(2NNRTI+PI/r, n=710). HIV-1 sequences were analyzed using Seqscape.v.2.6 and drug-resistance mutations(DRMs) were interpreted using Stanford HIVdb.v9. Patterns of pairwise interactions were analysed between M184V and other NRTI and NNRTI DRMs. Fisher's exact test was performed to assess difference in the co-occurrence of the

mutated residues with variables related to the independent assumption.

**Results:** Median(IQR) age of the study-population was 41[29-57] years; 61.2% female; with a broad diversity of HIV-1 non-B: CRF02\_AG (53.3%), A1(18.2%), D(5.7%),22 other viral clades(22.8%). The overall prevalence of resistance to NRTI and NNRTI was 52.4% and 31.8% respectively. The most frequent NRTI DRMs were M184V (52.4%), M41L(17.3%) and T215F(12%). For NNRTI, the most frequent DRMs were K103N(31.8%),Y181C (16.7%) and G190A (12.3%). After adjustment, NRTI-DRMs involved in positive correlations with M184V on first-line ART was L210W(phi = 0.12, p = 0.0001); on second-line ART M41L(phi= 0.31,p<0.0001), D67N(phi = 0.29,p<0.0001), K70R(phi=0.26,p<0.0001) and L210W (phi=0.22,p<0.0001). For NNRTI-DRMs, M184V positively correlated with V106A(phi = 0.11,p = 0.029), E138Q(phi= 0.27,p= 0.0008) and G190A(phi= 0.13,p=0.001) for first-line ART patients; K103N(phi = 0.22, p<0.0001) and G190A (phi= 0.18, p<0.0001) for second-line ART patients. Following these covariations, potentially active antiretrovirals to combine with islatravir were TDF (partial efficacy) and Doravirine (fully active).

**Conclusions:** Overall, high rate of resistance to nucleos(t)ide and non-nucleoside reverse-transcriptase inhibitors has been observed in people failing first and second-line ART in Cameroon. According to our data, Islatravir can serve as an additional therapeutic weapon, particularly if combined with TDF and/or Doravirine(better if with an integrase inhibitor), in rescuing regimens after first- or second-line ART failure in LMICs sharing similar programmatic challenges like Cameroon.



4

## Transition to 3-Test HIV Testing Algorithm Saves 371 Individuals from Potential Misdiagnosis: Lessons from Malawi's HIV Testing Program

**Chimpandule Chirwa T**, Namachapa K, Goeke L  
<sup>1</sup>Directorate of HIV, STI and Viral Hepatitis, Lilongwe, Malawi,  
<sup>2</sup>International Training and Education Center for Health,  
Lilongwe, Malawi, <sup>3</sup>Quantitative Engineering Design (QED.ai),  
Sheridan, USA

**Background:** Following WHO recommendations, Malawi revised its guidelines in 2023 and became the first country to adopt and transition to a new HIV 3- test diagnostic algorithm to reduce the risk of false positive diagnoses, due to declining positivity rates. The national HIV Testing Services (HTS) program in Malawi rolled out three sequential rapid diagnostic tests – Determine HIV1/2, Uni-Gold HIV1/2, and SD Bioline HIV1/2 – and concurrently introduced advanced monitoring & evaluation (M&E) tools to capture essential protocol decisions and HTS outcomes. These paper registers are scannable with ScanForm technology, which uses artificial intelligence to automatically transcribe handwriting into digital data with a smartphone picture.

**Description:** The ongoing transition from the 2- test HIV testing algorithm in Malawi is coordinated by the Ministry of Health as a phased nationwide initiative which started in November 2022. As of January 23, 2024, the program successfully activated 545 facilities across all 28 districts, representing 78% of access points. National quarterly supervision and ScanForm's daily automated data quality assessment reports are pivotal in ensuring data accuracy, 3-test algorithm concordance and driving continuous quality improvement at each site.

**Lessons Learnt:** Data from November 1, 2022 to January 23, 2024 shows that 3,082,406 HTS records have been collected. Of the total tested, the 3-test algorithm concordance rate was 99.96% (2,605,324 / 2,606,280). Of these, 371 individuals (239 females and 132 males) received inconclusive results after test 3, with initial reactive test 1 and test 2 tests. Under the previous 2-test algorithm, these individuals would have likely been

misdiagnosed as HIV positive and started on antiretroviral therapy immediately. An additional 448 individuals (281 females and 167 males) were diagnosed as HIV negative, instead of requiring retesting after two weeks under the previous 2- test algorithm.

**Conclusions:** With declining HIV positivity rates globally, adopting the WHO-recommended 3-test algorithm is crucial for reducing misdiagnoses. Malawi's experience demonstrates that through effective provider training and robust M&E tools such as ScanForm, accurate implementation of this algorithm can be achieved swiftly. The full transition is expected by June 2024 with ongoing site support to ensure sustained success.



5

## Dynamic Interplay of High-Risk Human Papillomavirus in Women Living with HIV: Persistence, Clearance, Incidence and Synergies with Human T-lymphotropic Virus-1 Infections

Kangethe J<sup>3</sup>, Gichuhi S, Odari E, Pintye J, Mureithi M

<sup>1</sup>University Of Nairobi, Department of Medical Microbiology and Immunology, , Kenya, <sup>2</sup>Consortium for Advanced Research Training in Africa, , Kenya, <sup>3</sup>Kenyatta National Hospital, Comprehensive Care Center for HIV, , Kenya, <sup>4</sup>University of Nairobi, Department of Ophthalmology, , Kenya, <sup>5</sup>Jomo Kenyatta University of Agriculture and Technology, , Kenya, <sup>6</sup>University of Washington, Department of Biobehavioral Nursing and Health Informatics, USA

**Background:** Cervical cancer (CC) is a major global health threat, especially in low- and middle-income countries like Kenya. Women living with HIV (WLHIV) are more susceptible to high-risk HPV (HR-HPV) infections, increasing their risk of cervical cancer and co-infections like HTLV-1. Our study at Kenyatta National Hospital (KNH) explored HR-HPV persistence, clearance, and incidence, examining their interaction with HTLV-1 in WLHIV on antiretroviral therapy (ART).

**Materials and Methods:** We conducted a prospective cohort study with 152 WLHIV, including 17 with HTLV-1 co-infections at KNH. After 12 months, cervical samples were retested for HR-HPV using Gene Xpert® and HPV Genotypes 14 Real-TM Quant. Data were analyzed using SPSS 23.0, presenting outcomes as proportions, stratified by HR-HPV genotypes and synergy with HTLV-1. Descriptive comparisons and statistical tests assessed associations, with odds ratios reported for risk estimation.

**Results:** This prospective cohort study included 152 WLHIV who had initial HR-HPV infections, among whom 17 were co-infected with HTLV-1 and provided consent. Participants had a mean age of 41.3 years (SD 8.7) and 29.6% had predictable virological failure (HIV 1 RNA  $\geq$ 1000 copies/mL of plasma or higher). The study revealed an overall HR-HPV persistence rate of 89.5%, with a clearance rate of 10.5%. Notably,

HR-HPV 52 exhibited the highest persistence rate at 29.6%, followed by type 16 (22.4%) and 18 (19.1%) respectively. Statistical analysis demonstrated a significant association between age and HR-HPV persistence, with rates of 86.8% and 13.2% for older and younger individuals, respectively ( $p < 0.001$ ). HIV diagnosis at an older age ( $\geq 35$  years) and a shorter duration of ART ( $< 5$  years) use were associated with HR-HPV persistence, with rates of 60.3% versus 39.7% ( $p = 0.002$ ) and 64.7% versus 35.3% ( $p = 0.004$ ), respectively. Furthermore, co-infection with HTLV-1 was associated with a 100% HR-HPV persistence rate, compared to an 88.8% rate among participants with HR-HPV infections only.

**Conclusions:** The study revealed a significant 89.5% HR-HPV persistence rate among WLHIV, with HR-HPV 52, 16, and 18 showing elevated persistence. These findings underscore the importance of implementing the 9-valent HPV vaccine in Kenya, particularly for WLHIV. In the presence of HTLV-1, HR-HPV persistence is increased.



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## Molecular Epidemiology of Human Papillomavirus Circulating in African Countries: Adequacies with Hiv-Infection and Oncogenesis, Systematic Review and Meta-Analysis

**Moko Fotso L**<sup>1,2</sup>, Tommo Tchouaket M<sup>1,5</sup>, Ka'e A<sup>1,6</sup>, Ngoufack Jagni Semengue E<sup>1,6</sup>, Nka A<sup>1,6</sup>, Sosso S<sup>1</sup>, Simo R<sup>1</sup>, Yagai B<sup>1,6</sup>, Chenwi C<sup>1,6</sup>, Abba A<sup>1</sup>, Fainguem N<sup>1,6</sup>, MBA H<sup>1</sup>, Forgewin L<sup>1,5</sup>, Mekel V<sup>1</sup>, Gouissi D<sup>1,2</sup>, Tambe Ayuk Ngwese D<sup>1,2</sup>, Nayang Mundo A<sup>1</sup>, Etame N<sup>1,2</sup>, Kengni A<sup>1,6</sup>, Molimbou E<sup>1,6</sup>, Tuegem P<sup>1,3</sup>, Mayoudom Ngatcheussi C<sup>2</sup>, Kenfack D<sup>1</sup>, Sando Z<sup>2,8</sup>, Dieudonné A<sup>2,7</sup>, Charpentier C<sup>9</sup>, Ferrée V<sup>9</sup>, Perno C<sup>1,6</sup>, Colizzi V<sup>1,6</sup>, Fokam J<sup>1,2,3,4,5</sup>

<sup>1</sup>Chantal Biya International Reference Centre, Yaounde, Cameroon, <sup>2</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, NGOA-EKELE/YAOUNDE, CAMEROON, <sup>3</sup>Faculty of Health Sciences, University of Buea, Buea, CAMEROON, <sup>4</sup>National Public health emergency operations coordination centre, Ministry of Public Health, Yaoundé, Cameroon, Yaoundé, Cameroon, <sup>5</sup>Catholic University of Central Africa, Cameroon, Yaoundé, Cameroon, <sup>6</sup>University of TOR VERGATA, Rome, Italy, <sup>7</sup>Faculty of Medicine and Pharmaceutical Sciences, University of Douala, Douala, Cameroon, <sup>8</sup>Yaoundé Gynaeco-Obstetric and Paediatric Hospital, Cameroon, Yaoundé, Cameroon, <sup>9</sup>Bichat-Claude Bernard Hospital in Paris, France, Paris, France

**Background:** Africa is continent most affected by human papillomavirus (HPV) that remains the leading cause of cancer in infected individuals. Thus, updating the burden of HPV and its correlates with cervical cancer (CC) would shape interventions in Africa. Our study objective was to determine HPV epidemiology, circulating genotypes, and factors associated with HPV-infection and risk of CC from African countries.

**Materials and Methods:** A systematic review and meta-analysis of studies was conducted from January 2013 to December 2023 in Africa on high risk (HR)-HPV, lesion grading, and determinants, as per diagnostic methods used. Following the search strategy, R software version 3.6.0 was used for the meta-analysis, with  $p < 0.05$  considered statistically significant.

**Results:** A total of 38 studies in Africa were included, including 24,417 participants (average

age 37 years). The overall prevalence of HR-HPV was 42.01% in the general population, with specifically 49.8% in HIV-positive versus 21.2% in HIV-negative populations. Among HIV-positive persons, 14 HR-HPV genotypes were identified, driven by types 16 (31.58%), 18 (26.32%), 31 (26.32%) and 33 (23.69%). Among HPV-negative persons, 12 HR-HPV types were identified, driven by types 16 (13.16%), 33 (15.79%), 35 (10.53%) and 45 (13.16%). Regarding risks of CC, high grade squamous intra-epithelial lesions (HSIL) was 37.5% (9/24) in HIV-positive vs. 12.5% (3/24) in HIV-negative women, OR=3.800 [0.872-16.553],  $p=0.096$ .

Of the 38 studies, most used HPV genotyping methods were Roche Linear Array® HPV (31.07%), multiplex PCR (23.7%), Hybrid Capture II (10.5%), AnyplexII28 (5.3%). Several sample types were used, with predominantly 57.89% (22/38) cervical samples, 23.7% (9/38) biopsies, 7.89% (3/38) oropharyngeal and anal samples, 7.89% (3/38) vaginal samples and 2.63% (1/38) blood samples.

**Conclusions:** In the African continent, the burden of HR-HPV is very high, especially in case of HIV-infection, hence confirming HIV-induced vulnerability to HPV acquisition. There is a wide circulation of diverse HR-HPV types in Africa over the last ten years. This broad genotypic diversity of HPV calls for standard molecular epidemiology surveys to select the diagnostic efficient diagnostic methods, to optimise clinical management and to tailor HPV vaccination policies according to locally prevailing types.





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## Sexualité Chez Les Adolescents Infectés AU VIH Suivis AU Sein Des Cohortes de Deux Hôpitaux Universitaires AU Sud du Bénin

Zohoun L<sup>1</sup>, Padonou C<sup>2</sup>, Bagnan L<sup>1</sup>, Bognon G<sup>2</sup>, Alihonou F<sup>1</sup>, Yakoubou A<sup>3</sup>, Assogba M<sup>1</sup>, Zannou F<sup>1</sup>  
<sup>1</sup>CNHU-HKM, COTONOU, Benin, <sup>2</sup>CHUDOP, Porto-Novo, Bénin, <sup>3</sup>CHUMEL-Lagune, Cotonou, Bénin

**Contexte :** L'amélioration de la survie grâce aux antirétroviraux a permis l'éclosion de nouvelles problématiques chez les adolescents infectés, au nombre desquelles la sexualité. L'objectif de travail était d'étudier la sexualité chez les adolescents suivis au CNHU-HKM et au CHUDOP.

**Matériels et Méthodes :** Une étude transversale et analytique, avait eu lieu du 1er juin au 1er août 2023. Etaient inclus les adolescents de 12 à 19 ans, consentants, et dont les parents ou tuteurs l'étaient aussi. L'échantillonnage était de commodité. Un entretien confidentiel en mode face à face a été mené par un médecin et un psychologue, tous impliqués dans la prise en charge des adolescents. Les variables recueillies concernaient leurs sources d'informations sur la sexualité, leurs comportements sexuels, leurs connaissances en matière de transmission et prévention du VIH, leurs données thérapeutiques. L'analyse des données était faite avec le logiciel R version 4.1.2. Une régression logistique avait permis d'identifier les facteurs associés à un comportement sexuel à risque. Le seuil de significativité retenu était de 5%.

**Résultats :** Au total 157 adolescents étaient inclus, dont 82 hommes, 75 femmes, avec un âge médian de 16 ans. Une activité sexuelle était retrouvée chez 27 adolescents (17,2%). Parmi ces derniers, 22 étaient en échec virologique. Les sources d'information sur la sexualité étaient les enseignants (36,3%), les pairs (28%), les médecins (14%). L'âge médian du premier rapport sexuel était de 17 ans IQ [15-18 ans]. Il s'agissait de rapports sexuels consentis, hétérosexuels dans 100% des cas. Les comportements à risque étaient l'absence d'usage de préservatifs (51,9%) et l'existence de partenaires multiples (33,3%). Les facteurs liés au comportement à risque étaient la

tranche d'âge de 15-19 ans ( $p < 0,001$ ), les pères ayant une instruction de niveau supérieur ( $p = 0,02$ ), l'annonce du statut ( $p < 0,001$ ), la méconnaissance des modes de transmission et de prévention ( $p = 0,006$ ).

**Conclusions :** Un programme d'éducation sexuelle bien structuré s'avère nécessaire sur les deux sites pour cette tranche d'âge. Les groupes de parole doivent être renforcés, et les thématiques abordées lors des séances avec les parents devront mettre l'accent sur le rôle qui leur incombe pour une sexualité responsable chez ces adolescents.



8

## Comparaison du Profil de Résistance dans l'ARN Viral et l'ADN Proviral chez les Adolescents sous Traitement Antirétroviral avec Virémie Détectable au Cameroun

Djiyou Djeuda A<sup>1,2</sup>, Penda C<sup>3,4</sup>, Madec Y<sup>5</sup>, Ngondi G<sup>6</sup>, Moukoko A<sup>6</sup>, Eboumbou Moukoko C<sup>7</sup>, Aghokeng A<sup>2</sup>

<sup>1</sup>Laboratoire de Parasitologie, Mycologie et Virologie, Unité de Formation Doctorale des Sciences de la Santé, Ecole Doctorale Des Sciences Fondamentales Et Appliquées, Université de Douala, Douala, Cameroon, <sup>2</sup>MIVEGEC, Université de Montpellier, CNRS, IRD, Montpellier, France, <sup>3</sup>Département des Sciences Cliniques, Faculté de Médecine et des Sciences Pharmaceutiques Université de Douala, Douala, Cameroun, <sup>4</sup>Hôpital Général de Douala, Douala, Cameroun, <sup>5</sup>Institut Pasteur, Université de Paris, Epidemiology of emerging diseases, F-75015, Paris, France, <sup>6</sup>Hôpital Laquintinie de Douala, Douala, Cameroun, <sup>7</sup>Centre Pasteur du Cameroun, , Cameroun

**Contexte :** La recherche des mutations de résistance dans l'ADN proviral est une méthode alternative pour le génotypage de la résistance, mais son utilisation en routine reste limitée. Cette étude avait pour objectif de comparer le profil de résistance dans l'ADN proviral et l'ARN viral chez les adolescents sous traitement antirétroviral (TARV) avec une charge virale (CV) détectable, qu'elle soit supprimée ou non.

**Matériels et Méthodes :** A partir d'une cohorte de 280 adolescents (10-19 ans) recevant un TARV depuis au moins 6 mois et suivis à l'Hôpital Laquintinie de Douala au Cameroun, nous avons inclus 99 paires d'échantillons de buffy-coat et de

plasmas issus de participants avec une CV  $\geq 200$  copies/ml. Le génotypage de la résistance dans l'ARN viral et l'ADN proviral a été réalisé en utilisant une procédure "maison" qui cible les gènes de la transcriptase inverse, de la protéase et de l'intégrase. Le programme HIValg de l'algorithme de Stanford a été utilisé pour l'identification des mutations de résistance.

**Résultats :** Sur les 97 séquences d'ARN et ADN appariées obtenues, le profil de résistance était identique chez 56,7% des participants, tandis que 29,8% présentaient des mutations trouvées uniquement dans l'ARN viral et 13,4% uniquement dans l'ADN. Par ailleurs, dans les deux groupes, une proportion plus élevée de mutations de résistance a été trouvée chez les participants dont la CV était comprise entre 200 et 999 copies/ml (86,7% dans l'ADN et 85,2% dans l'ARN), pourtant considérés en "succès" thérapeutique. De plus, un nombre significatif de participants avaient une résistance croisée aux INNTI de nouvelle génération, la Rilpivirine (41,4%) et la Doravirine (45,9%), bien qu'ils ne soient pas encore disponibles dans notre contexte. Dans les deux compartiments, le Dolutégravir a maintenu son efficacité.

**Conclusions :** Le génotypage de la résistance dans l'ARN viral est plus sensible pour la détection des mutations de résistance chez les patients virémiques. Cependant, le fait que plus de la moitié (56,7%) des mutations ait également été détectées simultanément dans l'ADN proviral, et que jusqu'à 13,4% des mutations étaient présentes uniquement dans ce compartiment démontre sa capacité à fournir des informations complémentaires utiles pour l'optimisation du TARV.



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## Successful Integration of Recent HIV Infection Surveillance in Routine HIV Testing Services to Identify Risk Factors Among Newly Diagnosed HIV Individuals Aged 15 Years and Above in North-Eastern Uganda, 2020-2023

SSENTONGO S, Bakashaba B<sup>1</sup>, Olweny D<sup>1</sup>, Muzaaya G<sup>1</sup>, Oryokot B<sup>1</sup>, Opito R<sup>1</sup>, Sematta B<sup>1</sup>, Kazibwe A<sup>1</sup>, Miya Y<sup>1</sup>, Mugisha K<sup>1</sup>

<sup>1</sup>The AIDS Support Organization, Kampala, Uganda

**Background:** Despite Uganda making significant progress in reducing HIV incidence per 1000 population from 3.25% in 2010 to 1.38% in 2019, still more than 53,000 new HIV infections occurred in 2019. In this study, we integrated HIV recency testing in routine HIV testing services (HTS) to identify risk factors for recent infection among newly diagnosed HIV individuals aged 15 years and above in Northeastern Uganda.

**Materials and Methods:** From May 2020 to July 2023, HIV recency testing among newly diagnosed HIV-positive individuals aged 15 years and above was integrated into routine HIV HTS at 23 Health facilities in 14 districts of Northeastern Uganda. Newly diagnosed HIV-positive individuals were counseled on HIV recent testing and those that consented had a sample drawn and tested for HIV recent infection using Asante Rapid Tests for Recent Infection (RTRI). The clients who consented to recency provided an extra blood sample that was analyzed centrally. Clients with recent RTRI results and unsuppressed viral load results (>1000 copies/ml) were classified as recent infections as per the RTRI testing algorithm. Data was collected from electronic medical records and cross-checked with the HTS registers for completion and accuracy. Logistic regression was used to identify the association between recent infection and sociodemographic variables.

**Results:** A total of 1,098 persons were offered recency testing. Of these, 12.84%(n=141) had

recent infection, of which 66.7% (n=94) were female and 61.7%(n=87) were identified individuals tested by Health workers from low-level facilities. The Odds of having an HIV recent infection were higher among those aged 20-29 [Odds ratio (OR); 1.46, 95% confidence interval (CI):1.00-2.14, P=0.047], Never married/being single [OR: 1.42, 95% CI:0.89-2.26, P=0.137], conducting the recency test within the community rather than at the facility [OR 1.43, 95%CI:1.00-2.04, P=0.04], using health worker-initiated testing and counseling [OR; 1.07, 95% CI: 0.65-1.76, P=0.78].

**Conclusions:** Conducting recency testing within the community, being young aged 20-29, and never married/single was associated with a higher risk of having a recent HIV infection. Therefore, using patient-centered approaches such as community testing approaches while scaling up HIV prevention interventions among these high-risk populations can prevent new infections to achieve epidemic control.



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## Pharmacokinetic Interaction Assessment of the HIV Broadly Neutralizing Monoclonal Antibody VRC07-523LS: A Cross-Protocol Analysis of Three Phase 1 HIV Prevention Trials HVTN127/HPTN087, HVTN130/HPTN089 and HVTN136/HPTN092

Mutingwende T<sup>1</sup>, Walsh S<sup>2</sup>, Stranix-Chibanda L<sup>1,3</sup>, Chirenje Z<sup>1,4</sup>, Yu C<sup>5</sup>, Zhang L<sup>5</sup>, Seaton K<sup>6</sup>, Paez C<sup>5</sup>, Gamble T<sup>7</sup>, Sobieszczyk M<sup>8</sup>, Edupuganti S<sup>9</sup>, Gay C<sup>10</sup>, Mannheimer S<sup>8</sup>, Hurt C<sup>10</sup>, Stephenson K<sup>2</sup>, Polakowski L<sup>11</sup>, Regenold S<sup>11</sup>, Yacovone M<sup>11</sup>, Yen C<sup>11</sup>, Gama L<sup>12</sup>, Barouch D<sup>2</sup>, Koup R<sup>12</sup>, Tomaras G<sup>6</sup>, Hyrien O<sup>5</sup>, Roxby A<sup>5</sup>, Huang Y<sup>5,13</sup>

<sup>1</sup>University of Zimbabwe Clinical Trials Research Centre (UZ-CTRC), Harare, Zimbabwe, <sup>2</sup>Harvard Medical School, Boston, United States, <sup>3</sup>Faculty of Medicine and Health Sciences, University of Zimbabwe, Harare, Zimbabwe, <sup>4</sup>Bixby Centre for Global Reproductive Health, University of California San Francisco, California, United States, <sup>5</sup>Vaccine and Infectious Diseases Division, Fred Hutchinson Cancer Centre, Seattle, United States, <sup>6</sup>Duke University, Durham, NC, United States, <sup>7</sup>FHI 360, Durham, NC, United States, <sup>8</sup>Columbia University, New York, United States, <sup>9</sup>Emory University School of Medicine, Atlanta, United States, <sup>10</sup>Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill, North Carolina, United States, <sup>11</sup>Division of AIDS, National Institute of Allergy and Infectious Diseases, Bethesda, United States, <sup>12</sup>Vaccine Research Centre, National Institute of Allergy and Infectious Diseases, Bethesda, United States, <sup>13</sup>University of Washington, Department of Global Health, United States

**Background:** VRC07-523LS is a safe, well-tolerated broadly neutralizing monoclonal antibody (mAb) developed for HIV prevention. Within individual trials, pharmacokinetic (PK) features of VRC07-523LS were not significantly different when administered alone or in combination with other mAbs. We combined data from three trials to increase the power to evaluate PK interactions and hypothesized that overall concentrations of VRC07-523LS would be similar when administered combined or alone.

**Materials and Methods:** This retrospective cross-protocol analysis assessed three phase 1, randomized, multicenter trials of participants without HIV aged 18–50 years in the United States

and Switzerland. We included participants receiving intravenous or subcutaneous VRC07-523LS alone (HVTN127/HPTN087, n=100), combined with PGT121, PGDM1400 or 10-1074 (HVTN130/HPTN089, n=26), or combined with PGT121.414.LS (HVTN136/HPTN092, n=20). An open, two-compartment population PK model was used to describe serum concentrations of VRC07-523LS. We compared PK parameters estimated using the targeted maximum likelihood estimation method to account for potential differences in participants' characteristics between groups (combination versus single), including age, sex-at-birth, body weight and creatinine clearance.

**Results:** Median age was both 28 years for the combination and single groups, with 52% and 61% reporting female sex-at-birth, median body weight of 71kg and 76kg, and median creatinine clearance of 120mL/min and 122mL/min, respectively. No significant differences in VRC07-523LS clearance rate, inter-compartmental clearance, distribution half-life or area under the concentration curve were observed between combination and single groups. However, the mean covariate-adjusted central volume of distribution (V<sub>c</sub>) was 1.25 times larger (4.66L vs. 3.74L, Holm-adjusted-p<0.001), peripheral volume of distribution (V<sub>p</sub>) was 1.11 times higher (3.89L vs. 3.51L, Holm-adjusted-p=0.005), and elimination half-life was 1.11 times longer (53 days vs. 48 days, Holm-adjusted-p=0.002) for combination versus single administration.

**Conclusions:** Biodistribution of VRC07-523LS differed when administered combined with other mAbs versus alone, but overall concentration-over-time was not impacted, possibly reflecting more accessible physiology space during distribution and competition against common metabolism pathways during elimination when VRC07-523LS is co-administered with other mAbs. This is important for planning future trials of VRC07-523LS with new mAb formulations. Although the three trials were conducted outside Africa, knowledge learned can be applied to planning HIV mAb trials in Africa.



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## Harnessing Technology and Counsellors' Insights to Promote HIV Prevention: The 'Undetectable & You (U)' App in Disseminating U = U Information in South Africa

Kgowedi S<sup>1</sup>, Sineke T<sup>1,3</sup>, Bor J<sup>1,2</sup>, Chetty-Makkan C<sup>1</sup>, Dukashe M<sup>4,5</sup>, Bokolo S<sup>1</sup>, Onoya D<sup>1</sup>

<sup>1</sup>Health Economics And Epidemiology Research Office, Johannesburg, South Africa, <sup>2</sup>Department of Global Health, Boston University School of Public Health, Boston, United States of America, <sup>3</sup>Faculty of Psychology and Neuroscience, Maastricht University, Maastricht, Netherlands, <sup>4</sup>South African National AIDS Council, South Africa, Pretoria, South Africa, <sup>5</sup>Faculty of Health, Medicine & Life Sciences of Maastricht University, the Netherlands, Maastricht, Netherlands

**Background:** The science of Undetectable equals Untransmittable (U=U) has not been widely disseminated in South Africa. We developed "Undetectable & You (U)" App to support HIV counsellors in delivering accurate scientific information on U=U. We sought to determine the acceptability and feasibility of implementing the Undetectable & You during counselling sessions in public primary healthcare clinics (PHCs) in Johannesburg.

**Materials and Methods:** The two Focus group discussions (FGDs) were conducted in October 2023 with 41 active counsellors employed by non-profit organisation supporting the HIV program at PHCs in Johannesburg. The Undetectable & You App and its content were pre-screened in a group setting. FGDs were audio-recorded, transcribed verbatim, translated to English, and analysed thematically.

**Results:** The "Undetectable & You (U)" App was considered a valuable counselling tool for informing patients on the value of viral load (VL) suppression, particularly due to video testimonials from South African persons living with HIV (PLHIV). Counsellors emphasized the App's potential to reduce the time they spend counselling the patients, suggesting that playing the videos in waiting rooms could also encourage more individuals to undergo HIV testing. Other counsellors shared uncertainties of integrating the app in counselling in a time-efficient manner. They

were concerned that some patients believed that taking pills automatically led to achieving U=U within 6 months. This highlights the need to drive the demand for viral load test to confirm VL suppression status emphasising complete adherence between tests. While the App messaging was deemed beneficial for HIV-negative patients, counsellors recommended improvements, such as further contextualising videos, ensuring data-free access to App contents and modelling PLHIV progression from diagnosis to U=U stage and further diversify the App languages to cater to different audiences.

**Conclusions:** The "Undetectable & You (U)" App, designed for HIV counsellors, garnered positive feedback from the lay counsellors, emphasizing the pivotal role of ART in HIV prevention. Addressing misconceptions and reinforcing the process of achieving U=U were identified areas for intervention refinement. Counsellor insights are invaluable for shaping a culturally sensitive and effective approach to normalize relations, reduce stigma, and boost HIV treatment demand in South Africa.



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## Acceptability of Pharmacy-Based Pre-Exposure Prophylaxis (PrEP) Refills for People Who Sell Sex in Zimbabwe

Munhenzva S<sup>1</sup>, Masiyambiri F<sup>1</sup>, Archer H<sup>2</sup>, Watadzaushe C<sup>1</sup>, Chidhanguro K<sup>1</sup>, Ruhode N<sup>1</sup>, Madanhire C<sup>1</sup>, Packel L<sup>2</sup>, Cowan F<sup>1,3</sup>, McCoy S<sup>2</sup>, Sibanda E<sup>1,3</sup>

<sup>1</sup>Centre For Sexual Health And HIV/AIDS Research Zimbabwe, Harare, Zimbabwe, <sup>2</sup>University of California, Berkeley School of Public Health, California, United States of America, <sup>3</sup>Liverpool School of Tropical Medicine, Liverpool, United Kingdom

**Background:** Pre-exposure prophylaxis (PrEP) has potential to decrease the HIV burden among sex-workers (SW). However, PrEP continuation among SW initiated on PrEP is low, an issue that could be partially mitigated with community-based PrEP refills from pharmacies. We report on the acceptability of a pharmacy-based PrEP refill program nested within Zimbabwe's existing Key Populations (KP) program (formerly Sisters) for PrEP initiation in Harare, Zimbabwe.

**Materials and Methods:** Participants were purposively selected between June-July 2023. In-depth interviews were conducted with SW, pharmacists, and key informants from various health departments, namely, Harare City Health, Ministry of Health, National AIDS Council and CeSHHAR to determine their perspectives on pharmacy-based PrEP refills. SW were selected to ensure diversity in gender, age, and participation levels in the KP program. Thematic analyses were conducted.

**Results:** Overall, 20 SW, aged 16-23 years were interviewed (16 female, 3 transgender females and 1 male). Six pharmacists and 4 key informants were also interviewed. All SW viewed the use of pharmacies for PrEP refills positively, with most SW expressing willingness to collect PrEP from this venue which was viewed as convenient. Most (n=18, 90%) SW perceived pharmacy staff as friendly. Pharmacies were also viewed as acceptable places for accessing new PrEP technologies such as injectables; and conducting HIV self-tests for PrEP refills. Potential barriers raised by SW included possible lack of

confidentiality of pharmacy staff and fear of being judged by pharmacists compared to the KP program staff, who were viewed as creating a safe and comfortable environment. Two (10%) SW perceived pharmacists would provide inadequate health information, and 'felt inferior to pharmacy staff' making it difficult to seek clarification. Pharmacists were highly supportive of the intervention: they acknowledged that SW are part of their clientele and said they would uphold confidentiality as part of their professional responsibility. Key informants viewed pharmacy-based PrEP refills as practical and achievable with potential to increase access options for SW.

**Conclusions:** SWs, pharmacists, and key informants found pharmacy-based PrEP refills acceptable and potentially feasible if confidentiality is prioritised. A multi-disciplinary team is co-developing a tailored, safe, and acceptable pharmacy-based PrEP intervention for Zimbabwean sex work populations.



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## Exploring Pregnant Women's Experiences with Vaginal Ring Insertion during the Mtn-042/Deliver Study at Mujhu Care Limited Kampala, Uganda

**Nansimbe J<sup>1</sup>**, Mirembe B<sup>1</sup>, Ssemambo P<sup>1</sup>, Ssekasi A<sup>1</sup>, Byogero R<sup>1</sup>, Nalwoga J<sup>1</sup>, Nakabiito C<sup>1</sup>

<sup>1</sup>Makerere University Johns Hopkins University Research Collaboration, Kampala, Uganda

**Background:** Involving pregnant women in HIV prevention trials is key to ensuring that they benefit from efficacious products. MTN-042/DELIVER was a Phase 3b, open-label, multi-site, randomized safety study, and the first of its kind to enroll HIV-negative pregnant women into a prevention trial using daily oral Truvada® and the monthly dapivirine vaginal ring (ring). There is limited data on pregnant women's experiences with ring insertion, which we explored among the participants.

**Materials and Methods:** Participants were randomized to either ring or Truvada in varying ratios into three successive cohorts (based on gestational age). These were Cohorts 1, 2 and 3 at 36-37, 30-35 and 12-29 weeks respectively. Ring self-insertion was required at enrolment and every four weeks until delivery. Pre-insertion counseling and supervised ring placement assessment were done. Enrollment data were collected to include counseling sessions, insertion tactics and ring self-insertion scores which were based on the question, How easy or difficult is it for you to insert the vaginal ring? The responses were divided into four categories; Very difficult: 3+ attempts and/or pain, severe discomfort, Difficult: 2 attempts and/or moderate discomfort, Easy: 1 attempt with some ring repositioning and/or mild discomfort, Very easy: Smooth insertion and positioning in one attempt with no discomfort. Additional data collected was about assistance during insertion, encountered challenges and ring expulsion during use.

**Results:** Out of 154 participants, 73% were randomized to the ring. At enrolment, all participants attempted self-insertion. Only one participant required additional counselling. The squatting position was uniformly favored. Across

all the cohorts, 95% of participants had easy/very easy ring self-insertion. 5% had difficult ring self-insertion, with some variations across cohorts. Challenges included difficulty in folding, gripping, inserting the ring far enough, requiring multiple attempts and reluctance to insert it. No expulsions during ring use were reported.

**Conclusions:** Most pregnant women managed to insert the Ring themselves. However, Cohort 1 participants required more help with ring insertion compared to others. This suggests that it may be beneficial to encourage pregnant women to start using this HIV prevention method early in pregnancy, to minimize potential initial insertion challenges in late pregnancy.





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## Integrating PrEP Delivery in Public Family Planning Clinics Increases PrEP Screening and Uptake: Results from a Large Stepped-wedge, Cluster-randomized Trial in Kenya

Mugwanya K<sup>2</sup>, **Matemo D**<sup>1</sup>, Meisner A<sup>2</sup>, Wandera C<sup>1</sup>, Schaafsma T<sup>2</sup>, Lee A<sup>2</sup>, Morton J<sup>2</sup>, Beima-Sofie K<sup>2</sup>, Weiner B<sup>2</sup>, Kinuthia J<sup>1</sup>

<sup>1</sup>Kenyatta National Hospital, Nairobi, Kenya, <sup>2</sup>University of Washington, Seattle, United State of America

**Background:** Young African women account for a disproportionate number of new HIV infections and are a priority population for pre-exposure prophylaxis (PrEP).

**Materials and Methods:** Between March 2021 and December 2023 in collaboration with Kisumu County Department of Health (KCDOH), we conducted a stepped-wedge, cluster-randomized trial to integrate systematic screening for HIV risk and oral PrEP provision at 12 family planning (FP) clinics in Kisumu, Kenya (ClinicalTrials.gov: NCT04666792). The intervention included facility-based health provider training, technical assistance to coach and mentor providers, and joint supervision with KCDOH to audit and provide feedback. PrEP provision and follow-up was conducted by existing FP staff. Women could be screened both before and during intervention but were counted only once towards PrEP initiation. We compared outcomes during pre-intervention vs intervention periods using modified Poisson generalized estimating equations models, adjusted for time effects and clustering by clinic.

**Results:** Overall, 25,456 women without HIV were seen, with 7,058 encounters pre-intervention and 19,240 during the intervention. Median age was 27 (IQR 23–31) years. Women were using injectable (42%), implant (23%), and oral pills (25%) for contraception. The number and proportion of women screened for PrEP substantially increased from 212 (3%) in 7,386 women-encounters pre-intervention to 19,561 (92%) from 21,343 women-encounters during the intervention period (RR: 20.5, 95%CI 3.5–120;  $p < 0.001$ ). PrEP initiation among women eligible for

PrEP substantially improved from 3% (4/119) pre-intervention to 41% (983/2,426) during intervention (RR: 52.8, 95%CI 2.9–967;  $p = 0.008$ ). PrEP initiations continued in the maintenance period (12 months after intensive TA stopped), resulting in 1,415 total PrEP initiations. Overall, 43% refilled at least once and the mean proportion of days covered by PrEP was 53% through 3 months and 36% through 6 months post-initiation. Thematic analysis of TA reports identified provider attitude, workload, frequent staff transfers, and requirement to complete multiple data registers as important facility barriers to integration. Health talks and using HIV testing counsellors to conduct risk assessment emerged as facilitators.

**Conclusions:** We observed high PrEP screening and uptake and reasonable coverage. Integration of PrEP services within African FP clinics is feasible and has tremendous potential to improve PrEP access for African women.



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## Digital Dating: the ‘Gamification’ of Sexual Relationships in Adolescent Girls and Young Women (AGYW) in South Africa, and Implications for HIV Prevention

Wallace M<sup>1</sup>, Atujuna M<sup>1</sup>, Ngcuka A<sup>1</sup>, Mangxilana N<sup>1</sup>, Nkomana N<sup>1</sup>, Saha P<sup>2</sup>, Ondeng’o K<sup>3</sup>, Panda S<sup>4</sup>, Wangüi Machira Y<sup>3</sup>, Mukherjee J<sup>2</sup>, ul Hadi S<sup>2</sup>, Bekker L<sup>1</sup>

<sup>1</sup>Desmond Tutu Health Foundation, Cape Town, South Africa,

<sup>2</sup>IAVI India, Delhi, India, <sup>3</sup>IAVI Kenya, Nairobi, Kenya, <sup>4</sup>Y R Gaitonde Centre for AIDS Research and Education, India

**Background:** Current adolescent engagement with mobile and internet technologies is unprecedented, peaking in 15- to 24-year-olds. Consequently, adolescents are increasingly using digital platforms for health purposes, and to seek sexual partners and relationships. For Adolescent Girls and Young Women (AGYW) already at elevated HIV risk, this poses both opportunities for intervention, and further potential sexual health risks. Gaining an understanding of their use of digital spaces and risk behaviours is thus essential.

**Material and Methods:** We conducted 8 qualitative in-depth interviews and 4 focus group discussions with AGYW 15 to 24 years, in a high HIV prevalence district in Cape Town. We explored AGYW motivations, access and use of digital networking spaces, and risk behaviours, to inform user-centred HIV prevention approaches. Data were analysed using structured thematic analysis, based on a conceptual framework developed from current evidence.

**Results:** Analysis highlighted increasing use of digital platforms by AGYW for seeking transactional sexual partners. This process is likened to playing a game, which is perpetuated and amplified by the virtual nature of the online world, thus reducing perceived consequences for the ‘players’, who dismiss associated risks, ultimately increasing their vulnerability. Key themes include 1) ‘Keep swiping’, whereby online platforms provide an endless supply of available partners from a wider geographical and sexual

network, enabling high partner turnover and concurrent partnerships; 2) ‘Playing the game’, whereby sex becomes a commodity to be given only in exchange for money, desired items and experiences; and 3) ‘Picking a winner’, whereby AGYW take on the ‘challenge’ of identifying affluent sexual partners, more able to meet their needs.

**Conclusions:** Evidence suggests that digital platforms employing gamification are preferred by adolescents, enhancing their involvement. This is corroborated by the current findings whereby AGYW have adopted this approach for seeking and engaging sexual partners online. While this behaviour may increase HIV risk, it also suggests potential approaches for digital interventions that adopt gamification strategies including goal setting, challenges, rewards, competition and online social interaction, and could be utilised for adolescent engagement on HIV prevention options, particularly if these are positioned on key social media platforms frequented by AGYW.



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## Health or Income? How Men Living with HIV in Malawi Experience and Navigate Decisions Between Income Generation and ART Refills

Ramesh M<sup>1</sup>, Balakasi K<sup>2</sup>, Hubbard J<sup>3</sup>, Thorp M<sup>3</sup>, Kamtsendero L<sup>2</sup>, Sanena M<sup>2</sup>, Phiri S<sup>2</sup>, Cornell M<sup>4</sup>, Coates T<sup>3</sup>, Holland K<sup>1</sup>, Choko A<sup>2</sup>, Dovel K<sup>2,3</sup>

<sup>1</sup>University of California, Los Angeles David Geffen School of Medicine, Los Angeles, United States, <sup>2</sup>Partners in Hope, Lilongwe, Malawi, <sup>3</sup>University of California, Los Angeles Division of Infectious Diseases, Los Angeles, United States, <sup>4</sup>University of Cape Town, Centre for Infectious Disease Epidemiology, Cape Town, South Africa

**Background:** People living with HIV who live in extreme poverty often face challenging trade-offs between accessing care and meeting economic needs. We explored how accessing HIV care impacts economic security among Malawian men, where over two-thirds of the population live in extreme poverty (<\$1.90/day).

**Materials and Methods:** We conducted a mixed-methods, secondary analysis on data from the IDEAL and ENGAGE trials, which examined the impact of person-centered care interventions on ART initiation and retention among men (ClinicalTrials.gov#NCT04858243; #NCT05137210). Eligibility criteria included: male; ≥15 years; and not engaged in HIV care at enrollment. We conducted baseline and endline surveys (4-6 months after enrollment) on socioeconomic factors and their experiences with the interventions. We also conducted three rounds of in-depth interviews 4-6 months after enrollment with a random sample of participants, stratified by ART initiation and retention outcomes and self-reported client mobility.

**Results:** We conducted 1,309 baseline surveys, 1,206 endline surveys, and 99 in-depth interviews. 1,017 men had complete socioeconomic data. 91% attended ART appointments during the study period. Median age was 39 years (IQR:31-46), 39% (399/1,017) had informal employment reliant on piecework, 55% (559/1,017) lived in extreme poverty, and 59% (596/1,017) had no financial savings. Most men reliant on piecework lost income when they attended ART appointments, since they could not seek or be recruited for work.

Pieceworkers and men without savings who lost income described experiencing food insecurity, with nearly half their families “going hungry” that night. However, most men chose attending ART refills over income generation because HIV treatment was considered critical to sustaining health and earning potential. Participants with formal employment or their own businesses described strategies to remain engaged in HIV care while generating income, such as obtaining permission to pick up refills from supervisors and coordinating staffing replacements. However, these strategies were not options for those participating in piecework.

**Conclusions:** Men living with HIV in Malawi often balanced the desire to prioritize ART refills with their daily needs due to extreme poverty. Interventions offering differentiated service delivery models with multi-month dispensing or shorter facility visits for clients, are urgently needed to minimize economic vulnerability among this population.



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## Transmission du VIH-1 au Bénin: Identification des Chaînes de Transmission et Nécessité de Renforcement des Stratégies de Prévention à L'Atteinte du Premier 95

Tchiakpe E<sup>1,2</sup>, Keke R<sup>1</sup>, Moussa B<sup>3</sup>, Gangbo F<sup>3</sup>, Akadiri Y<sup>4</sup>

<sup>1</sup>Reference Laboratory of Health Program Fighting Against AIDS In Benin (LR/PSLS), Cotonou, Benin, <sup>2</sup>Department of Biochemistry and Cellular Biology, Faculty of Sciences and Technology (FAST) and Institute of Applied Biomedical Sciences (ISBA), University of Abomey-Calavi, Cotonou, Bénin, <sup>3</sup>Health Program Fighting Against AIDS In Benin (PSLS). Health Ministry, Cotonou, Bénin, <sup>4</sup>Laboratory of Cell Biology, Physiology and Immunology, Department of Biochemistry and Cellular Biology, Faculty of Sciences and Technology (FAST) and Institute of Applied Biomedical Sciences (ISBA), Cotonou, Bénin

**Contexte :** Malgré que les groupes clés contribuent à l'augmentation de l'infection par le VIH, la contamination par la voie hétérosexuelle reste l'un des piliers sur lesquels il faut agir en matière de prévention pour réduire la transmission du virus dans la population et de surcroît accélérer l'accès au premier 95. L'objectif de l'étude est de documenter les chaînes de transmission du VIH-1 dans la population générale au Bénin

**Matériels et Méthodes :** Etude transversale a porté sur 353 plasmas issus de patients nouvellement infectés et naïfs de TAR. Les extraits d'ARN obtenus par Qiagen ont été amplifiés par la technique ANRS (Toute la protéase et une partie de la transcriptase inverse) puis séquencés sur l'analyseur génétique 3500 Applied Biosystems. Les séquences ont été alignées sur le Seaview v4.4.1 contre les références circulants en Afrique de l'Ouest et téléchargées sur Los Alamos pour l'attribution des sous types viraux. Les recombinants ont été caractérisés par Simplot 2.6 et par analyse de similarité de 350 à 400 paires de base.

Les chaînes de transmission ont été identifiées en phylogénie par maximum de ressemblance (PhyML) basées sur des valeurs de similarité élevées (100%) avec 1000 rééchantillonnages et des longueurs de branches courtes inférieures à 0,015.

**Résultats :** Deux cent quatre huit amplifiats ont été correctement séquencés sur 288 amplifiés. La médiane d'âge était de 38 ans [IQR: 18-82] avec 64.1% (159/248) de femmes et 35.9% (89/248) d'hommes. Un total de (3,2%, 8/248) chaînes de transmission ont été identifiées parmi lesquelles (87,5%, 7/8) seraient probablement en relation hétérosexuelle et (12,5%; 1/8) en relation homosexuelle. (10, 89%; 27/248) des patients portaient au moins une mutation de résistance de type SDRM. Après le CRF02\_AG (66, 5%; 165/248) qui est la souche prédominante caractérisée, les URFs représentent (15,7%; 39/248) suivi du CRF06\_cpx (7,7%), G (6,5%), A3 (2,4%) des souches identifiées.

**Conclusions :** Il y a la nécessité de dépister le maximum de personnes infectées et de renforcer les stratégies de prévention pour réduire les chaînes de transmission dans la population générale et les groupes clés. Ces derniers à risques élevés peuvent servir de passerelle à la population générale à risques faibles.



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## Impact of Concurrent Initiation of Depo-Provera and TDF-Containing ART on Bone Loss in Young Women in the BONE: CARE Study

Matovu Kiweewa F<sup>1</sup>, Nabwana M<sup>1</sup>, Fowler M<sup>2</sup>, Brown T<sup>2</sup>, Pettifor J<sup>3</sup>, Beksinska M<sup>4</sup>

<sup>1</sup>Makerere University John's Hopkins University (MU-JHU) Research Collaboration, Kampala, Uganda, <sup>2</sup>Johns Hopkins University School of Medicine, Baltimore, USA, <sup>3</sup>SAMRC/Wits Developmental Pathways for Health Research Unit, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, RSA, <sup>4</sup>MRU (MatCH Research Unit), Department of Obstetrics and Gynaecology Faculty of Health Sciences, University of the Witwatersrand, , RSA

**Background:** We previously demonstrated a doubling of bone mineral density (BMD) loss over a two-year period among prevalent users of the three-monthly contraceptive, depot medroxyprogesterone acetate (DMPA) initiating tenofovir disoproxil fumarate (TDF)-ART. It is however not known how timing of initiation of these two agents affects BMD loss. We assessed the combined BMD effects of initiating TDF in new users compared to current users of DMPA.

**Materials and Methods:** We recruited premenopausal women with and without HIV from health facilities around Kampala-Uganda and classified them based on their combination of HIV status, TDF use, and DMPA use. All HIV+ women were ART-naïve at baseline. BMD assessments of the lumbar spine (LS), total hip (TH) and femoral neck (FN) were done using dual energy x-ray absorptiometry at 6-monthly intervals over 2 years. BMD Z-scores were generated using the HIV negative group as the reference population. We used repeated measures analysis to compare rate of change in mean BMD Z-score per year among new and current users of DMPA adjusting for age, and BMI.

**Results:** We present data for 213 WLWH initiating TDF-ART, which included 106 new DMPA users and 107 current users. The mean age was 26.1 years (SD, 4.2). At entry, non DMPA users had higher BMD Z-scores at both TH and FN compared to the current DMPA users. Addition of DMPA resulted in a significantly greater decline in BMD Z-scores at the TH: -0.29/year (-0.56, -0.03; p=0.032), but not

at the LS and FN (p-value>0.05). Compared DMPA users, annualized rates of BMD loss was lower at all sites in non-hormonal users with HIV, or uninfected controls at all sites: 4.0% (-4.4, -3.6) vs. -1.8% (-2.2, -1.4) vs. 0.8% (0.4, 1.1) at the LS, -2.1% (-2.3, -1.9) vs. -0.9% (-1.1, -0.6) vs. -0.0% (-0.4, 0.3) TH, and -2.5% (-2.8, -2.2) vs. -1.0% (-1.3, -0.7) vs. 0.1% (-0.3, 0.5) FN respectively, p-values<0.05.

**Conclusions:** Concurrent initiation of DMPA in young women initiating TDF-ART was associated with higher BMD loss at the TH compared to TDF initiation in current DMPA users. Bone sparing contraceptive options need to be considered for women initiating TDF-ART.



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## Evaluation of the Sexual and HIV Prevention Practices Among Female Commercial Sex Workers in Lagos-Nigeria: An Assessment of the Willingness to Use a HIV Microbicide

Ekama S<sup>1</sup>, Sheth A<sup>2</sup>, Okwuzu J<sup>1</sup>, Ilomuanya M<sup>3</sup>, Ezechi O<sup>1</sup>, Salako B<sup>1</sup>

<sup>1</sup>Nigerian Institute of Medical Research Yaba Lagos, Lagos, Nigeria, <sup>2</sup>Emory University, Atlanta, United States of America, <sup>3</sup>University of Lagos, Idiaraba, Nigeria

**Background:** The willingness and acceptability of a product is a crucial part of microbicide development which must be conducted among the potential end users to inform product design preferences. This study was conducted among female commercial sex workers with the aim of assessing the sexual practices, HIV prevention methods, willingness, and identify factors associated with the willingness to use a microbicide product.

**Materials and Methods:** A cross-sectional study conducted among female sex workers from 31 brothels in Lagos in which participants were selected via convenient sampling over a period of five-months from May to September 2023. An interviewer administered semi-structured questionnaire was used to obtain information from the participants. Multiple-logistics regression model used to determine factors that will predict the willingness to use a microbicide.

**Results:** A total of 461 participants with mean-age of  $29.63 \pm 8.8$  years were included in the analysis of which 34.3% had >4 sexual partners, use condoms (91.8%), engage in anal sex (53.6%), have experienced condom bursts during sexual intercourse (69.6%) and will 'accept unprotected sex' if the male partner refuses to use a condom (31%). In addition, 43% had assessed PEP of which only 15% completed the one-month PEP regimen. On the other hand, 64.6% have taken PrEP medications of which 28% admitted to skipping doses. Although 41% had concerns about male partner acceptance and wetting effects of a microbicide, (44.5%) a total of 95% will be willing

to use a microbicide. In terms of product formulation preference, majority (69.6%) opted for gels and creams (17.8%), while 90% would prefer a female controlled microbicide, that will not be dependent on the timing of sexual intercourse (63.6%). The number of sexual partners ([aOR] 1.555; 95% CI 1.035- 2.335), use of condoms ([aOR] 4.701; 95% CI 1.418 – 15.584), and condom burst experience ([aOR] 2.550; 95% CI 0.817 -7.959) have greater odds of being associated with the willingness to use a HIV microbicide.

**Conclusions:** Female sex workers are willing to use a microbicide. Currently available HIV prevention methods have challenges and efforts are still required to develop prevention techniques that will address the lacunas of previous HIV prevention tools.



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## Evaluation of the Neutralization Sensitivity Between Plasma and Cerebrospinal Fluid (CSF) Derived HIV-1 Subtype C Clones

Mtanjana S<sup>1</sup>, Gumede N<sup>1</sup>, Sirksson S<sup>1</sup>, Sojane K<sup>1</sup>, Ndung'u T<sup>1,2</sup>, Ndlovu B<sup>1</sup>

<sup>1</sup>HIV Pathogenesis Programme, School of Laboratory Medicine and Medical Sciences, College of Health Sciences, University of KwaZulu-Natal, Umbilo, South Africa, <sup>2</sup>Africa Health Research Institute, Nelson R. Mandela Medical School, Umbilo, South Africa

**Background:** Human Immunodeficiency Virus (HIV) infection poses a global health challenge. Antiretroviral therapy effectively suppresses viremia. However, the major obstacle to achieving an HIV cure lies in the compartmentalization of HIV-1 and the establishment of latent reservoirs. Previous studies have indicated that broadly neutralizing antibodies (bNAbs) can effectively suppress viremia, suggesting their potential as an alternative treatment strategy. However, it remains unclear whether bNAbs can eliminate the virus from latent reservoirs. This study aimed to assess HIV-1 Env sequence differences between plasma and CSF-derived viruses and evaluate their neutralization sensitivity to bNAbs.

**Materials and Methods:** Matching plasma and CSF samples were obtained from seven chronic HIV-1-infected, ART-naive individuals co-infected with cryptococcal meningitis in Durban, KwaZulu-Natal. HIV-1 env was amplified via single genome amplification (SGA) and sequenced using Sanger sequencing. Analysis of HIV-1 Env sequences was performed on various epitopes targeted by bNAbs, and amino acid signatures were compared between plasma and CSF compartments. Selected HIV-1 Env amplicons were amplified and cloned into the TOPO 2.1 vector. Env-pseudotyped viruses were produced from plasma and CSF-derived clones, and their susceptibility to bNAbs was tested using the TZM-bl neutralization assay.

**Results:** We identified differences in amino acid signatures between plasma and CSF-derived clones, notably in the V2-loop, V3-loop, and CD4 binding sites. Single-point mutations, including the

deletion of the N160 glycan, were observed in the CSF compartment of the V2 loop, while the plasma compartment exhibited an unknown single mutation at Q170. Additionally, deletions of glycans at positions N295 and N332 of the V3 loop and the deletion of N-linked glycans at positions N276, along with R456W mutations in the CD4 binding sites, were observed in both plasma and CSF. These amino acid differences in bNAbs epitopes may result in variations in neutralization sensitivity between plasma and CSF compartments.

**Conclusions:** We observed differences in amino acid signatures within various bNAb epitopes between plasma and CSF compartments. These mutations may result in differences in neutralization sensitivity, potentially influencing the clearance of HIV-1 in viral reservoirs. These findings offer valuable insights for the utilization of bNAbs in vaccine development studies.



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## Estimation of the Population Size of Street- And Venue-Based Female Sex Workers and Sexually Exploited Minors: Three-Source Capture-Recapture Method, Rwanda 2022

**Tuyishime E<sup>1</sup>**, Kayitesi C<sup>2</sup>, Malamba S<sup>1</sup>, Sangwayire B<sup>1</sup>, Ruisenor-Escudero H<sup>3</sup>, Oluoch T<sup>1</sup>, REMERA E<sup>2</sup>  
<sup>1</sup>Division of Global HIV and Tuberculosis, Global Health Center, U.S Centers for Disease Control and Prevention (CDC), Kigali, Rwanda., Kigali, Rwanda, <sup>2</sup>Institute of HIV Disease Prevention and Control, Rwanda Biomedical Centre (RBC), Kigali, Rwanda, <sup>3</sup>Key Population Surveillance Team, Epidemiology and Surveillance Branch, Division of Global HIV and Tuberculosis, Global Health Center, U.S Centers for Disease Control and Prevention, Atlanta, United States

**Background:** National and provincial level population size estimates (PSE) of HIV key affected populations help to understand and prioritize current and future needs for HIV services. This study aimed to determine PSE of street- and venue-based female sex workers (FSWs) and sexually exploited minors (SEM), aged 15+ years in Rwanda.

**Materials and Methods:** In August 2022, the three-source capture-recapture method was used for FSW/SEM PSE. Fieldwork took 3 weeks, where each capture lasted for 1 week. Sample size was calculated using shinyapp power analyses. Stratified multistage sampling was used within provinces, with probability proportional to the number of FSW/SEM at the hotspot used to select hotspots. Within each hotspot, FSW/SEM were selected and offered unique objects using systematic sampling. Analysis was performed in R(v4.0.5) and Bayesian Model Averaging was used to produce final PSE with 95% Credibility Set (95%CS).

**Results:** We sampled 1766, 1848, and 1865 FSW/SEM during each capture, respectively. There were 169 sampled in captures 1 and 2, 210 in captures 2 and 3, 65 in captures 1 and 3, and 61 in all three captures. Overall, the median PSE was 37,647 (95%CS: 31,873–43,354) corresponding to 1.1% [95% confidence interval [CI]:0.9–1.3] of all females aged 15+ years in the general population.

PSE by province were: Western, 8,983 (95%CS: 6,536–11,791) corresponding to 1.6%; Northern, 5,993 (95%CS: 3,710–8,876) with 1.5%; City of Kigali, 3,884 (95%CS: 1,548–6,727) with 1.0% Eastern, 5,022 (95%CS: 2,535–8,601) with 0.8%; and Southern, 3,974 (95%CS: 2,815–5,197) with 0.7%.

**Conclusions:** In Rwanda, we estimated that about one in 100 women and girls aged 15+ years were engaged in sex work/sexual exploitation with a higher concentration in Western and Northern provinces. These findings underscore differing regional contexts are important to consider for targeted interventions and resource allocation to address the FSW population's unique needs.





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## Enhancing HIV Case Identification Through Strategic Risk Network Referral Among Key and Vulnerable Populations

Remy Z<sup>1</sup>, Herman E<sup>1</sup>, Boyee D<sup>1</sup>, Akolo C<sup>1</sup>, Mwaifunga B<sup>2</sup>, Ndutila E<sup>1</sup>, Wambura W<sup>1</sup>, Mtitu N<sup>1</sup>, Daudi V<sup>1</sup>

<sup>1</sup>FHI360, Mtwara, Tanzania, United Republic of, <sup>2</sup>COCODA Tanzania, Mtwara, Tanzania

**Background:** Despite the deployment of several HIV testing modalities to attain the UNAIDS goal of 95-95-95 by 2025, Tanzania lags in case identification, with the first 95% at 82.7%. PEPFAR and USAID-funded EpiC project is collaborating with the Ministry of Health in incorporating Risk Network Referral (RNR) with other HIV testing modalities for key and vulnerable populations (KVP). We described our experiences using RNR to improve case identification among KVP.

**Description:** RNR was implemented in Mtwara, Tanzania, from October 2022 to September 2023, giving people living with HIV (PLHIV) options to refer their social networks for HIV testing (HTS) and prevention services. Trained HCWs offer PLHIV additional, self-guided options to informally refer for HTS services, their friends and acquaintances who have similar risk behaviors. Using coupon-based referrals, PLHIV do not name contacts to make referrals but rather serve as informants to reach their social networks. Individuals' service data were recorded in National and project-based registers. We analyzed the HIV case identification rate when RNR was used and compared it with outcomes of the index and mobile outreach testing during the same period and determined statistical significance using the Chi-squared test.

**Lesson Learnt:** 254 individuals were identified as HIV positive from all testing approaches, of whom 137 (25 Female sex workers [FSW], 21 Adolescent girls and young women [AGYW], 54 other adult women at risk [ADWR], and 37 other adult men at risk [ADMR]) accepted to refer 567 social contacts for testing. 93% of contacts (526/567) were reached and tested, with an HIV case finding rate of 12% (63/526) compared to 14% (75/539) from index testing, and 1% (101/8744) during mobile

outreach,  $p < 0.001$ . Among contacts tested, 87 were FSW with a case finding rate of 11% (10/87), 46 AGYW with 7% (3/46) case finding, 232 ADWR with 13% (31/232) case finding, and 161 ADMR with a 12% (19/161) case finding rate.

**Conclusions:** RNR is an effective approach to identifying previously undetected cases. This approach complements index testing as it goes beyond sexual partners to maximize HIV testing coverage.



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## Disparities in ANTI-SARS-CoV-2 Reactivity According to Vaccines Administered in the Era of Omicron in Cameroon: Lessons for Future Outbreak Response

Ngoufack Jagni Semengue E<sup>1</sup>, Takou D<sup>1</sup>, Ndjeyep Djupsa S<sup>1</sup>, Ambe Chenwi C<sup>1,4</sup>, Beloumou G<sup>1</sup>, Nka A<sup>1</sup>, Kengni Nguoko A<sup>1,4</sup>, Molimbou E<sup>1,4,5</sup>, Etame N<sup>1</sup>, Gouissi Anguechia D<sup>1,6</sup>, Mundo Nayang A<sup>1</sup>, Tueguem P<sup>1</sup>, Tambe Ayuk Ngwese D<sup>1</sup>, Moko Fotso L<sup>1,6</sup>, Tommo Tchouaket C<sup>1</sup>, Ka'e A<sup>1</sup>, Fainguem N<sup>1</sup>, Abega Abega C<sup>1</sup>, Mandeng N<sup>3,7</sup>, Epee E<sup>3,6,9</sup>, Essos L<sup>3</sup>, Etoundi Mballa G<sup>3</sup>, Santoro M<sup>4</sup>, Bissek A<sup>8</sup>, Oshidiema J<sup>9</sup>, Boum Il Y<sup>3</sup>, Ceccherini Silberstein F<sup>4</sup>, Ndjolo A<sup>1,6</sup>, Ndembi N<sup>10,11</sup>, Perno C<sup>1,12</sup>, Colizzi V<sup>1,5</sup>, Fokam J<sup>1,2,3</sup>

<sup>1</sup>Centre International De Référence Chantal Biya, Yaoundé, Cameroon, <sup>2</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>3</sup>National Public Health Emergency Operations Coordination Centre, Ministry of Public Health, Yaoundé, Cameroon, <sup>4</sup>Faculty of Medicine and Surgery, University of Rome Tor Vergata, Rome, Italy, <sup>5</sup>Faculty of Sciences and Technology, Evangelical University of Cameroon, Bandjoun, Cameroon, <sup>6</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Yaoundé, Cameroon, <sup>7</sup>Faculty of Health Sciences, University of Bamenda, Bamenda, Cameroon, <sup>8</sup>Division of Health Operational Research, Ministry of Public Health, Yaoundé, Cameroon, <sup>9</sup>COVID-19 Incident Management team, World Health Organization; Country office, Cameroon, <sup>10</sup>Africa Centres for Diseases Control and Prevention (Africa CDC), Addis Ababa, Ethiopia, <sup>11</sup>Institute of Human Virology, University of Maryland School of Medicine, Maryland, United States of America, <sup>12</sup>Bambino Gesù Children's Hospital, Rome, Italy

**Background:** Anti-SARS-CoV-2 vaccine remains a global health priority, but evidence on its significance within tropical settings like Cameroon remains limited. Our objective was to assess the overall rate of COVID-19 antibodies, its disparity according to vaccine status and types of vaccines administered during the active phase of Omicron variants in Cameroon.

**Materials and Methods:** A cross-sectional sero-survey was conducted from February-01st to July-31st 2022 among individuals tested for COVID-19 at the Chantal BIYA International Reference Centre-(CIRCB), Yaoundé-Cameroon. Socio-demographic and detailed clinical data were collected; SARS-CoV-2 antibodies were tested on plasma using Ninonasal™ and ABBEXA™ COVID-19

IgG/IgM assay, while SARS-CoV-2 real-time PCR was performed on nasopharyngeal swabs using DaAn gene 2019-nCoV kit. Statistical analyses were performed with  $p < 0.05$  statistically significant.

**Results:** Overall, 2449 participants were enrolled: median [IQR] age was 40 [31–48], 56.4%(1382/2449) men, 2.2%(54/2449) with flu-like symptoms and 19.6%(481/2449) reporting previous SARS-CoV-2 positivity. Regarding COVID-19 vaccination, 67.5%(1652/2449) had received at least one dose (48.7% Pfizer, 24.8% Johnson&Johnson, 18.2% Moderna; 8.1% AstraZeneca, 4.8% Sinopharm and 0.2% Sputnik-light); among these, 55.0%(909/1652) were fully vaccinated and 37.1%(613/1652) received additional boost doses. Median duration from vaccination to phlebotomy was 5 [3–8] months (min:1; max:20). Overall, the rate of COVID-19 antibodies was 81.13%(1987/2449), with 1.2% IgM, 73.9% IgG and 6.5% IgM/IgG. Following univariate analyses, a high prevalence of antibodies was associated with vaccination (1398/1652 vs 589/797; OR=1.9 [95%CI: 1.6-2.4];  $p < 0.0001$ ). Among the vaccinated, those who received boost doses had higher odds for COVID-19 antibodies (538/613; OR=2.5 [1.9-3.4];  $p < 0.0001$ ) and regarding the vaccines, Pfizer induced greater immunogenicity (701/805; OR=2.4 [1.8-3.1];  $p < 0.0001$ ); and a post-vaccination time  $\leq 5$  months (523/561; OR=2.3 [1.9-3.1] and  $p = 0.001$ ) was also a determinant of high COVID-19 antibodies. Following multivariate analysis, the vaccine status, Pfizer vaccine, booster doses and post-vaccination time remained statistically associated with the high prevalence of COVID-19 antibodies (aOR=3.1, aOR=2.5, aOR=2.1, and aOR=3.04 respectively; all  $p < 0.001$ ).

**Conclusions:** High rate of COVID-19 antibodies suggests herd immunity at the community level in Cameroon during Omicron-wave. Furthermore, vaccination with Pfizer appears with a higher COVID-19 antibody response, supporting the need for vaccine updates with novel variants, especially with the rapid antibody waning (~5months) in this tropical setting.



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## Augmentation du Taux de Rétention avec un Modèle de Prise en Charge Adaptée Combinant la Délégation des Tâches et le Suivi Différencié des PVVIH au Sénégal

Diouf A<sup>1</sup>, Fortes L<sup>2</sup>, Dia-Badiane N<sup>3</sup>, Sow S<sup>4</sup>, Thiam S<sup>5</sup>, Ndiaye-Coulibaly N<sup>6</sup>

<sup>1</sup>Service Des Maladies Infectieuses Et Tropicales-chnu Fann-ucad\_dakar, Dakar, Sénégal, <sup>2</sup>Service des maladies infectieuses-hôpital Dalal Jamm, Dakar, Sénégal, <sup>3</sup>UFR des Sciences de la Santé, Université Gaston Berger, Saint Louis, Sénégal, <sup>4</sup>CRCF, Dakar, Sénégal, <sup>5</sup>CNLS, Dakar, Sénégal, <sup>6</sup>DLSI, Dakar, Sénégal

**Contexte :** La rétention des personnes vivant avec le VIH (PVVIH) dans les soins est essentielle au succès de leur prise en charge. Pour ce faire, les services doivent être accessibles. Nous avons émis l'hypothèse qu'un modèle de prise en charge adaptée (MPECA) avec des services fournis par le personnel paramédical et communautaire améliorerait la rétention des PVVIH.

**Matériels & Méthodes :** Nous avons mené un essai communautaire randomisé auprès de PVVIH naïves de traitement antirétroviral (TAR) ou stables sous TAR (sous TAR pendant  $\geq 6$  mois avec un état stable) au Sénégal. L'unité de randomisation était le district sanitaire et le MPCA avait 2 composantes : 1) la délégation des tâches de prise en charge des PVVIH aux postes de santé, 2) le suivi différencié des PVVIH stables sous TAR : rendez-vous tous les 3 à 6 mois, rappel des rendez-vous par sms, incitation à l'accompagnement par les pairs et l'initiation de groupes de parole. Les districts sanitaires de contrôle recevaient la prise en charge standard avec un modèle centré sur le médecin. Le critère de jugement principal était le taux de rétention. Les bras ont été comparés à l'aide de l'estimation ciblée du maximum de vraisemblance, en tenant compte de l'effet de grappe.

**Résultats :** De septembre 2017 à juillet 2018, 1014 patients dans 13 districts sanitaires ont été inclus (504 dans le groupe intervention, 510 dans le groupe contrôle). L'âge moyen était de  $40,6 \pm 13$  ans ; 55,5 % étaient des femmes, 39,7 % aux stades 3-4 de l'OMS et 89,5 % stables sous TAR. Après une durée moyenne de suivi de  $9 \pm 3$  mois, le

taux de rétention était de 94,4 % (93,8-96,2) dans le groupe intervention contre 92,8 % (90,2-93,7) dans le groupe témoin,  $p = 0,04$ .

**Conclusions :** Dans cet essai, la délégation des tâches de prise en charge des PVVIH au personnel paramédical et communautaire des postes de santé avec un suivi différencié a rendu les services plus accessibles avec un meilleur taux de rétention. Un tel modèle mérite plus d'attention pour une mise à l'échelle appropriée afin d'améliorer la rétention des PVVIH dans les soins.



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## Profil de Mutation de Résistance Aux Inhibiteurs Nucléosidiques de la Transcriptase Inverse Chez Les Enfants ET Adultes en échec Virologique en Côte D'Ivoire Dans Un Contexte de Basculement Systématique Sous Une Combinaison à Base de Dolutégravir (DTG)

DECHI J<sup>1</sup>, TONI T<sup>2</sup>, N'DIN J<sup>1</sup>, AKE A<sup>1</sup>, GOGBE L<sup>2</sup>, SIRANSY K<sup>1</sup>, CAMARA-CISSE M<sup>3</sup>, CHENAL H<sup>2</sup>  
<sup>1</sup>Centre National de Transfusion Sanguine de Côte d'Ivoire (CNTS-CI), Abidjan, Côte d'Ivoire, <sup>2</sup>Centre Intégré de Recherches Biocliniques d'Abidjan (CIRBA), Abidjan, Côte d'Ivoire, <sup>3</sup>UFR Sciences Médicales, Université Félix Houphouët-Boigny (UFHB), Abidjan, Côte d'Ivoire

**Contexte :** L'organisation mondiale de la santé (OMS) recommande de basculer sur une trithérapie composée d'inhibiteurs nucléosidiques de la transcriptase inverse (INTI) et dolutégravir (DTG). En Côte d'Ivoire, ce basculement se fait quel que soit le niveau de répllication virale et de résistance aux INTI. L'objectif de notre étude était d'évaluer la résistance aux INTI chez les enfants et les adultes en échec virologique dans un contexte de basculement systématique sous une combinaison à base de DTG.

**Matériels et Méthodes :** Deux cohortes de personnes infectées par le VIH-1 suivies en routine au CIRBA ont constitué notre population d'étude. La première cohorte, réalisées entre 2012 et 2013, incluait des enfants avec une charge virale supérieur à 1000 Copies/mL. La deuxième cohorte constituée entre 2015 et 2017 comprenait des adultes avec une indication de test génotypique de résistance (TGR). Les mutations de résistance aux INTI ont été identifiées et interprétées en utilisant les techniques et algorithmes de l'ANRS ([www.hivfrenchresistance.org](http://www.hivfrenchresistance.org)).

**Résultats :** Nous avons inclus 243 personnes en échec virologique, dont 61 enfants (13% ; n=61/260) et 182 (100%) adultes. L'âge médian était de 39 ans (3-75) et 54% (n=131/243) des

personnes étaient des femmes. Le pourcentage de résistance aux INTI était de 65% (n=159/243). Il était de 92% (n=146/159) pour lamivudine/emtricitabine (3TC/FTC), 52% (n=82/159) pour zidovudine (AZT), 45% (n=71/159) pour abacavir (ABC) et 18% (n=29/159) pour ténofovir (TDF). Les mutations M184V/I (90%; n=143/159) et K65R (4%; n=6/159) conféraient résistance à 3TC/FTC. T215I/N/V/Y/F (42%; n=67/159) et Q151M (chez 1 adulte) entraînaient une résistance à AZT. Les mutations L74V/I (22%; n=35/159), Y115F (6%; n=10/159), K65R (4%, n=6/159) et Q151M (chez 1 adulte) étaient incriminés pour la résistance à ABC. Les mutations K65R (4%; n=6/159) et K70E (6%; n=9/159) étaient impliqués dans la résistance à TDF.

**Conclusions :** Notre étude a montré une prévalence élevée de la résistance aux INTI. La résistance a été observée pour les quatre INTI utilisé en Côte d'Ivoire. Les mutations fréquentes étaient M184V/I (3TC/FTC), T215I/N/V/Y/F (AZT), L74V/I (ABC), K65R et K70E (TDF). Cette étude souligne ainsi la nécessité d'un TGR pour guider le basculement sur une trithérapie à base d'INTI et de DTG.



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## Transitioning Children to Pediatric Dolutegravir (TORPEDO) Study: Endline Results in Benin, Nigeria, and Uganda

Campbell J<sup>1</sup>, Rathakrishnan D<sup>1</sup>, Abudioré O<sup>2</sup>, Nabitaka V<sup>3</sup>, Biaou C<sup>4</sup>, Nzano B<sup>1</sup>, Eigege W<sup>2</sup>, Zekeng S<sup>1</sup>, Brophy J<sup>1,5</sup>, Achebet S<sup>3</sup>, Otubu N<sup>2</sup>, Levy-Braide B<sup>2</sup>, Sowale O<sup>2</sup>, Lufadeju F<sup>2</sup>, Wiwa O<sup>2</sup>, Harwell J<sup>1</sup>, Amole C<sup>1</sup>, Nakanwagi M<sup>6</sup>, Etiobhio E<sup>7</sup>, Atu U<sup>7</sup>, Patiko M<sup>7</sup>, Ikpeazu A<sup>7</sup>, Lawal U<sup>8</sup>, Agbaji O<sup>9</sup>, Gangbo F<sup>4</sup>, Akanmu S<sup>10</sup>, Ochigbo S<sup>11</sup>, Amoussou A<sup>4,12</sup>, Namusoke-Magongo E<sup>6</sup>

<sup>1</sup>Clinton Health Access Initiative, Boston, United States, <sup>2</sup>Clinton Health Access Initiative, , Nigeria, <sup>3</sup>Clinton Health Access Initiative, , Uganda, <sup>4</sup>Ministry of Health, , Benin, <sup>5</sup>Children's Hospital of Eastern Ontario, , Canada, <sup>6</sup>Ministry of Health, STD/AIDS Control Program, , Uganda, <sup>7</sup>National AIDS and STIs Control Program, , Nigeria, <sup>8</sup>Ahmadu Bello University Teaching Hospital, , Nigeria, <sup>9</sup>Jos University Teaching Hospital, , Nigeria, <sup>10</sup>Lagos University Teaching Hospital, , Nigeria, <sup>11</sup>University of Calabar Teaching Hospital, , Nigeria, <sup>12</sup>Hospital de Zone de Suru Lere, , Benin

**Background:** A pediatric dolutegravir formulation (pDTG) became available in late 2021. To inform introduction of this optimal treatment for children living with HIV (CLWH), we evaluated client and parent/caregiver experiences with pDTG, as well as health outcomes.

**Materials and Methods:** TORPEDO is a mixed-methods, prospective cohort study of CLWH initiating pDTG at 19 pediatric HIV treatment sites in 3 countries with early access to pDTG: Benin (6 sites), Nigeria (7 sites), and Uganda (6 sites). Data was collected at baseline, 6, and 12 months (except in Benin), including surveys of participants' experiences with pDTG and health record reviews of viral load (VL) results and height/weight data. Weight-for-height and weight-for-age z-scores were calculated using WHO Anthro package. Data were analyzed for trends and differences.

**Results:** 510 CLWH were enrolled from 10/2021 - 06/2022 (105 Benin, 180 Nigeria, 225 Uganda). 52% were male; average age was 5.2 years. Over 86% of participants were treatment experienced, 85% were previously on a lopinavir-ritonavir regimen; 98% of parent/caregiver respondents believed their child preferred pDTG compared to the previous regimen. Most notably, 'improved

taste' (96%) and 'improved ease of administration' (79%) were reported. The two most frequent side effects were increases in appetite (24%) and in energy (16%). Viral suppression (<1000 & <50 copies/mL) increased over the course of the study. Overall, there was no significant difference in proportion of overweight and obese participants from baseline to endline.

**Conclusions:** In this large prospective study of CLWH initiating pDTG, we found it to be greatly preferred over previous regimens, with no increase in overweight/obese BMIs and higher rates of viral suppression. While longer-term outcomes need to be evaluated, this study provides strong evidence that dolutegravir will finally help HIV-endemic countries to achieve UNAIDS viral suppression targets in CLWH comparable to adult.



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## Effect of the COVID-19 Pandemic on Paediatric Antiretroviral Therapy Coverage in Sub-Saharan Africa: Findings From 43 Countries

Etuk V<sup>1</sup>, Atema S<sup>1</sup>, Lawal T<sup>1</sup>, Williams I<sup>2</sup>, Sanni C<sup>1</sup>, Andrew N<sup>1</sup>

<sup>1</sup>International Research Centre Of Excellence, Institute Of Human Virology, Nigeria, Abuja, Nigeria, <sup>2</sup>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ-ECOWAS), Abuja, Nigeria

**Background:** The COVID-19 pandemic disrupted health care services worldwide, particularly vertical HIV programmes, due to restrictions in mobility and other measures. We aim to determine the effects of the COVID-19 pandemic on paediatric antiretroviral therapy (ART) coverage across 43 countries in Africa.

**Materials and Methods:** We utilized data from the UNICEF HIV/AIDS data warehouse ([https://data.unicef.org/resources/data\\_explorer/unicef\\_f](https://data.unicef.org/resources/data_explorer/unicef_f)). Data sources for the warehouse include the Global AIDS Monitoring estimates, UNAIDS 2022 and 2023 estimates. We collected paediatric (0-14) ART coverage data from 2016 to 2022 from 43 African countries. Data from 2016 to 2019 were classified as pre COVID, and 2020 to 2022 as inter-COVID. Data was analysed using descriptive statistics and z-tests. Shapiro-wilks test and histograms were used to check for normality of data, while significance was set at 5%.

**Results:** Mean pre-COVID paediatric ART coverage was 35.9% across 43 countries, with highest coverage in Cabo Verde (95%), Eswatini (82.7%) and Kenya (75.7%) and lowest in Madagascar (2.4%), South Sudan (7.8%) and Angola (10.5%). There was a significant increase in mean paediatric ART coverage across the 43 countries during the COVID pandemic, increasing to 43.5% ( $p=0.0048$ ). Thirty-eight out of forty-three countries (88.4%) had an increase in paediatric ART coverage during the pandemic, with highest increases in Guinea-Bissau (20.8%,  $p<0.001$ ), Ghana (19.6%,  $p<0.001$ ) and Togo (15.9%,  $p<0.001$ ). However, four countries had a decrease during the pandemic-Eritrea (-17.2%,  $p<0.001$ ), Cabo Verde (-7.7%,

$p<0.001$ ), Congo (-2.8%,  $p=0.0003$ ) and Ethiopia (-0.2%,  $p=0.810$ ). Regionally, East Africa had the highest average pre COVID coverage (54.6%) and intra-COVID coverage (61.3%). However, Central Africa had the highest increase in ART coverage, with an increase of 9.29% points.

**Conclusions:** These findings demonstrate the resilience of paediatric HIV programmes in Africa during the COVID-19 pandemic, through increased paediatric ART coverage in majority of the countries analysed. It is however critical that countries with decreases in paediatric ART coverage recover to pre-pandemic levels. Additionally, substantial improvements are still needed continent wide, to achieve 95-95-95 targets for paediatric ART coverage by 2030.



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## Plasma Viral Load of 200 Copies/ML Is a Suitable Threshold to Define Viral Suppression and HIV Drug Resistance Testing in Low- And Middle-Income Countries: Evidence from a Facility-Based Study in Cameroon

Fokam J<sup>1,2,3,4</sup>, Chenwi C<sup>1,5</sup>, Nayang Mundo R<sup>1,6</sup>, Nka A<sup>1</sup>, Ngoufack Jagni Semengue E<sup>1</sup>, Beloumou Angong O<sup>1</sup>, Ka'e A<sup>1</sup>, Togna Pabo W<sup>1,2</sup>, Takou D<sup>1</sup>, Abba A<sup>1</sup>, Djupsa S<sup>1</sup>, Molimbou E<sup>1,5</sup>, Etame N<sup>1</sup>, Kegne A<sup>1</sup>, Kob Same D<sup>8</sup>, Bouba Pamen J<sup>4,9</sup>, Billong S<sup>4,9</sup>, Ajeh R<sup>10</sup>, Halle-Ekane G<sup>2</sup>, Cappelli G<sup>11</sup>, Santoro M<sup>5</sup>, Ceccherini-Silberstein F<sup>5</sup>, Colizzi V<sup>1,5,7</sup>, Kaseya J<sup>12</sup>, Ndembi N<sup>12,13</sup>, Ndjolo A<sup>1,4</sup>, Perno C<sup>1,5,14</sup>

<sup>1</sup>Chantal Biya International Reference Center for Research on HIV and AIDS Prevention and Management (CIRCB), Yaounde, Cameroon, <sup>2</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>3</sup>National HIV Drug Resistance Group, Ministry of Public Health, Yaounde, Cameroon, <sup>4</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaounde, Cameroon, <sup>5</sup>University of Rome Tor Vergata, Rome, Italy, <sup>6</sup>Protestant University of Central Africa, Cameroon, <sup>7</sup>Evangelical University of Cameroon, Bandjoun, Cameroon, <sup>8</sup>UNAIDS country office, Yaounde, Cameroon, <sup>9</sup>Department of Disease, Epidemic and Pandemic Control, Ministry of Public Health, Yaounde, Cameroon, <sup>10</sup>Central Technical Group, National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon, <sup>11</sup>National Research Council, Rome, Italy, <sup>12</sup>Africa Centre for Disease Control and Prevention (A CDC), Headquarter, Addis Ababa, Ethiopia, <sup>13</sup>Institute of Human Virology, Baltimore, USA, <sup>14</sup>Bambino Gesù Pediatric Hospital Rome Italy, Rome, Italy

**Background:** In low-and-middle-income-countries (LMIC), viral suppression is defined as plasma viral load (PVL) <1000 copies/ml (low-level viremia, LLV) and threshold for HIV drug-resistance (HIVDR) testing. However, there is evidence that drug resistance mutations (DRMs) may emerge at LLV, thus compromising antiretroviral treatment (ART) response. We evaluated sequencing success rates (SSR) at LLV, described HIVDR-profiles and adequacy with potential efficacy of tenofovir-lamivudine-dolutegravir (TLD).

**Materials and Methods:** A cross-sectional study was conducted among individuals with LLV at the Chantal BIYA International Reference Centre, Yaoundé, Cameroon from January 2020 through August 2021. HIV-1 sequencing was performed on

protease/reverse-transcriptase, and sequences analysed using Stanford HIVdbv9.5. SSR and HIVDR rates were assessed according to viral-load ranges, with  $p < 0.05$  considered statistically significant.

**Results:** In total, 131 individuals were enrolled (median [IQR] age 41[30-49]; 67.9% female; 54.7% at WHO clinical-stage I/II; median ART-duration 7[4-11] years; median CD4-count 221[103-402] cells/mm<sup>3</sup> and median PVL 222[96-436] copies/ml). Overall, SSR at LLV was 34.4% (45/131) and increased significantly with decreasing-age ( $p=0.002$ ) and increasing-PVL ( $p=0.017$ ). SSR were doubled at  $PVL \geq 150$  copies/ml (21.8% at [40-150] versus 43.3% at [150-1000]); OR=2.8,  $p=0.01$ ). Of the 45 sequences obtained, 75.6% were recombinant strains (CRF02\_AG, CRF09\_cpx, CRF11\_cpx) and 24.4% pure-subtypes (A1, D, F2, G). Overall, HIVDR-prevalence at LLV was 82.2% (37/45), with 74.6% and 15.6% resistance to reverse-transcriptase inhibitors (RTIs) and ritonavir-boosted protease inhibitors (PI/r) respectively. Interestingly, HIVDR rates were similar at PVLs [50-200] versus [200-1000] copies/ml ( $p=0.69$ ). The most frequent DRMs were M184V (73.3%) and K103N (40.0%) for RTIs and M46I (6.7%) for PIs/r. 55.6% (25/45) of individuals were on suboptimal ART, with 48.9% (22/45) having suboptimal TLD predictive efficacy. Optimisation need was higher in first-line (81.8%,  $p=0.03$ ), but similar across viral clades and PVL-ranges ( $p=0.6$ ).

**Conclusions:** In this LMIC with broad HIV-1 diversity, sequencing for HIVDR is feasible at LLV, with higher SSR above 150 copies/ml and/or in pediatrics. About 80% of individuals with LLV harbor HIVDR strains, with half of them needing ART optimisations to limit HIVDR emergence and prevent treatment failure. These underscore the clinical benefits of HIVDR during persisting LLV and the need to reconsider the threshold for viral suppression around 200copies/ml in LMICs.



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## Distribution et Déterminants du Risque D'Événements Cardiovasculaires Chez Les Personnes Vivant Avec Le Virus de L'Immuno-Déficience Humaine à L'Hôpital Central de Yaoundé

Mfeukeu Kuate L<sup>1</sup>, Bakonga V<sup>2</sup>, Ngongang C<sup>2</sup>, Kuathe K<sup>3</sup>, Kouanfack C<sup>4</sup>

<sup>1</sup>Service de Cardiologie de l'Hôpital central de Yaoundé, Yaoundé, Cameroun, <sup>2</sup>Faculté de Médecine et des Sciences Pharmaceutiques, Université de Dschang, Dschang, Cameroun, <sup>3</sup>Agence Nationale de Recherches sur le Sida, les Hépatites Virales et les Maladies Infectieuses Emergentes (ANRS-MIE), Yaoundé, Cameroun, <sup>4</sup>Hôpital du Jour de l'Hôpital Central de Yaoundé, Yaoundé, Cameroun

**Contexte :** Les maladies cardiovasculaires sont de véritables problèmes de santé publique dont la prévalence ne cesse de grandir, en particulier dans les pays à faible revenu. Cette augmentation de la prévalence est d'autant plus importante chez les patients vivants avec le virus immunodéficience humaine (PvVIH) qui en plus des facteurs conventionnels, sont soumis au stress lié à la maladie et/ou aux troubles métaboliques engendrés par les traitements antirétroviraux. L'objectif de notre étude était d'évaluer la distribution et les déterminants du risque de survenue d'événements cardiovasculaires

**Matériels et Méthodes :** Nous avons mené une étude transversale auprès des PvVIH sous traitement initiés de 2006 à 2021 et suivis jusqu'en 2023 au Centre de Traitement Agréé (CTA) de l'Hôpital Central de Yaoundé. Un échantillonnage consécutif a été appliqué pour le volet transversal. Le coefficient de Spearman a été utilisé pour la corrélation basée sur les score de risque.

**Résultats :** Au total 84 patients ont été retenus dans notre étude. Parmi ceux-ci, 15,8% des présentant l'hypertrophie ventriculaire gauche était sous TDF\3TC\DTG tandis que 26,2% des patients présentant une anomalie de la fraction d'éjection du ventricule gauche étaient sous TDF\3TC\DTG et TDF/3TC/EFV. L'HTA était le Facteur de risque cardiovasculaire le plus fréquent dans notre étude soit 52,4%. Il y avait une forte

corrélation (Spearman = 0,875 ;  $p < 0,001$ ) entre les score de risque prédictifs des événements cardiovasculaires basés sur la population générale (Framingham), et le score de risque prédictifs spécifique à la population du VIH (DAD score), résultant en un accord substantiel (coefficient Kappa = 0,626 ; IC= 0,50-0,75 ;  $p < 0,001$ ) entre les deux risques. Nous avons retrouvé association positive et significative entre la présence d'événements cardiovasculaires et TDF/3TC/DTG ( $p = 0,013$ ) ; et une association négative moins significative entre la présence événements cardiovasculaires et le protocole TDF/3TC/EFV ( $p = 0,038$ ).

**Conclusions :** Les événements cardiovasculaires sont une réalité chez les PvVIH. La fréquence des événements cardiovasculaires était relativement haute chez les patients sous TDF/3TC/DTG. L'hypertension artérielle était le facteur de risque le plus fréquent dans notre étude.

**Mots-clés :** PvVIH, traitement antirétroviral (TARV), déterminants de risque, Yaoundé





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## Silent Struggles Unveiled: High Prevalence of Depression, Suicidal Behavior, and Substance Abuse Among Adolescents and Young Adults Living with HIV Select Facilities in Malawi

Kalitera L<sup>1</sup>, Makonokaya L<sup>1</sup>, Dunga S<sup>1</sup>, Singini G<sup>1</sup>, Phoso M<sup>1</sup>, Msuku L<sup>1</sup>, Chamanga R<sup>1</sup>, Maida A<sup>2</sup>, Maphosa T<sup>1</sup>

<sup>1</sup>Elizabeth Glaser Pediatric AIDS Foundation, Lilongwe, Malawi,

<sup>2</sup>U.S. Centers for Disease Control and Prevention, Malawi, Division of Global HIV and TB, Lilongwe, Malawi

**Background:** The impact of mental health disorders on adolescents and young people living with HIV (AYLHIV) is a critical concern, significantly affecting their well-being and health outcomes. Despite the underdiagnosis and lack of treatment, particularly in low-income settings, the Elizabeth Glaser Pediatric AIDS Foundation took a pioneering step in 2023: they integrated mental health screening into HIV care for high-risk groups, such as adolescents, utilizing the Patient Health Questionnaire-9 (PHQ-9) and alcohol/substance use questionnaires. This study examines the prevalence and factors associated with depression among AYLHIV receiving antiretroviral therapy (ART) within this program setting.

**Materials and Methods:** This cross-sectional analysis utilized routinely collected data from mental health screening registers across 11 EGPAF-supported healthcare facilities in Malawi. We included all ART clients aged 10-24 years who underwent mental health screening during ARV-refill clinic visits between March and June 2023. Demographic and clinical characteristics were summarized, and depression prevalence (PHQ-9 score  $\geq 5$ ), suicidal thoughts, and substance abuse estimated via descriptive statistics. Logistic regression, adjusting for sex, age, and reason for screening, was employed to assess factors linked to depression among AYLHIV.

**Results:** Among 561 participants, 61.3% (n=344) were female, with a median age of 17 years. Approximately 24.5% (n=137) screened positive for depression, while 5.2% (n=29) reported suicidal

thoughts and 4.9% (n=27) were at risk of alcohol/substance abuse. Severe depression was more prevalent in females (15.4% vs. 3.4%,  $p=0.04$ ), while suicidal thoughts were higher in males (7.8% vs. 3.5%,  $p=0.02$ ). Moreover, older clients showed a significantly higher likelihood of depression than their younger counterparts (10-14 years): Adjusted ORs for 15-19 and 20-24 years 1.86 (95% CI 1.12-3.09) and 2.33 (95% CI 1.36-3.98), respectively.

**Conclusions:** Nearly a quarter of the participants experienced depression, particularly older adolescents. Integrating mental health screening into HIV services is a pivotal strategy for timely identification and treatment of depression among AYLHIV, which ultimately should enhance their quality of life.



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## C-Reactive Protein (CRP) and HIV Are Independent Predictors of Cognitive Performance Among Children and Adults from Kampala, Uganda

Bayigga L<sup>2</sup>, Giordani B<sup>3</sup>, Zalwango S<sup>4</sup>, Awadu J<sup>1</sup>, Sikorskii A<sup>1</sup>, Nakasujja N<sup>5</sup>, Ezeamama A<sup>1</sup>  
<sup>1</sup>Michigan State University, East Lansing, United States, <sup>2</sup>Joint Clinical Research Center, Kampala, Uganda, <sup>3</sup>University of Michigan, Ann Arbor, USA, <sup>4</sup>Kampala Capital City Authority, Kampala, Uganda, <sup>5</sup>Makerere University School of Medicine, Kampala, Uganda

**Objective:** We test the hypothesis that systemic inflammation and chronic HIV infection are independent predictors of performance on National Institutes of Health Toolbox Cognition Battery (NIHTB-CB) derived measures of executive function (EF), processing speed (PS), attention and episodic memory (EM) among adults living with HIV (ALWH+, n=227), children with perinatally-acquired HIV-infection (CPHIV, n =171), children perinatally HIV-exposed but uninfected (CHEU, n=175), children HIV unexposed uninfected (CHUU, n=191) and adults without HIV (ALWH-, n=157) from Kampala, Uganda.

**Materials and Methods:** We enrolled 922 individuals between 6 and 79 years old. At intake and every 12 months, blood was drawn for CRP assessment, and performance in NIHTB-CB was measured and used to define EF, PS, EM, and attention. Multivariable repeated measures linear regression models adjusted for time, age, sex, and years of education were implemented to estimate CRP and HIV-status associated differences ( $\beta$ ) in NIHTB-CB performance along with 95% confidence intervals (95%CI) in Statistical Analysis Software (v.9.4, Cary, NC).

**Results:** Low CRP associated with higher performance in all NIH-TB tests with largest effect evident in EM and EF ( $\beta$ =2.3 to 2.4, All p <0.005) among children. CRP was not associated with NIHTB-CB performance in adults. CPHIV ( $\beta$ =-7.2, 95% CI: -10.2, -4.2) and CHEU ( $\beta$ =-2.2, 95% CI: -5.1, 0.8) under-performed relative to CHUU peers on NIHTB-CB tests of EF and PS. Likewise, CPHIV and CHEU underperformed relative to CHUU on tests

of EM ( $\beta$ =-3.5 to -3.0, All p-value <0.02) and attention ( $\beta$ =-7.8 to -3.0, All p-value <0.03). ALWH+ under-performed ALWH- in PS ( $\beta$ =-3.1, p=0.018). Years of formal education predicted better performance in all NIHTB-CB ( $\beta$ =3.5 to 7.9, All p <0.0003).

**Conclusions:** Systemic inflammation and HIV-affected (CPHIV, CHEU, ALWH+) status were each associated with NIHTB-CB with the greatest consistency among children. Among adults, higher education (in years) was consistently associated with better performance on tests while ALWH+ vs. ALWH- status was associated with worse performance in PS only. Intervention strategies that minimize systemic inflammation and that improve cognitive reserve through formal education may improve cognitive performance in this setting.



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## Prevalence and Associated Factors of Chronic Kidney Disease in Young People Living with HIV in Uganda

**Nasuuna E**<sup>1</sup>, Tomlinson L, Kalyesubula R, Castelnuovo B, Chikwari C, Weiss H

<sup>1</sup>Infectious Diseases Institute, Makerere University Medical School, Kampala, Uganda, <sup>2</sup>Non-communicable Diseases Program, Medical Research Council/Uganda Virus Research Institute and London School of Hygiene and Tropical Medicine Uganda Research Unit, Entebbe, Uganda

**Background:** Young people living with HIV (YPLHIV) are at increased risk of developing chronic kidney disease (CKD). CKD is usually diagnosed late and associated with high mortality and morbidity. Early diagnosis and management are important to halt progression. We set out to determine the prevalence, associated factors and to compare serum creatinine and cystatin C for diagnosis of CKD among YPLHIV in Kampala, Uganda.

**Materials and Methods:** A cross sectional study with YPLHIV aged 10 to 24 years was conducted in seven HIV clinics. Participants provided a urine sample and blood to measure urinary albumin, proteinuria, serum creatinine and cystatin C levels at baseline and at three months. The estimated glomerular filtration rate (eGFR) was calculated as well as the albumin creatinine ratio (ACR). Prevalence of CKD at three months was estimated using CKDEPI2021 equation in adults and bedside Schwartz in children. Logistic regression was used to determine the associated factors and chi square tests used to compare proportions of people with urinary abnormalities correctly diagnosed by creatinine or cystatin C.

**Results:** A total of 500 participants were enrolled. They were majorly female 56% (280), aged 10 to 17 years 66.9% (335). The prevalence of CKD ranged from 0 to 1.2% depending on the age category and the biomarker used. Among those aged >18 years, it was 0.2% using serum creatinine and 0% using cystatin C. Among those aged 10 to 17 years, it was 0% using creatinine and 1.2% using cystatin C. ACR above 30mg/g was 10.1% and 24% had proteinuria. The associated factors were age with adjusted odds ratio (aOR) 7.3 (95% CI 2.4-22.2, p <0.001), sex aOR 2.2 (95% CI 1.3-3.9, p 0.006) and proteinuria aOR 4.3 (95% CI 2.4-7.4, p

<0.001). Cystatin C emerged as the better biomarker as eGFR from cystatin C identified YPLHIV with increased ACR, proteinuria and hypertension p value 0.03.

**Conclusion:** The prevalence of CKD among YPLHIV was low. The definition of CKD and best biomarker for YPLHIV should be revised to correctly identify all that have CKD. Estimating equations should be validated in YPLHIV to improve their accuracy in estimating GFR.



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## Kidney Impairment in HIV: An Insight into the Burden and Associated Factors Among Adults on Antiretroviral Therapy (ART) in Zambia

Mutalange M<sup>1</sup>, Masenga S<sup>1</sup>, Hamooya B<sup>1</sup>

<sup>1</sup>Mulungushi University. School of Medicine and Health Sciences, Livingstone, Zambia

**Background:** Kidney impairment is still a public health concern globally ranging from asymptomatic kidney impairment to end-stage renal disease. It has been shown that kidney diseases are a significant cause of mortality and morbidity among people living with HIV. However, there is limited data on the burden and risk factors for kidney impairment in resource-limited settings. The objective of the study was to determine the prevalence and factors associated with kidney impairment in people living with HIV (PLWH) receiving antiretroviral therapy at Livingstone Teaching Hospital.

**Material and Methods:** We conducted a cross-sectional among 208 PLWH receiving ART. A structured questionnaire was used to collect clinical, laboratory and demographic characteristics. Some data was obtained from the medical records. Kidney impairment was defined as one having an estimated glomerular filtration rate (eGFR) of <60 ml/min/1.73m<sup>2</sup>. Data was analyzed using STATA version 15. Multivariable logistic regression was used to ascertain factors associated with kidney impairment.

**Results:** The median age among the study participants was 44 years and the majority were females (66%). The prevalence of kidney impairment was 9% (95% confidence interval (CI) 6% to 14%). After accounting for duration on ART, sex and blood pressure (systolic and diastolic), older age and being on a dolutegravir (DTG)-based regimen was positively with kidney impairment, odds ratio (OR) 1.13; 95%CI 1.06, 1.20 and OR 3.82; 95%CI 1.11, 13.10, respectively.

**Conclusions:** The prevalence of kidney impairment was common among adult PLWH and it was significantly associated with older age and use of a DTG-based regimen. There is need to regularly

monitor the kidney function among people with HIV more especially the older people who are on a DTG-based regimen.



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## Reducing Barriers to HIV Care: Home Delivery of Antiretroviral Therapy for Clients with Special Needs, Lessons from Lighthouse Trust Clinic, Malawi

Chione B<sup>1</sup>, Osman N<sup>1</sup>, Alli H<sup>1</sup>, Nhlema A<sup>1</sup>, Lazalo L<sup>1</sup>, Ntungalumbe E<sup>1</sup>, Chigalu L<sup>1</sup>, Chinkhombe N<sup>1</sup>, Thawani A<sup>1</sup>, Kamamia C<sup>1,2</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Center for Health, University of Washington, Seattle, USA

**Background:** The traditional clinic-based access to antiretroviral therapy (ART) poses challenges for clients with special needs (incapacitated People Living with HIV (PLHIV) due clinical conditions), hindering adherence and treatment outcomes. Among numerous Differentiated Service Delivery (DSD) models, Lighthouse Trust developed another model to address barriers to ART access for this group of PLHIV, the Special Needs Program (SNP), which offers home delivery of ART services. This abstract explores the potential of home ART delivery as an alternative approach to address barriers of ART access and sustain good treatment outcomes in this population.

**Materials and Methods:** We reviewed ART treatment outcomes of clients who clocked 12 months in the SNP at Umodzi Family Centre clinic (UFC), from January 2021. The eligibility criteria for this program are chronic debilitating conditions such as Stroke, Blindness, Amputation, Hypertension, Paralysis, Cancer, Diabetic-foot, Psychosocial, Epilepsy, and Arthritis. Home visits were done by nurses for routine clinical assessments especially, ART dispensation, and assessment of patient stability for discharge from the SNP. Using STATA V18, descriptive analysis was run to describe this cohort and assess retention, VL coverage, and suppression rates.

**Results:** We had 108 recipients of care, 56% females, median age of 54 IQR [46, 66]. Their median months on ART was 116 IQR [46, 182]. Among them, 58(54%) had stroke, 13(12%), 8(7%), 7(6%), 6(6%), and 6(6%) had visual, cancer, Arthritis, Diabetic-foot and psychosocial conditions

respectively. SNP achieved 92% of these patients retained in care, from which 27(30%) recovered and were able to visit the clinic. Positive treatment outcomes on VL coverage and suppression rates were maintained at 88% and 99% respectively.

**Conclusions:** These findings suggests that home ART delivery effectively addressed the barriers to care, ensuring sustained good treatment outcomes for PLHIV with special needs. It also demonstrates potential benefits in improving accessibility and treatment outcomes for this population. This approach can be instrumental in promoting adherence, reducing barriers to care, and enhancing the overall well-being of this specific population. Addressing challenges and conducting thorough research are essential to ensure the successful implementation and optimization of this innovative approach for this population.



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## Manifestations Cardiovasculaires Graves Au Cours de la COVID-19 Au Service Des Maladies Infectieuses et Tropicales du Centre Hospitalier Universitaire de Treichville de Mars 2020 à Mars 2022

Salamata S<sup>1</sup>, Frédéric E<sup>2</sup>, Alain K<sup>2</sup>, Gisèle K<sup>2</sup>,  
Mélaine M<sup>2</sup>, Adama D<sup>2</sup>, Aristophane T<sup>2</sup>, Serge Paul  
E<sup>2</sup>

<sup>1</sup>Centre Hospitalier Universitaire Yalgado Ouedraogo,  
OUAGAOUGOU, Burkina Faso, <sup>2</sup> Centre Hospitalier Universitaire  
de Treichville, Abidjan, Côte d'Ivoire

**Contexte** : La maladie à coronavirus (COVID-19) est une maladie souvent bénigne pouvant se compliquer d'une pneumonie sévère. Des données récentes de la littérature ont rapporté des atteintes cardiovasculaires graves pouvant engager le pronostic vital.

**Matériels et Méthodes** : Etude rétrospective à visée descriptive des patients hospitalisés au Service des Maladies Infectieuses et Tropicales d'Abidjan du 1er Mars 2020 au 31 Mars 2022. Ont été inclus dans l'analyse, les patients atteints de la COVID-19 avec une atteinte cardiovasculaire grave confirmée par les explorations paracliniques.

**Résultats** : Au total, 170 patients ont été inclus dans l'étude. L'âge médian des patients était de 61 ans avec un intervalle interquartile [49-69]. Le sex-ratio était de 2,25. Les manifestations cardiovasculaires graves étaient représentées par l'Arythmie Complète par Fibrillation Auriculaire (ACFA) (24,7%), l'embolie pulmonaire (EP) (11,7%), la Cardio Myopathie Dilatée (CMD) décompensée sur le mode global (7,6 %), le Syndrome Coronarien Aigu (SCA) (3,5%), la Thrombose Veineuse Profonde (TVP) (1,2%), la myocardite (1,2%), l'Infarctus Du Myocarde (IDM) (10,6%), le Bloc Auriculo Ventriculaire 3 (BAV3) (0,6%) et l'Extra Systole Auriculaire (ESA) (0,6%). La mortalité était de 91% au cours de ces manifestations cardiovasculaires graves.

**Conclusions** : L'expression clinique des MCG est multiforme grevée d'une mortalité élevée. Une surveillance cardiaque étroite devrait être instaurée chez tout patient atteint de la COVID-19 et porteur d'une comorbidité cardiaque connue



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## Uptake of Cervical Cancer Screening Services by FSW in the Two Main Cities in Burkina Faso: A Cross-Sectional Study

Traore I<sup>1</sup>, Traore M<sup>1</sup>, Bazie W<sup>1</sup>, Taofik A<sup>1</sup>, De Rekeneire N<sup>5</sup>, Vuylsteke B<sup>2</sup>, Alary M<sup>3</sup>, Nagot N<sup>4</sup>

<sup>1</sup>Centre Muraz, Bobo-dioulasso, Burkina Faso,

<sup>2</sup>Institute of Tropical Medicine, Antwerp, Belgium,

<sup>3</sup>Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Montréal, Canada, <sup>4</sup>INSERM, Université des Antilles, Etablissement Français du Sang, Montpellier, France, <sup>5</sup>Institut Pasteur Du Cambodge, , Cambodia

**Background:** Cervical cancer is one of the most common causes of cancer deaths in women worldwide. The global strategy to accelerate the elimination of cervical cancer as a public health problem states that by 2030, 90% of girls aged 15 should be fully vaccinated and 70% of women aged 35 should be screened for precancerous cervical lesions using a high-performance test. Female Sex Workers (FSW) have both HIV and cervical cancer risk factors, including early sexual activity and a high number of sexually transmitted infections. To date, despite the high vulnerability of FSW, no recent study has been carried out to describe their uptake of cervical cancer screening services.

**Materials and Methods:** From December 2018 to April 2019, as part of the implementation of the Key Population West Africa (POCAO) research programme, FSWs aged 18-55 years were enrolled in a cross-sectional study in the two main cities. Sociodemographic and behavioural characteristics, including previous cervical cancer screening, were collected using a standardised questionnaire.

**Results:** A total of 458 FSW were included. Among those aged 35 years and over, the proportion who had been screened at least once for precancerous lesions was 12.62% (95%CI: 10.69-14.54). In multivariate logistic regression, uptake of cervical screening services was higher among HIV infected FSW (Adjusted OR: 7.12 (95%CI: 0.1.23-41.04) and among those who reported they know where this service is provided: aOR= 8.74 (95%CI 1.35-56.75). Compared to non Professionnel FSW uptake of cervical screening service was lower among "Professional Sex Workers": aOR= 0.17 (95%CI: 0.03-0.90).

**Conclusions:** The alarming results concerning FSW coverage by cervical precancer screening services call for innovative initiatives to put the national cancer control program on the right track.



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## Vie à L'Épreuve du VIH : de L'Acceptation de la Séropositivité à L'Amélioration de L'Observance chez les Femmes Suivies au CHU-MEL (Cotonou-Bénin)

Godovo V<sup>1</sup>, Yakoubou A<sup>2</sup>, Enianloko N<sup>2</sup>, Anagonou L<sup>3</sup>

<sup>1</sup>Pédiatrie générale CHU-MEL (Cotonou, Bénin), Cotonou, Bénin,

<sup>2</sup>Service de pédiatrie du CHU-MEL et Unité de pédiatrie et de génétique médicale de la FSS (Cotonou, Bénin), Cotonou, Bénin,

<sup>3</sup>Clinique universitaire de santé mentale/CNHU-HKM et Département de santé mentale/FSS (Cotonou, Bénin), Cotonou, Bénin

**Contexte :** La perception que les patientes suivies au CHU-MEL ont du VIH perturbe sérieusement leur vécu de la séropositivité et des soins y afférents. Au nombre des facteurs qui agissent sur l'observance chez les femmes infectées au VIH, cette étude se centre sur l'acceptation du statut sérologique. Elle s'interroge sur les dynamiques qui lient cette acceptation à l'amélioration de l'observance médicale. L'objectif visé était d'analyser lesdites dynamiques sous un angle de lecture psychologique.

**Matériels et Méthodes :** L'étude a pour cadre empirique, le Centre Hospitalier Universitaire de la Mère et de l'Enfant Lagune (CHU-MEL) situé dans la ville de Cotonou. De nature qualitative, descriptive et analytique, la recherche a pris en compte 46 femmes infectées. Ces femmes ont été sélectionnées par combinaison des techniques dites de commodité et de choix raisonné. La collecte des données a été faite par entretiens cliniques et revue documentaire. Le traitement des données a été essentiellement qualitatif notamment par analyse de contenu.

**Résultats :** Il ressort de cette investigation, que les représentations sociales du VIH/SIDA sont partagées par la majorité des femmes interrogées. Celles-ci considèrent le résultat positif de la sérologie comme une erreur, une injustice de la nature à leur égard, une atteinte mystique. Pour certaines femmes, le VIH/SIDA est une maladie trop sale pour toucher des femmes sérieuses comme elles. Ces réalités installent chez les patientes un déni de l'infection à VIH. La

connaissance des attitudes sociales de stigmatisation, l'importante crainte qu'elle génère et l'insuffisance d'informations de qualité sur le VIH/SIDA rendent difficile l'acceptation du statut séropositif par les femmes. La détresse psychologique et sociale dans laquelle la nouvelle les plonge complique la situation et perturbe l'observance de leur traitement médical et celui de leurs enfants.

**Conclusions :** L'accompagnement psychologique adapté, les séances d'ETP et des expériences personnelles contribuent progressivement à l'amélioration de l'acceptation et celle de l'observance par voie de conséquence.

**Mots-clés :** VIH – Acceptation – Observance – CHU-MEL





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## Intersecting Realities: Exploring the Nexus of Mental Health, Drug Use, and HIV Prevention among Adolescents and Young Adults (AYA) in Zimbabwe

Dhodho M<sup>1</sup>, Munjoma M<sup>1</sup>, Mavudze<sup>1</sup>, Mutede B<sup>1</sup>,  
Taruberekera N<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe

There is lack of clear understanding of the surge in drug and substance use among Adolescents and Young adults (AYA) in Zimbabwe. To better understand drug and substance use among young people, Population Solutions for Health with support from the Sweden Embassy, conducted a study to investigate the intricate relationships between mental health, drug use, and HIV prevention, examining risks, factors, and interventions for a comprehensive public health strategy.

A cross-sectional study was conducted between May 2023 and June 2023. Data derived from the above stated survey was used, and included variables like substance use history, HIV transmission knowledge, engagement in risky sexual behaviours, and awareness of drug effects on mental health. We divided previously identified causes of drug use into mental health-related and non-mental health-related factors. Mental health-

related causes were prolonged or traumatic parental absence, harsh discipline, communication breakdown, family members using drugs, unemployment, and stress-related problems. Non-mental health causes included easy access to drugs, lack of awareness, availability of financial resources, peer pressure, experimentation, and weak law enforcement. Data were analysed using Stata 17.

Of the 770 participants examined, 46.5% were females, 53.2% males, and 0.26% transgender individuals. Median ages were 24 (IQR 19-29) for males and 23 (IQR 19-26) for females. Drug use was prevalent among males (50%) compared to females (36%), with a median age of onset at 18 (IQR 16-20). Among the 269 with a history of drug use, 73% attributed it to mental health reasons, while 27% cited non-mental health reasons. We observed universal HIV knowledge (97%) among drug users and non-users, no statistical difference. During drug use, 27% reported mental health issues, 6% engaged in risky sexual behaviours, 23% reported testing for HIV and 24% reported pregnancies.

The result emphasizes the complex relationship between drug use, mental health, and their impact on HIV prevention/transmission, including unwanted pregnancies. The intricate interplay underscores the importance of addressing mental health, a key contributor to risky behaviours such as substance abuse, heightening HIV transmission risks. Integrated interventions considering mental health alongside HIV prevention and drug use can enhance overall well-being and reduce transmission risks



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## Implementation of Community Antiretroviral Therapy Services Provision in Mamelodi East, Tshwane District, Gauteng, South Africa

Motloutsi M<sup>1</sup>, Salman V<sup>1</sup>, Nkuna K<sup>1</sup>, Mtimkulu I<sup>1</sup>, Minani P<sup>1</sup>, Munyai F<sup>1</sup>, Shai S<sup>1</sup>, Fick C<sup>1</sup>, Moripe W<sup>2</sup>, Imrie J<sup>1</sup>

<sup>1</sup>Wits RHI, University of the Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Tshwane Health District, Department of Health, Pretoria, South Africa

**Background:** South Africa's HIV response is evolving with increasing focus on improving treatment coverage and access for all, especially hard-to-reach populations. Community Antiretroviral Therapy provision (Community ART) aligns with the South African National Strategic Plan (NSP) 2023-2028 to control the HIV epidemic. We describe implementation of this approach in Mamelodi East in the Tshwane Health District.

**Material and Methods:** Together with the District Department of Health (DoH), Wits RHI began implementing community ART in April 2019. Mobile clinics previously used for community HIV testing were deployed for community ART in partnerships with DoH, community-based organizations and community structures. The model is nurse-led, offers a comprehensive service package provided within the mobile clinic and includes HIV testing through different modalities, ART initiation and follow up through differentiated models of care, including male-friendly services and peer support through the Coach Mpilo model for men. Geo-mapping is utilized to direct the teams to HIV hotspots. Outreach services target hard-to-reach populations in informal settlements, youth and male dominated areas (sport events, hostels and taxi rank) and workplaces.

**Results:** For six months before the implementation of community ART, a total of 14,171 patients were tested for HIV in the community with 968 (6.8%) testing positive and referred to PHC facilities for ART initiation, with an overall linkage of 46.6% (471) in March 2019. Following implementation of community ART from April 2019 to September 2019, 8829 patients were tested for HIV with 696 (7.8%) testing positive, and

585 (84%) initiated ART - an increase of 37.4% ( $p < 0.05$ ). By the end of September 2023, 2385 patients tested positive for HIV with 2236 (93%) initiating ART in the community ( $p < 0.05$ ). The model also expanded from three mobile clinics in 2019 to eight in 2023 to support more communities as per the demand for the programme.

**Conclusions:** Community ART services enhance treatment accessibility especially among those unable to readily access health facilities because of work, school, transport or other challenges. Further research is warranted to assess community HIV care's effect on achieving UNAIDS 95-95-95-95 targets.

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## Pattern of HIV-1 Drug Resistance Mutations Among People Living with HIV Failing Protease Inhibitor-Based Second-Line Antiretroviral Therapy in Zimbabwe

Mayini J<sup>1</sup>, Washaya T<sup>1</sup>, Rodgers L<sup>1</sup>, Govha E<sup>2</sup>, Kouamou V<sup>3</sup>, Manasa J<sup>1</sup>

<sup>1</sup>Biomedical Research and Training Institute, Avondale, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, AIDS and TB Programs, Harare, Zimbabwe, <sup>3</sup>Unit of Internal Medicine, Faculty of Medicine and Health Sciences, University of Zimbabwe, Zimbabwe

**Background:** Of the 1.3 million people living with HIV (PLWH) on antiretroviral therapy (ART) in Zimbabwe, 96% are on first-line, 3.5% on second-line and 596 on third-line. Zimbabwe has embraced the scaling up of dolutegravir (DTG) as the preferred first-line regimen. DTG which has a high genetic barrier to resistance, is also used in second and third-line ART regimens. However, a substantial proportion of PLWH who will benefit from DTG are still failing treatment on protease inhibitor (PI)-based second-line regimens. PLWH failing on PI-based regimens require viral load monitoring and genotypic resistance testing (GRT) before switching to DTG-based ART as per National guidelines. HIV drug resistance (HIVDR) data on PI-based ART remains scarce yet vital for adherence monitoring and optimised third-line treatment



strategies. We assessed the prevalence and pattern of HIVDR in PLWH failing second-line ART from 2021 to 2023 in Zimbabwe.

**Materials and Methods:** We conducted a cross-sectional analysis of 310 PLWH failing second-line PI-based ART with confirmed virological failure. Samples were referred to the Biomedical Research and Training Institute for GRT from national third-line treatment centres. RNA was extracted from plasma, amplified, and sequenced (Sanger) in the reverse transcriptase (RT) and protease (PR) regions. Chromatograms from sequencing were assembled and analysed using Geneious Prime Software and mutations were interpreted using the Stanford HIVDR database.

**Results:** 275 samples were successfully genotyped. The majority (52%) were male, and the median age was 32 years. The median VL was log<sub>10</sub> 5.2 copies/mL. Drug-resistant mutations (DRMs) were found in 92% (253/275) of the samples. Dual-class resistance was identified in 55.6% (153/275). 56% (154/275) had PI mutations with M46I (40%), V82A (35%) and I54L (30%) being the most prevalent DRMs. The prevalence of NRTI and NNRTI DRMs was 86.1% (237/275) and 90.1% (248/275), respectively; with M184V being the predominant NRTI DRM at 60%.

**Conclusions:** A high prevalence of HIV DRMs to PIs among PLWH failing on a PI-based regimen was observed. These PLWH can benefit if switched to DTG-based regimens. This necessitates the implementation of enhanced HIVDR surveillance and monitoring programs to inform national ART guidelines for the treatment of PLWH in Zimbabwe.

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## Cases With Dolutegravir Resistance in Malawi's National HIV Treatment Program: Virological Findings and Treatment Outcomes

Kanise H<sup>1</sup>, van Oosterhout J<sup>1,2</sup>, Bisani P<sup>3</sup>, Nkhoma L<sup>3</sup>, Songo J<sup>1</sup>, Matola B<sup>4</sup>, Chipungu C<sup>1</sup>, Simon K<sup>5,6</sup>, Cox C<sup>5,6</sup>, Hosseinipour M<sup>7,8</sup>, Sagno J<sup>9</sup>, Hoffman R<sup>2</sup>, Wallrauch C<sup>3</sup>, Phiri S<sup>1,10</sup>, Steegen K<sup>11,12</sup>, Jahn A<sup>4,13</sup>, Nyirenda R<sup>4</sup>, Heller T<sup>3,13</sup>

<sup>1</sup>Partners In Hope, Lilongwe, Malawi, <sup>2</sup>Division of Infectious Diseases, David Geffen School of Medicine, University of California., Los Angeles, United States, <sup>3</sup>The Lighthouse Trust, Lilongwe, Malawi, Lilongwe, Malawi, <sup>4</sup>Department of HIV-AIDS, Ministry of Health., Lilongwe, Malawi, <sup>5</sup>Baylor College of Medicine Children's Foundation-Malawi., Lilongwe, Malawi, <sup>6</sup>Baylor College of Medicine., Houston, United States, <sup>7</sup>University of North Carolina Project Malawi., Lilongwe, Malawi, <sup>8</sup>University of North Carolina at Chapel Hill School of Medicine., Chapel Hill, United States, <sup>9</sup>DREAM, Communion of St. Egidio, Malawi, Blantyre, Malawi, <sup>10</sup>School of Global and Public Health, Kamuzu University of Health Sciences., Lilongwe, Malawi, <sup>11</sup>Department of Haematology & Molecular Medicine, National Health Laboratory Service., Johannesburg, South Africa, <sup>12</sup>Department of Haematology & Molecular Medicine, University of the Witwatersrand, Johannesburg, South Africa, <sup>13</sup>Department of Global Health, University of Washington, Seattle, United States

**Background:** Millions of Africans are on dolutegravir-based antiretroviral therapy (ART), but few detailed descriptions of dolutegravir resistance and its clinical management exist.

**Materials and Methods:** We reviewed HIV drug resistance (HIVDR) testing application forms submitted between June 2019 and October 2022, data from the national HIVDR database and genotypic test results. We obtained standardized ART outcomes and virological results of cases with dolutegravir resistance and explored associations with dolutegravir resistance among individuals with successful sequencing.

**Results:** All cases were on two nucleoside reverse transcriptase inhibitors (NRTIs) plus dolutegravir and had confirmed virological failure (VL >1,000 copies/mL → 3 months period with enhanced adherence counseling → repeat VL >1,000 copies/mL), generally with prolonged viremia. Among 89 samples with successful integrase sequencing, 24 showed dolutegravir resistance (27%). Dolutegravir resistance-associated



mutations included R263K (16/24), E138K (7/24) and G118R (6/24). Resistance level (Stanford dB 9.0) was low in 8% (2/24), intermediate in 54% (13/24) and high in 38% (9/24). Eight cases had 3 major INSTI mutations and 16 cases had one. In multivariable logistic regression analysis, older age (aOR 4.77; 95%-CI 1.13-20.1;  $p=0.033$ ; age 40+ vs. age 0-19 years as reference) and presence of high-level NRTI resistance (aOR 10.0; 95%-CI 2.57-39.1;  $p<0.001$ ) were significantly associated with dolutegravir resistance. After treatment modification recommendations, four individuals (17%) with dolutegravir resistance died, one self-discontinued ART, one defaulted and one transferred-out. Of 17 remaining individuals, 12 had follow-up VL results and 11 (92%) were  $<1,000$  copies/mL.

**Conclusions:** We found 24 cases with dolutegravir resistance among 89 individuals with confirmed virological failure, suggesting a considerable prevalence in the Malawi HIV program. Formal national surveillance of dolutegravir resistance is therefore urgently needed. Although successful management of dolutegravir resistance was possible, early mortality was high. More research from the region needs to guide the management of treatment-experienced individuals with dolutegravir resistance.

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## Key Populations Living with HIV Showing Better Viral Suppression Rates Than General Population: Analysis of Routine Program Data Across 24 EpiC-Supported Countries

Odo M<sup>1</sup>, Carpenter D<sup>2</sup>, Satti H<sup>2</sup>, Kariuki M<sup>5</sup>, Flomo J<sup>1</sup>, Msofe J<sup>3</sup>, Walker C<sup>2</sup>, Thakur P<sup>4</sup>, Kamanga G<sup>1</sup>, Akolo C<sup>2</sup>

<sup>1</sup>FHI360/MOH, Monrovia, Liberia, <sup>2</sup>FHI 360, Washington DC, United States of America, <sup>3</sup>FHI 360, Dar Es Salaam, Tanzania, <sup>4</sup>FHI 360, Kathmandu, Nepal, <sup>5</sup>FHI 360, Nairobi, Kenya

**Background:** The goal of antiretroviral therapy (ART) is to achieve viral suppression, mitigate transmission and improve health outcomes. Key Populations (KP) often have poor access to treatment and thus lower viral suppression due to criminalization, stigma, and discrimination in many settings. The PEPFAR USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project supported safer and improved access to HIV treatment to meet the needs of KPs. We compared the viral suppression rates among people living with HIV (PLHIV) on treatment between the general population (GP) and KPs.

**Materials and Methods:** We evaluated routinely collected individual level program data in DHIS2 e-tracker from PLHIV on treatment across 24 countries in Asia and sub-Saharan Africa (SSA) between October 2022 and September 2023. We extracted data by population groups who were virally suppressed ( $<1000$  copies of viral RNA/ml of blood). We further analyzed aggregated data for four countries across Central and West Africa with complete comparable proportion of virally suppressed PLHIV from GPs vs KPs. Chi-square statistics were used for proportional comparisons using R version 4.2.1 ( $p<0.05$ )

**Results:** The analysis included 347,065 PLHIV on ART with 24% of the clients from the GP. The overall proportion of viral suppression was 96.5%. Suppression was the highest among transgender (TG) (99%), men who have sex with men (MSM) (98%), and female sex workers (FSW) (98%). In the 4 SSA countries further analyzed, the proportion of PLHIV suppressed was higher among KPs than GP ( $p<0.05$ ).

**Conclusions:** Our analysis shows higher viral suppression rates among KPs compared to the GP. Analyses such as these can identify populations who remain behind and use these data to support tailored programming for these clients. With careful planning, programs can successfully reach clients and achieve viral suppression among those harder to reach.



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## Genetic Characterization of Viral Blips in Patients Following Suppressive HIV-1 ART

**Jhamba L<sup>1</sup>**, Khan N<sup>2</sup>, Molechan C<sup>1</sup>, Reddy K<sup>1</sup>, Dong K<sup>3</sup>, Ndung'u T<sup>1,2,3</sup>, Gounder K<sup>1,2</sup>

<sup>1</sup>Africa Health Research Institute, Durban, South Africa, <sup>2</sup>HIV Pathogenesis Programme, School of Laboratory Medicine and Medical Sciences, College of Health Sciences, University of KwaZulu-Natal, Durban, South Africa, <sup>3</sup>Ragon Institute of MGH, Harvard and MIT, Massachusetts General Hospital, Harvard Medical School, Cambridge, USA

Antiretroviral therapy (ART) has seen HIV-related mortality decline worldwide. On initiating treatment, most patients can suppress plasma viral RNA to undetectable levels (<50 copies/mL). Patients on ART frequently experience intermittent viremia (viral blips), however the genetic nature and source of these rebounding viruses while on suppressive ART remains unclear. We identified four HIV-1 subtype C infected women from the Females Rising through Education, Support and Health (FRESH) acute infection cohort who experienced viral blips following suppressive ART (median 584 days). Two participants initiated treatment during the chronic infection phase (~625 days post detection) and the other two upon detection of acute infection (0 days post detection) prior to seroconversion. RNA was extracted from stored plasma samples of participants' transmitter/founder (T/F) (~3 days post detection), pre-treatment initiation and during viral blips (>2000 copies/mL). Gag and Env genes were amplified by single genome amplification followed by sequencing. The protease and reverse transcriptase region of the pol gene were amplified, and bulk sequenced. Phylogenetic relatedness and genetic differences were visualized using Maximum-likelihood trees and Highlighter plots respectively (Los Alamos HIV-1 database). The gag and env blip sequences of the acute-treated participants were similar to those of the T/F, while those of the chronic-treated participants were genetically distinct from the T/F but similar to the PreART. In the acute-treated participants, all the transmitted HLA-associated gag CTL escape was retained at the blip, however the chronic-treated participants experienced an increase of ~0.8% at the blip. This increase coupled with development of a reduced replication

capacity mutation (HLA-B\*5701/5801 T242N), indicated immune pressure before ART. Mutations associated with bnAb escape in the cD4 binding, gp120/gp41 and V1V2 sites were identified in the PreART and blip sequences of the chronic-treated participants, whereas the acute-treated retained the same amino acid residues at T/F and blip. All blips were associated with an increase in proviral DNA and undetectable drug levels. With the exception of one chronic-treated participant who developed resistance to efavirenz, the viral blips were not associated with drug resistance. This data suggests that those who initiate treatment late are less likely to benefit from an immune response-inducing vaccine or bnAb therapy.

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## Virtual Enhanced Adherence Counseling and Viral Re-Suppression among Children, Adolescents, and Young Persons living with HIV at selected HIV care and treatment facilities in Nairobi, Kenya

**Owino A<sup>1</sup>**, Odhiambo C<sup>1</sup>, Kubo E<sup>1</sup>, Arodi S<sup>1</sup>, Marima R<sup>1</sup>, Achwoka D<sup>1</sup>, Simiyu T<sup>1</sup>, Mecha J<sup>1</sup>, Otieno C<sup>1</sup>  
<sup>1</sup>University Of Nairobi School Medicine Fahari Ya Jamii Program USAID Kenya/ East Africa, Nairobi, Kenya

**Background:** Viral suppression of children, adolescents, and young persons living with HIV (CAYPLHIV) with high viral load (HVL) remained a challenge despite in-person increased adherence sessions or direct witness ingestion (DWI). Fahari ya Jamii (FYJ) USAID funded project' June 2023 data for CAYPLHIV indicated viral suppression ranging from 41% to 70%. We implemented phone-based virtual enhanced adherence counseling (VEAC) and daily medication intake reminders for CAYPLHIV with HVL as an adaptation intervention to improve viral suppression.

**Description:** From July 2023, we implemented virtual EACs and daily medication reminders in six high-volume FYJ-supported facilities. We developed standard operating procedures for



conducting virtual EACs and medication reminders. Forty-eight healthcare personnel were trained on these, including a script for VEAC. Airtime for phones was provided. We defined VL suppression as <50 copies/ml. We linked a case manager to each child with a detectable VL ( $\geq 51$  copies/ml) after obtaining caregiver consent. Clients' and case managers' phone alarms were set to remind them of the timing of medications. Case managers called patients and their caregivers daily to verify if they were taking their medications as prescribed. We assessed patients' VL results after 3 months of successful VEAC sessions. We recorded the results in the High VL register and a live Google sheet designed for VEAC progress tracking.

**Lessons Learnt:** Between July and November 2023, 393 CAYPLHIV with HVL were reviewed. All 393 remained active, with 100% having VL results documented. Of those tested, 338 (86%) were re-suppressed without regimen change, showing improvement across age groups (59% for 1–4 years, 86% for 5–9 years, 91% for 10–14 years, 81% for 15–19 years, and 89% for 20–24 years). Baseline suppression improved from 63% to a re-suppression of 86% ( $p < 0.001$ ). Challenges in the 1-4-year category included drug palatability, side effects, caregiver factors, stigma, forgetfulness, and medication administration difficulties.

**Conclusions:** Daily phone-based reminders and VEAC may improve VL suppression among CALHIV. Programs experiencing similar challenges within comparable contexts may benefit from this approach.

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## Virological Characteristics of Key Populations Living with HIV on DTG-based Regimen in Liberia: A Comparative Analysis by Period and Population

**Kiazolu M<sup>1</sup>**, Lyimo R<sup>1</sup>, Kamanga G<sup>1</sup>, Odo M<sup>1</sup>, Varney P<sup>1</sup>, Thakur P<sup>2</sup>, Clement N<sup>1</sup>

<sup>1</sup>FHI 360 EpiC, Monrovia, Liberia, <sup>2</sup>FHI 360, Kathmandu, Nepal



In June 2020, Liberia adopted dolutegravir (DTG)-based regimen as the first-line antiretroviral therapy (ART) for key populations living with HIV (KPLHIV). Transition from TLE (Tenofovir/Lamivudine/Efavirenz) to a DTG-based regimen was swiftly implemented with support from the PEPFAR-funded, FHI 360-led EpiC project. We analyzed the virological characteristics of KPLHIV transitioning from legacy regimens to DTG-based regimens and ART-naïve KPLHIV starting DTG-based regimen within 12 months.

A retrospective cohort analysis was conducted using data from the District Health Information System 2 (DHIS2) e-Tracker for KPLHIV on treatment between 2021 and 2023 within the 21 PEPFAR-supported health facilities. The cohort included 1,720 KPLHIV, with 32.1% ( $n=552$ ) transitioning from TLE to DTG-based regimen and 67.9% ( $n=1,168$ ) ART-naïve starting DTG-based regimen. Baseline viral load (VL) suppression was analyzed at transition, 6 months after treatment initiation, as well as at 12 months post-transition/initiation. Chi-square statistics were used for proportional comparisons in VL changes using R version 4.2.1 ( $p < 0.05$ ).

Of the 1,720 KPLHIV, 923 (53.7%) were female sex workers (FSWs), 673 (39.1%) men who have sex with men (MSM), and 124 (7.2%) transgender individuals. By the end of December 2021, all 1,720 KPLHIV had initiated or fully transitioned to DTG-based regimens. Females constituted 54.2% ( $n = 933$ ) of the cohort. Baseline data among clients who had VL test done showed 92.6% ( $n = 1,013$ ) were suppressed and 7.4% ( $n = 81$ ) unsuppressed. After 12 months, among the 757 (69.2%) KPLHIV with documented VL test result, 96.2% ( $n = 652$ ) were suppressed, while 3.8% ( $n = 29$ ) remained unsuppressed. Viral suppression at 12 month was 97.5% among KPLHIV who transitioned compared to 95.6% among ART-naïve KPLHIV started on DTG-based regimen. Population data showed viral suppression of 96.3% among FSWS, 95.4% among MSM, and 100% among TG. Virological dynamics did not differ by sex (male = 95.9% vs. female = 96.3%;  $p = 0.9264$ ), and data also showed no statistical difference by KP type ( $p = 0.2611$ ).

KPLHIV demonstrated favorable virological outcomes upon transitioning to DTG-based regimens. Prioritizing DTG-based regimens for KP is crucial for enhancing treatment outcomes and for sustaining efforts at achieving epidemic control in Liberia.

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## Partner-Based HIV Treatment for Seroconcordant Couples Attending Antenatal and Postnatal Care in Rural Mozambique: A Cluster Randomized Controlled Trial

Audet C<sup>1,2</sup>, Graves E<sup>2</sup>, Shepherd B<sup>3</sup>, Prigmore H<sup>3</sup>, Brooks H<sup>2</sup>, Emilio A<sup>4</sup>, Matino A<sup>4</sup>, Paulo P<sup>5</sup>, Diemer M<sup>6</sup>, Frisby M<sup>7</sup>, Sack D<sup>2</sup>, Aboobacar A<sup>8</sup>, Barreto E<sup>4</sup>, Van Rompaey S<sup>5</sup>, De Schacht C<sup>5</sup>

<sup>1</sup>Vanderbilt University Medical Center, Department of Health Policy, Nashville, United States, <sup>2</sup>Vanderbilt University Medical Center, Vanderbilt Institute for Global Health, Nashville, United States, <sup>3</sup>Vanderbilt University Medical Center, Department of Biostatistics, Nashville, United States, <sup>4</sup>Friends in Global Health, Quelimane, Mozambique, <sup>5</sup>Friends in Global Health, Maputo, Mozambique, <sup>6</sup>University of Michigan, School of Education, Ann Arbor, United States, <sup>7</sup>Georgia State University, Department of Educational Policy Studies, Atlanta, United States, <sup>8</sup>Provincial Health Directorate of Zambézia, Quelimane, Mozambique

**Background:** Evidence exists that having a supportive male partner facilitates maternal HIV testing during pregnancy, increases maternal antiretroviral treatment (ART) initiation and adherence, and increases HIV-free infant survival. Most male partner engagement clinical strategies have focused on increasing couple-based HIV testing and counseling uptake. We delivered a couple-based care and treatment intervention to improve ART retention in expectant couples living with HIV. Adult retention and infant seroconversion outcomes were reported.

**Materials and Methods:** A cluster randomized controlled trial was implemented for seroconcordant couples living with HIV, comparing retention in HIV care for a couple-based care and treatment intervention versus standard of care (SOC) services in 24 sites in rural Zambézia Province, Mozambique. The intervention included couple-based treatment, couple-based education and skills building, and couple-peer educator support, offered at facility and community level.

**Results:** We recruited 1080 couples; data were available for 2151 adults. Women in the intervention arm had a median 12-month ART medication possession ratio (MPR) of 74% [interquartile range (IQR): 49, 88] vs 74% [IQR:

53,87] in the SOC arm. Using a linear mixed-effects model (LMM) adjusted for baseline covariates with a random effect for clinic, the intervention showed no impact on the MPR among women at 12 months ( $p=0.9$ ). Among men, the intervention showed a positive impact on MPR, as men in the intervention arm had a median 12-month MPR of 58% [IQR: 32, 81] vs. 48% [IQR: 17, 75] in the SOC. Using the same LMM design, men in the intervention arm had, on average, a MPR that was 8.8% higher than in SOC arm ( $p=0.015$ ). Our unadjusted logistic regression model found that the odds of an infant seroconverting in the intervention group was 30% less than in the SOC group, but results were not statistically significant ( $p=0.13$ ).

**Conclusions:** We found no difference in maternal outcomes by study arm, but our intervention resulted in an improved MPR among male partners. This shows that a community/clinic-based treatment framework can improve outcomes among male partners. Further investigation is needed to improve psychosocial support for pregnant/lactating women and to facilitate prevention of vertical transmission among couples living with HIV.

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## Health-Related Quality of Life among HIV-Infected Youth (15 - 24 Years) in Kigali, Rwanda: A Cross Sectional Study

Niyongabo B<sup>1</sup>, Tuyishime S<sup>1</sup>

<sup>1</sup>Management Sciences For Health(MSH), Kigali City, Rwanda

**Background:** In Rwanda, life expectancy of youth living with HIV has increased dramatically as a result of combined antiretroviral therapy. As HIV becomes a chronic disease, there is interest in measuring the Health-Related Quality of Life (HRQOL). This study aimed to assess HRQOL among youth living with HIV and associated factors.

**Materials and Methods:** We conducted a cross-sectional study among 520 youth living with HIV, enrolled at three HIV clinics in Kigali, Rwanda between March and June 2022. We used a





structured questionnaire adopted from the “WHOQOL-HIV BREF instrument” and summarized categorical variables as proportions and continuous variables as means (SD) or medians (IQR) as appropriate. Multivariable linear regressions were used to assess the factors associated with HRQOL. All analyses were performed in StataCorp LLC, Version 14.0.

**Results:** The mean age of participants was 20.4 (SD± 2.7 years), with the majority being female 57.5% (299/520). The overall HRQOL median score was 88.5 (Inter Quartile Range, 80.5-96.5). About half, 49.80% (261/520) of youth living with HIV had a good HRQOL (Global score≥88.5). The factors that were associated with HRQOL were being male (Adjusted Mean difference ( $\beta$ )), male versus female,  $\beta=0.144$ ; 95% CI: 0.01,0.27,  $p=0.031$  and HIV vertical transmission (mother to child transmission) which negatively predicted Health-related Quality of life compared to HIV transmission through blood products,  $\beta=-0.53$ , 95% CI: -1.02, -0.05,  $p=0.030$ .

**Conclusions:** Males had better HRQOL than females but the difference was not substantial. Better HRQOL was associated with other modes of HIV transmission compared to mother-to-child transmission. We recommend adding a ‘fourth 95’ to the testing, treatment and viral load target, and ensure that 95 % of people with viral load suppression have good health-related quality of life.

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## The Antiretroviral Therapy Journey: Predictors and Patterns of HIV Treatment Interruption and Reengagement in Kenya

Muthoka K<sup>1</sup>, Otieno B<sup>1</sup>, Masamaro K<sup>2</sup>, Achieng A<sup>1</sup>, Karanja S<sup>3</sup>, Maangi D<sup>2</sup>, Nyagah L<sup>4</sup>, Odhiambo J<sup>1</sup>, Thuo R<sup>3</sup>, Kimanga D<sup>2</sup>

<sup>1</sup>Kenya Health Information Management Systems (KeHMIS) III Project, Palladium Kenya, Nairobi, Kenya, <sup>2</sup>Division of Global, HIV & TB, Global Health Center, US Centers for Disease Control and Prevention, Nairobi, Kenya, <sup>3</sup>Jomo Kenyatta University of Agriculture and Technology (JKUAT), Nairobi, Kenya, <sup>4</sup>National AIDS and STIs Control Programme, Ministry of Health, Nairobi, Kenya



**Background:** Antiretroviral therapy (ART) clients often experience cycles of interruption in treatment (IIT) and reengagement. IIT contributes to viral load non-suppression and HIV transmission. We describe patterns and predictors of IIT using de-identified electronic medical records data from Kenya’s National Data Warehouse.

**Materials and Methods:** A retrospective cohort of clients who initiated ART in 2019 from 1,777 (46.2%) facilities in Kenya were followed for 36 months. IIT was defined as a missed appointment for ≥30 consecutive days. Reengagement was the subsequent visit following IIT. Mixed-effects logistic regression models were used to identify predictors of IIT.

**Results:** Of 128,378 patients analyzed, 64.6% were female; 5.4% were aged <15 years. Majority, (71.9%), had experienced IIT. The median time to first IIT was 150 days (IQR: 60-343). Most IIT occurred within 1 year of ART initiation; 22.6%, 33.2%,10.7% IIT occurred in <3, 3-12,13-24 and 5.4% in >24 months respectively. Median IIT occurrence was 1(IQR: 0-2); Majority (46.9%) of clients had 1 IIT, and 16.6%, 5.8%, 1.8%, 0.6% and 0.3% had 2, 3, 4, 5 and >6 IIT occurrences respectively. Most (61.0%), IIT clients reengaged within 36 months. Median time to reengagement was 52 days (IQR:15-157). Majority (34.2%) reengaged within <3 months of IIT and 17.2%, 5.9% and 3.7% reengaged in 3-12, 13-24 and >24 months after IIT respectively. Predictors of IIT were age 15-24 years (aOR, 1.38, 95% CI 1.30–1.47, $p<0.001$ ), male (aOR, 1.03, 95% CI 1.01–1.04,  $p=0.004$ ), single (aOR, 1.12, 95% CI 1.10–1.44,  $p<0.001$ ), same day ART initiation (aOR, 1.18, 95% CI 1.14–1.21,  $p<0.001$ ), not on multi-month dispensation (aOR, 1.79, 95% CI 1.76–1.82,  $p<0.001$ ), non-Dolutegravir-based regimen (aOR, 1.26, 95% CI 1.24–1.29,  $p<0.001$ ), sub-optimal adherence (aOR, 1.40, 95% CI 1.31–1.49,  $p<0.001$ ), mission facilities (aOR, 1.52, 95% CI 1.13–2.05,  $p=0.005$ ) and private facilities (aOR, 1.90, 95% CI 1.44–2.52,  $p=0.017$ ). ART initiation after 8-14 days (aOR, 0.91, 95% CI 0.86-0.96,  $p=0.001$ ) and increased ART duration (aOR, 0.98, 95% CI 0.98-0.98,  $p<0.001$ ) were protective against IIT.

**Conclusions:** Patients experiencing cycles of IIT and reengagement had modifiable demographic, clinical and facility factors. We recommend targeted measures to mitigate IIT and promote reengagement.

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## Impact of Low-Level Viremia on Non-virological Suppression Among People Living with HIV in Low- And Middle-Income Countries: Systematic Review and Meta-Analysis

Koola A, Peter T, Lascko T, Ramadhani H  
<sup>1</sup>Amity Regional High School, Woodbridge, United States,  
<sup>2</sup>Kilimanjaro Christian Medical University College, Moshi,  
 Tanzania, <sup>3</sup>Center for International Health, Education, and  
 Biosecurity, University of Maryland School of Medicine,  
 Baltimore, United States, <sup>4</sup>Institute of Human Virology,  
 University of Maryland School of Medicine, Baltimore, United  
 States

**Background:** Low-level viremia (LLV), defined as viral load (VL) of 50-999 copies/mL, has been associated with increased risk of virological failure and drug resistance. Much of this research has been conducted in high-income countries and there is insufficient research on LLV and VL suppression (VLS) in low- and mid-income countries (LMICs). We aimed to determine pooled prevalence of LLV, VLS, and association between LLV and non-VLS among people living with HIV in LMICs.

**Materials and Methods:** This was a systematic review and meta-analysis in which databases were searched for articles and abstracts reporting the association between LLV and VLS in LMICs between January 2015 and December 2023. Participants with VL <50 copies/mL were considered fully suppressed and those with VL ≥1,000 copies/mL were non-suppressed. A stratified analysis was performed to assess the pooled prevalence and the association between LLV and VLS among children vs adults and among studies done in Africa vs Asia. Using random effects models, we computed pooled prevalence and 95% confidence intervals (CIs).

**Results:** A total of 12 studies with 746,012 people living with HIV were analyzed. Overall, pooled prevalence of VLS and LLV was 92% and 21%, respectively. Prevalence of VLS was significantly higher among adults compared to children (94% vs 83%;  $p<0.01$ ) and higher among studies done in

Africa compared to Asia (96% vs 89%;  $p<0.001$ ). There was no statistically significant difference in the prevalence of LLV among studies involving children compared to adults (23% vs 22%;  $p=0.881$ ). The prevalence of LLV was significantly lower among studies done in Africa compared to Asia (21% vs 26%;  $p<0.001$ ). Overall, LLV increased the risk of non-VLS on a subsequent VL test compared to fully suppressed, (RR=2.33; 95%CI:1.64-3.31). In stratified analysis comparing children vs adults and studies done in Africa vs Asia, LLV continued to be associated with increased risk of non-VLS.

**Conclusions:** Low-level viremia was associated with an increased risk of non-VLS. Although LLV was similar for adults and children, VLS was lower among children. Stakeholders should consider reviewing guidelines for the threshold of VLS given that LLV was consistently associated with increased risk of non-VLS across all groups.

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## Mental Health Issues and Viral Suppression Among People Living with HIV on Anti-retroviral Therapy (ART) in South-Eastern Nigeria

Obokon G<sup>1</sup>, Oparaocha E<sup>1</sup>, Chukwuocha U<sup>1</sup>,  
 Ekeleme U<sup>1</sup>, Dozie W<sup>1</sup>, Chukwu R<sup>2</sup>, Enejoh V<sup>3</sup>  
<sup>1</sup>Department of Public Health, Federal University of Technology,  
 Owerri, Imo State, Nigeria, Owerri, Nigeria, <sup>2</sup>Department of  
 Public Health, Purdue University, West Lafayette, USA., <sup>3</sup>Charis  
 Health Care & Community Support Initiative, Jos, Nigeria.

**Background:** The intersection of mental health issues and HIV/AIDS poses a critical challenge in the comprehensive care and management of individuals living with HIV. People living with HIV (PLHIV) on ART struggle with not only the physical aspects of the condition but also the psychological implications associated with it. HIV remains a significant public health challenge in south-eastern Nigeria, with suboptimal treatment outcomes among PLHIV on ART. Understanding the intricate relationship between mental health problems and viral suppression among PLHIV on ART becomes imperative. Therefore, this study explores the



relationship between mental-health issues and viral suppression among PLHIV on ART in Southeastern Nigeria.

**Materials and Methods:** An hospital-based unmatched Case-control study was conducted among 1,202 PLHIV, aged  $\geq 10$  yrs and on ART. Cases were people living with HIV (PLHIV) on ART who had achieved viral suppression, while controls were those with viral non-suppression. Multi-stage random sampling techniques was utilized in selecting study participants. Patient-Health-Questionnaire (PHQ-2/PHQ-9), Perceived-Stress-Scale (PSS-10) and internalized AIDS-related stigma-scale (IA-RSS) were used to measure depression, perceived-stress and HIV-related stigma. Data were entered into SPSS Version-26 software and analyzed using descriptive statistics; (percentages, mean, standard deviation), and inferential statistics using logistic regression at  $< 0.05$  statistical significance.

**Results:** Majority were females (62.2%), (30.4%) and 10.9% were aged 25–34 yrs and  $\geq 55$  yrs respectively. Mean age was 17.7 years (St. dev = 12.2 years). Depression (50.5%) was prevalent among participants, of which 25%, 22% and 53% were mildly, moderately and severely depressed. 44.1%, 23.4% and 32.5% had low, moderate and high perceived stress, while 46.2% and 53.2% recorded high and low HIV-related stigma. Depression ( $p < 0.001$ : Mild: AOR=0.37, 95% CI= 0.23-0.58; moderate: AOR=0.26, 95% CI= 0.15-0.44; severe: AOR=0.18, 95% CI= 0.11-0.29) and perceived stress ( $p < 0.001$ : AOR= 0.43, 95% CI= 0.28-0.67) were found to be significantly associated with viral suppression among PLHIV on ART.

**Conclusions:** The study reveals a significant prevalence of depression and perceived stress among PLHIV on ART, underscores the urgent need for integrated mental health interventions within HIV care programs. Addressing mental health challenges through targeted support and interventions is essential to enhance the overall well-being of PLHIV and improve viral suppression outcomes in this population.

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## Le Profil Des Perdus de Vue Selon Le Nombre de Mois de Dispensation Des Médicaments Antirétroviraux AU Sénégal en 2022

Sagna A<sup>1</sup>, THIAM S<sup>1</sup>, DIEYE C<sup>1</sup>, KOULIBALY C<sup>1</sup>, NDOUR C<sup>2</sup>

<sup>1</sup>Conseil National De Lutte Contre Le Sida, Dakar, Senegal,  
<sup>2</sup>Division de lutte contre le sida et les IST, Dakar, Senegal

**Contexte :** Le Sénégal, à l'instar de la communauté internationale, s'est engagé pour l'atteinte des cibles des 95-95-95 d'ici à 2025. La rétention des personnes vivant avec le VIH (PVVIH) dans les soins est un indicateur clé pour évaluer la qualité de la prise en charge (PEC). Cependant on note une proportion importante de perdus de vue (PDV). Les résultats ont été analysés pour définir le profil des PDV selon le nombre mois de dispensation des ARV.

**Matériels et Méthodes :** Les données de la cohorte des PVVIH enrôlées et traitées dans les 148 sites de PEC au Sénégal en 2022 ont été analysées. La collecte et l'analyse des données se sont déroulées du 09 Janvier au 17 Février 2023. Les dossiers des patients et les maquettes de PEC ont été recueillies et analysées.

**Résultats :** A la fin de l'année 2022, la file active de patients sous traitement antirétroviral (TARV) était de 33 423 et 3 903 PVVIH étaient déclarées en rupture de soin depuis au moins 28 jours, soit 9,42%. Les enfants âgés de moins de 15 ans représentaient 3,89% de la proportion de PDV. Les femmes âgées de plus de 15 ans étaient de 72%. L'âge moyen était de 41 ans. La durée moyenne de TARV était de 50 mois. Les PVVIH qui avaient une durée de TARV de moins de 6 mois était de 159 soit 4,07%. Les PVVIH déclarées stables représentaient 1434 soit 36,74%. La répartition des PVVIH en rupture de soin a montré que 83,58% avaient reçu moins de 3 mois de TAR lors de leur dernier rendez-vous, 13,66% un TAR entre 3 et 5 mois et seulement 2,77% ont reçu un TAR de 6 mois ou plus.

**Conclusions :** La proportion de PVVIH en rupture de TARV était très élevée. La prestation des services différenciés devrait être mise en œuvre et



appliquée dans tout le pays. La relance régulière des PVVIH qui ont manqué à leur RDV et la recherche systématique des PDV permettront de réduire le nombre de PDV.

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## Analyse du Suivi Virologique chez les Adolescents Vivant avec le VIH (AVVIH) au Sénégal en vue de l'Atteinte du Troisième Objectif des 95% de l'ONUSIDA

Pandi M<sup>1,2</sup>, SOKPO S<sup>1,2</sup>, SOW F<sup>1,2</sup>, AKOTIA H<sup>1,2</sup>, NDIAYE O<sup>1</sup>

<sup>1</sup>Crcf, Dakar, Senegal, <sup>2</sup>Université Cheikh Anta Diop de Dakar, Dakar, Sénégal

**Contexte :** La lutte contre le VIH chez les adolescents demeure un enjeu crucial au Sénégal. En effet, les nouvelles infections au VIH ont légèrement augmenté chez ces derniers passant de 14,3% à 14,4 %. Le troisième objectif de l'ONUSIDA vise à ce que 95% des personnes suivant un traitement antirétroviral aient une charge virale supprimée d'ici 2025. Cette communication vise à montrer la place d'une cohorte d'AVVIH au Sénégal face aux objectifs de l'ONUSIDA notamment le suivi virologique et les facteurs associés à la suspicion d'échec virologique.

**Matériels et Méthodes :** Il s'agit d'une étude transversale à visée descriptive et analytique d'une période de deux ans (janvier 2020 – janvier 2022) au niveau du laboratoire du Centre Régional De Recherche et de Formation à la prise en Charge Clinique de Fann, Dakar, Sénégal (CRCF). Variables étudiées : sexe, âge, profil sérologique, mois de traitement, ligne de traitement, niveau d'éducation et charge virale (CV). La mesure de la CV a été faite avec la plateforme COBAS® AmpliPrep/COBAS®TaqMan et les analyses statistiques avec R-Studio.

**Résultats :** L'étude a porté sur 85 AVVIH inclus grâce à la prise en charge (62%) avec un taux de scolarisation de 76.19 %. L'âge médian était de 15 ans avec comme extrême [10 – 19 ans] et le VIH1

était le profil dominant 83% des cas. Suivant le sexe les femmes représentaient 51,21% ; l'ensemble des patients étaient sous traitement avec 44,70% sous TLD (TDF+3TC+DTG). A l'inclusion, 34% des AVVIH-1 avaient une CV indétectable (<1000cp/ml). Après deux ans de suivi, 77,64 % ont supprimé leur CV. Le taux de suspicion d'échec virologique était donc de 22,36 %. La médiane du traitement était de 72 mois avec comme extrêmes [12- 144 mois]. Les facteurs significativement associés à la suspicion de l'échec virologique dans notre étude étaient : le sexe (p-value = 0.007527), le niveau d'éducation (p-value = 0.001532).

**Conclusion :** La cohorte est en voie d'atteinte du troisième 95% de l'ONUSIDA. Cependant l'échec virologique doit être confirmé sur la base de deux mesures de CV consécutives à 3 mois d'intervalle, après un renforcement de l'observance.

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## Le Retard dans la Transition TDF/3TC/EFV par TDF/3TC/DTG Pourrait Compromettre L'Atteinte du Troisième 95 de L'Objectif 3X95 de L'ONUSIDA

Keke K<sup>1</sup>, TCHIAKPE E<sup>1</sup>, AFANGNIHOUN A<sup>3</sup>, YESSOUFOU A<sup>4</sup>, BACHABI M<sup>3</sup>, DIOP-NDIAYE H<sup>3</sup>, TOURE KANE C<sup>3</sup>, GANGBO A<sup>3</sup>

<sup>1</sup>Reference Laboratory of Health Program Fighting Against AIDS in Benin (LR/PSLS), Health Ministry, 1258 POBOX, Bénin. , Cotonou, Bénin, <sup>2</sup>Health Program Fighting Against AIDS in Benin PSLS, Cotonou, Benin, <sup>3</sup>Institute for Health Research, Epidemiological Surveillance and Training (IRESSEF), Dakar, Sénégal, Dakar 1, Senegal, <sup>4</sup>Laboratory of Biological, Cellular Physiology and Immunology, Department of Biochemistry and Cellular Physiology, Faculty of Sciences and Techniques and Institute of Applied Biomedical Sciences, Université d'Abomey Calavi, 01 POBOX 918 Cotonou, Benin, Abomey Calavi, Benin

**Contexte :** Suite aux recommandations de l'ONUSIDA et à la prévalence de la résistance transmise de 10% associée aux INNTI, le Bénin en fin 2021 était à 52% de transition TDF/3TC/EFV par TDF/3TC/DTG. Une évaluation de l'efficacité du traitement s'avère importante dans l'atteinte du troisième 95 de l'ONUSIDA



**Matériels et Méthodes :** 523 patients infectés par le VIH-1, sous TAR dans 22 centres de prise en charge et ayant au moins 12 mois de traitement ont été enrôlés.

Les charges virales (CV) ont été quantifiées sur Abbott et pour celles supérieures à 3log, l'ARN était extrait par Qiagen, amplifié par la technique ANRS sur la totalité de la protéase et les 240 premiers acides aminés de la transcriptase inverse. Les séquences analysées sous ABI 3500 ont été éditées par SeqMan puis soumises à HIV drug resistance database pour identifier les mutations. Les sous types viraux ont été attribués pour des valeurs de bootstrap supérieures à 0,80 sous Seaview. La recherche des recombinants a été effectuée par Bootscanning.

**Résultats :** Le succès virologique était 51,6% (48,4% ; 253/523) présentent une CV supérieure à 3Log. Le succès de séquençage était de (96% ; 242/253) dont 14 uniquement en protéase. Leur moyenne de CV est de 3,55 [IC : 3,03– 6,69] Log (87,3% ; 199/228) patients portaient au moins une mutation associée à la résistance. Parmi celles associées aux INTI, la M184I/V représente (33,3% ; 160/480). Les TAMs I (M41L, L210W, T215Y) et II (D67N, K70R, K219Q/E, T215F) représentaient (9,5% ; 46/480), (15,8% ; 76/480) respectivement. La K103N/S représentait (28,9% ; 158/545) parmi les mutations associées aux INNTI suivi de la Y181C (7,1% ; 39/545) et la G190A/S (5,1% ; 28/545). Les mutations aux IP étaient I54V (23% ; 5/22), I84V (18% ; 4/22), V82A (18% ; 4/22). Le CRF02\_AG (60% ; 145/242) prédominait suivi des URFs (18,1% ; 44/242), le CRF06\_cpx (12,8% ; 31/242) et les souches G (5% ; 12/242) et A (3,3% ; 8/242), D (0,4% ; 1/242), CRF09\_cpx (0,4% ; 1/242).

**Conclusions :** Nécessité d'accélérer la transition actuellement à 97,2% pour atteindre 100% afin d'améliorer la proportion des patients en succès virologique dans le but d'atteindre le troisième 95.

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## History of Antiretroviral Therapy Interruption Prior to Antenatal Care Is Associated with Delivery Viremia and Disengagement from Care Postpartum Among Women in Gugulethu, South Africa: A Retrospective Cohort

Leonard B<sup>1</sup>, Mogoba P<sup>1</sup>, Gomba Y<sup>1</sup>, Hlatshwayo L<sup>1</sup>, Myer L<sup>1</sup>, Abrams E<sup>2</sup>, Phillips T<sup>1</sup>  
<sup>1</sup>University Of Cape Town, Cape Town, South Africa, <sup>2</sup>Columbia University, , United States of America

**Background:** Disengagement from antiretroviral therapy (ART) during and after pregnancy is common. With the rapid scale-up of universal treatment there are increasing numbers of women conceiving on ART but little is known about ART history before pregnancy and associations with treatment outcomes.

**Materials and Methods:** We used existing data from a prospective cohort that enrolled women living with HIV (WLHIV) attending ANC in Gugulethu, South Africa (March 2021-April 2022) to describe ART history before ANC and associations with delivery viral load (VL) and disengagement from HIV care postpartum. Enrolment interviews collected self-reported ART history, grouping women into (1) Initiating ART in pregnancy, (2) ART-experienced without any interruptions, (3) ART-experienced with  $\geq 1$  interruption. Delivery VL and postpartum engagement in care were abstracted from electronic medical records. Log-binomial models were used to assess associations between ART history and i) VL at delivery ( $>50$  copies/ml) and ii) disengagement from HIV care at 12 weeks postpartum ( $\geq 30$  days late for ART refill at 12 weeks postpartum).

**Results:** Among 321 women (median age 32.3 years, interquartile range [IQR] 28.1–35.9; 61.4% in their first pregnancy), 15.3% reported initiating ART in pregnancy, 52% reported being ART-experienced with no interruptions (median years on ART 6.1, IQR 3.3–10.1), and 32.7% reported being ART-experienced with  $\geq 1$  interruption



(median years on ART 6.9, IQR 4.4–9.4; 94.3% reported one interruption). In adjusted models, ART-experienced women with  $\geq 1$  interruption were more likely to have VL  $>50$  copies/mL at delivery (adjusted risk ratio [aRR] 2.39 95% CI 1.39–4.35) and to be disengaged from care at 12 weeks postpartum (aRR 1.96 95% CI 1.23–3.13) compared to ART-experienced women without interruption. ART-experienced women with  $\geq 1$  interruption were also more likely to have disengaged at 12 weeks compared to women newly starting ART in pregnancy (aRR 6.20 95% CI 2.05–18.77).

**Conclusions:** These findings highlight that ART history, and history of treatment interruption, is an important consideration for maternal ART outcomes in this critical period for vertical transmission. Further research is needed to explore mechanisms driving these associations and examine interventions to support sustained engagement in HIV care before, during and after pregnancy.

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## Prevalence and Challenges of Advanced HIV Disease (AHD) Implementation Among Newly Diagnosed People Living with HIV at Selected APIN Supported Facilities in Plateau State, North Central Nigeria

Bodunrin S<sup>1</sup>, Oguejiofor I<sup>1</sup>, Adoga E<sup>1</sup>, Okonkwo P<sup>1</sup>, Akpa L<sup>1</sup>, Odido M<sup>2</sup>, Ekeke V<sup>1</sup>, Ajayi O<sup>2</sup>, Wekpe S<sup>1</sup>, Jwanle P<sup>2</sup>, Onwuatuolo J<sup>2</sup>, Samuels J<sup>2</sup>, Okonkwo P<sup>2</sup>  
<sup>1</sup>APIN Public Health Initiatives, Jos, Nigeria, <sup>2</sup>APIN Public Health Initiatives, Abuja, Nigeria

**Background:** Advanced HIV Disease (AHD) contributes to increased morbidity and mortality among people living with HIV (PLHIV). Plateau State commenced the implementation of AHD package of care including CD4, tuberculosis (TB), and cryptococcal antigen evaluation across 7 facilities in 2021. This study aims to determine the prevalence of AHD among newly diagnosed PLHIV and review diagnostic challenges encountered in Plateau State.

**Materials and Methods:** The study is a retrospective, cross-sectional study of 1,998 newly diagnosed PLHIV between October 2021 to September 2022 at 7 facilities in Plateau State. Clients were referred for CD4 testing and those with CD4  $<200$  cells/mm<sup>3</sup> were referred for tuberculosis (TB) assessment using TB LF-LAM and serum cryptococcal antigen (CrAg) screening. Data was collected from relevant data tools and electronic medical record systems and analyzed using Excel.

**Results:** Of the 1,998 clients, only 1,403 (70.2%) had CD4 test done due to commodity shortages. Of those tested, 596 (42.5%) had CD4 test result of  $<200$  cells/mm<sup>3</sup> {227 (38.1%) males and 369 (61.9%) females}. Only 266 clients (44.6%) with CD4  $<200$  cells/mm<sup>3</sup>, were tested for TB using TB LF-LAM test kits. Of those tested for TB, 42.5% (n=113) had a positive TB LF-LAM result with 40.7% (46/113) also having a positive GeneXpert result. All positive clients were linked to TB treatment. 53.2% (n=317) of clients with CD4 less than 200copies/ml, had serum CrAg test done, of which 2.8% (n=9) were positive and 1 client confirmed positive for cryptococcal meningitis via cerebrospinal fluid CrAg test and commenced on therapy. During the period, a total of 330 clients (55.4%) were eligible for TB LF-LAM testing and 279 (46.8%) clients for CrAg testing. However, they could not be tested due to non-availability of rapid test kits and other logistic challenges

**Conclusions:** The study revealed 30% of newly diagnosed clients did not have access to CD4 testing. Of the newly identified HIV positive clients who had access to AHD testing, 42% were classified as having AHD. Despite the high prevalence, challenges persist including inadequate supply of diagnostic commodities. There is need to bridge existing gaps by improving availability and scaling up access to AHD services



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## Trends in HIV-1 Pretreatment Drug Resistance and HIV-1 Variant Dynamics Among Antiretroviral Therapy-Naive Ethiopians from 2003 to 2018: A Pooled Sequence Analysis

Kiros M<sup>1</sup>, Biset S<sup>2</sup>, Gebremariam B<sup>3</sup>, Yalew G<sup>4</sup>, Abegaz W<sup>5</sup>, Geteneh A<sup>6</sup>

<sup>1</sup>Raya University, Maichew, Ethiopia, <sup>2</sup>University of Gondar, Amhara, Ethiopia, <sup>3</sup>Aksum University, Aksum, Ethiopia, <sup>4</sup>Adigrat University, Adigrat, Ethiopia, <sup>5</sup>Ababa University, Addis Ababa, Ethiopia, <sup>6</sup>Woldia University, Woldia, Ethiopia

**Background:** Ethiopia is among the highly HIV-affected countries, with reported 12,000 and 12,000 AIDS-related deaths and incidents as per reports from 2021. Although the country has made a promising progress in antiretroviral therapy, recent studies have indicated that pretreatment drug resistance (PDR) is alarmingly increasing, which has become a challenge for the effectiveness of HIV treatment. Thus, this systematic review aimed to determine the trend analysis of PDR among ART-naïve individuals along with HIV variant dynamics in Ethiopia.

**Materials and Methods:** HIV-1 pol sequences from studies conducted between 2003 and 2018 among ART-naïve Ethiopian individuals were retrieved from GenBank and analyzed for the presence of PDR mutations (PDRM) along with the analysis of HIV-1 variant dynamics. The Calibrated Population Resistance (CPR) tool Version 8.1 and the REGA HIV-1 Subtyping Tool Version 3 were used to determine the PDRM and HIV-1 genetic diversity, respectively.

**Results:** We identified nine studies and analyzed 1070 retrieved HIV-1 pol sequences in this systematic review. The pooled prevalence of PDR was 4.8% (51/1070), including 1.4% (15/1070), 2.8% (30/1070), and 0.8% (9/1070) for nucleoside reverse transcriptase inhibitor (NRTI), non-NRTI (NNRTI), and protease inhibitor (PI) resistance, respectively. NRTI and NNRTI concurrent PDRM were observed among 0.2% (2/799) of the analyzed sequences. The overall PDR prevalence has been increasing over the years. Though the prevalence of the NNRTI, NRTI, and PI PDR also increased over the years, the NNRTI increment

was more pronounced than the others, reaching 7.84% in 2018 from 2.19% in 2003. The majority (97%; 1038/1070) of the genetic diversity was HIV-1 subtype C virus, followed by subtype C' (2%; 20/1038) and other subtypes (1%; 10/1038).

**Conclusions:** According to this systematic review, the overall pooled prevalence of PDR is low. Despite the low prevalence, there has been an increasing trend of PDR over the years. This finding supports the recently endorsed transition of ART regimens from NNRTI to integrase strand transfer inhibitor-based regimens recommended by the WHO. In addition, this finding underscores the need for routine baseline genotypic drug resistance testing for all newly diagnosed HIV-infected patients before initiating treatment to halt the upward trend of PDR.

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## Acquired HIV-1 Drug Resistance to Dolutegravir among Patients in Cameroon: Implications on Treatment Strategies in Low- and Middle-Income Countries

Fokam J<sup>1,2</sup>, Chenwi Ambe C<sup>1,3</sup>, Semengue Ngoufack E<sup>1</sup>, Takou Komego D<sup>1</sup>, Beloumou Angong G<sup>1</sup>, Penda C<sup>4</sup>, Njom Nlend A<sup>5</sup>, Djupsa S<sup>1</sup>, Nka A<sup>1</sup>, Kamgaing N<sup>6</sup>, Sosso S<sup>1</sup>, Bouba Pamen J<sup>7</sup>, Temgoua Saounde E<sup>8</sup>, Omgba P<sup>10</sup>, Kob Same D<sup>9</sup>, Z-K Bisek A<sup>11</sup>, Eben Moussi E<sup>12</sup>, Colizzi V<sup>13</sup>, Ndembi N<sup>14</sup>, Ndjolo A<sup>1,6</sup>, Perno C<sup>15</sup>

<sup>1</sup>Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management, Yaounde, Cameroon,

<sup>2</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon,

<sup>3</sup>Faculty of Medicine and Surgery, University of Rome Tor Vergata, Rome, Italy, <sup>4</sup>General Directorate, Douala General Hospital, Douala, Cameroon,

<sup>5</sup>Higher Institute for Medical Technology, University of Douala, Yaounde, Cameroon,

<sup>6</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon,

<sup>7</sup>Directorate of Financial Resource and Heritage, Ministry of Public Health, Yaounde, Cameroon,

<sup>8</sup>Management Sciences for Health, Yaoundé, Cameroon,

<sup>9</sup>UNAIDS, Yaounde, Cameroon, <sup>10</sup>Directorate for Disease, Epidemic and Pandemic Control, Yaounde, Cameroon,

<sup>11</sup>Division of Health Operational Research, Ministry of Public Health, Yaounde, Cameroon, <sup>12</sup>EUROBIOPARK, Rome, Italy,

<sup>13</sup>Faculty of Science and Technology, Evangelic University of Cameroon, Bandjoun, Cameroon, <sup>14</sup>Africa CDC, Addis Ababa, Ethiopia,

<sup>15</sup>Bambino Gesù Pediatric Hospital, Rome, Italy



**Background:** The World Health Organisation recommends the use of dolutegravir (DTG)-based regimens as the preferred antiretroviral therapy (ART) option in low- and middle-income countries (LMICs). However, patient's clinical status, virological profile and treatment history might prone a rapid emergence of HIV drug resistance (HIVDR) to DTG, hence calling for sentinel surveillance to optimise ART strategies in LMICs. Our objective was to determine patterns of integrase strand-transfer inhibitor (INSTI) drug resistance-associated mutations among DTG-treated patients with unsuppressed viremia.

**Materials and Methods:** A laboratory-based sentinel surveillance survey was conducted in 2022-2023 among remnants of plasma samples at the virology laboratory of Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management (CIRCB) in Yaoundé-Cameroun. For each compliant patient with unsuppressed viremia (>1000 copies/ml) under DTG-containing ART, Sanger-based HIV-1 sequencing was performed in the polymerase regions of interest and HIVDR mutations were interpreted using HIVdb.v.9.5 algorithm.

**Results:** Overall, 174 patients receiving DTG-containing ART were enrolled: median-age [IQR]: 38 [17-46] years; 57.5% female; median-viremia: 13,364 [1,563-135,271] copies/mL; median-CD4: 186 [70-365] cells/mm<sup>3</sup>. Median duration on DTG-containing ART was 12 [6-24] months, with 42.0% (73) in-1st, 16.0% (28) in-2nd and 42.0% (73) en-3rd line ART. The overall prevalence of acquired HIVDR to DTG was 2.86% [0.93-6.54] (n=5), with regional disparities (0-10%). The following mutations were detected: R263R/K (n=3), T66I (n=2), G118R (n=2), E138K (n=2), S153Y (n=1). The early emergence of these resistance mutations was driven by: two cases of unsuppressed viremia at the time of transition in-1st line from TDF-3TC-EFV to TDF-3TC-DTG (with the co-presence of K65R and M184V); two cases of multi-class HIVDR in-3rd line (DTG functional monotherapy) and one case on ART and anti-tuberculosis (interaction between rifampicine and DTG50mgx2/jour).

**Conclusions:** Despite its high efficacy and potency, transition to DTG-containing ART leads to early emergence of INSTI resistance in the context of inappropriate transition to DTG (unsuppressed viremia), switching to 3rd line without genotyping (suboptimal combination), and co-administration of DTG and anti-TB drugs. Considering these measures in the global treatment strategies would substantially limit the emergence of resistance to

DTG in LMICs, hence contributing in achieving the elimination of AIDS as a pandemic by 2030.

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## Effect of High-Risk Mobility on Treatment Interruption among Men in Malawi: Secondary Analysis of Two Randomized Controlled Trials

Thorp M<sup>1</sup>, Balakasi K<sup>2</sup>, Ramesh M<sup>1</sup>, Robson I<sup>1,2</sup>, Choko A<sup>3</sup>, Hoffman R<sup>1</sup>, Shoptaw S<sup>1</sup>, Dovel K<sup>1,2</sup>

<sup>1</sup>UCLA David Geffen School Of Medicine, Los Angeles, United States, <sup>2</sup>Partners in Hope, Lilongwe, Malawi, <sup>3</sup>Malawi Liverpool Wellcome Trust, Blantyre, Malawi

**Background:** Temporary mobility is associated with treatment interruption (TI) and viremia in men living with HIV (MLHIV), but it is unclear what characteristics of mobility confer greatest risk. Identifying what constitutes high-risk mobility and who experiences it is critical to providing tailored services. We conducted a secondary analysis to define and predict characteristics of mobility most strongly associated with repeat TI among MLHIV in Malawi.

**Materials and Methods:** The IDEaL and ENGAGE trials (ClinicalTrials.gov#NCT04858243; #NCT05137210) tested interventions designed to improve 6-month ART engagement among MLHIV ≥15 years old not in care (never initiated ART or missed refill by ≥28 days). Baseline and endline (4-7 months after enrollment) surveys and medical chart reviews were conducted. For this secondary analysis, we excluded men who did not engage in care during the trial. Our primary outcome was repeat TI (≥28 days late for any ART appointment during 6-month trial period) using confirmed medical records. We used logistic regressions with mixed effects and receiver operator characteristic (ROC) curves to identify aspects of mobility most strongly associated with repeat TI ("high-risk mobility") and identify baseline characteristics associated with high-risk mobility.

**Results:** 1,309 men were enrolled in the trial at 28 facilities in Malawi. Of 1,190 who initiated ART and were included in this analysis, 498 (41.9%) experienced repeat TI; 679 (57.0%) spent ≥3 total





nights away from home during the 6-month trial period. Trip length, purpose, destination, and ability to plan were associated with repeat TI. By ROC analysis, trips  $\geq 30$  nights (aOR 2.26, 95%CI 1.41-3.62, AUC 0.6703) or unplanned trips ( $< 2$  days to plan; aOR 1.83, 95%CI 1.23-2.73, AUC 0.6622) best defined high-risk mobility. Among baseline characteristics, prior mobility (OR 2.02, 95%CI 1.46-2.80), but no sociodemographic variables, was associated with high-risk mobility during the trial period.

**Conclusions:** Trips  $\geq 30$  days or unplanned trips were high-risk for repeat TI among MLHIV in Malawi. Previous mobility was the best predictor of high-risk mobility. Further research is needed on interventions to reduce mobility-associated TI.

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## Low Prevalence of Integrase Strand Transfer Inhibitors Resistance Associated Mutations in Botswana Before the Roll Out of Dolutegravir Based First Line Antiretroviral Therapy

Maruapula D<sup>1</sup>, Ditshwanelo D<sup>1</sup>, Pema M<sup>1</sup>, Moraka N<sup>1,3</sup>, Bareng O<sup>1,3</sup>, Mokgethi P<sup>1,3</sup>, Seatla K<sup>1</sup>, Koofhethile C<sup>1</sup>, Zuze B<sup>1</sup>, Gaolathe T<sup>1</sup>, Petorious-Holmes M<sup>2</sup>, Lebani K<sup>5</sup>, Makhema J<sup>1,2</sup>, Novitsky V<sup>1,2</sup>, Shapiro R<sup>1,2</sup>, Lockman S<sup>1,2</sup>, Moyo S<sup>1,2</sup>, Gaseitsiwe S<sup>1,2</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana,

<sup>2</sup>Department of Immunology and Infectious Diseases, Harvard University T.H. Chan School of Public Health, Boston, USA,

<sup>3</sup>University of Botswana, Faculty of Health Sciences, Medical Laboratory Sciences, Botswana, <sup>4</sup>University of Botswana, Faculty of Science, Biological Sciences, Botswana, <sup>5</sup>Botswana International University of science and technology, Biological sciences, Botswana

**Background:** Dolutegravir (DTG), an integrase strand transfer inhibitor (INSTI), has played a pivotal role in the management of HIV/AIDS globally. Dolutegravir was first rolled out in Botswana in 2016 and initially used for salvage and first line treatment. This study explores the prevalence of HIV drug resistance mutations in HIV-positive individuals who were on DTG based

ART in the Botswana Combination Prevention Project (BCPP) cohort conducted from 2013 to 2018.

**Materials and Methods:** This study utilized HIV-1 proviral sequences previously sequenced from the BCPP Cohort. A subset of 345 sequences from participants only on DTG containing regimen were included in our analysis. The Stanford University HIV Drug Resistance Database was used to interpret INSTI mutations and further screened for hypermutations using the Los Alamos database-Hypermut tool.

**Results:** Among 345 participants, 318 were suppressing,  $\geq$  VL 400 while 26 were failing VL  $> 400$ cp/ml and 1 had unknown viral load. A total of 94/345 (27.2%) participants exhibited INSTI mutations. Following the screening for hypermutations, 2/345 sequences were confirmed as not hypermutants, resulting in a prevalence of 0.58%. The individual mutations identified in the two sequences were E138K and G140R respectively. Both sequences with mutations had viral load of 40 copies/ml and were on DTG+FTC+TDF therapy. The two sequences with INSTI drug resistance mutations also harbored mutations in other drug classes, including NRTI (M184I), NNRTI (E138K, M230I) and PI (M461). According to Stanford HIVDR database, the combinations of these mutations do not reduce INSTI susceptibility. Among 26 participants who were failing DTG without INSTI DRMs, 6 (23%) harbored other drug classes mutations. One participant had PI mutations (D230N and M46I), five participants had NRTI mutations [(M184V, n=2), (D67N+M184V, n=1), (A62V+K65R+M184V, n=1) and (D67N, K70R, M184V, K219E, n=1)] and three participants had NNRTI mutations [(Y181C, n=1), (M230I, n=1) and (K103N, V106A, E138A, F227L, n=1)].

**Conclusions:** Our findings demonstrate a remarkably low prevalence (0.58%) of INSTI resistance among individuals on DTG-based regimen, highlighting the efficacy of dolutegravir-based regimens in the studied population. This study serves as a benchmark for assessing the impact of dolutegravir in the region, and aims to inform future policy decisions regarding antiretroviral therapy choices.



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## Standardizing Routine Mortality Review Among Children Living with HIV on Antiretroviral Therapy in Tanzania: A Descriptive Analysis

Temu A<sup>1</sup>, Van de Ven R<sup>1</sup>, Peter M<sup>1</sup>, Bigirwamungu F<sup>1</sup>, Faux During L<sup>1</sup>, Maro M<sup>1</sup>, Malembela K<sup>1</sup>, Mkumbo J<sup>1</sup>, Mutasingwa L<sup>1</sup>, Haraka F<sup>1</sup>, Kimambo S<sup>1</sup>  
<sup>1</sup>Elizabeth Glaser Pediatric AIDS Foundation, Dar Es Salaam, Tanzania

**Background:** In Eastern and Southern Africa, children comprised about 5% of people living with HIV, but almost 14% of all deaths due to AIDS in 2022. The Elizabeth Glaser Pediatric AIDS Foundation through the USAID Afya Yangu Northern project established routine pediatric mortality reviews to determine the underlying causes of deaths among children receiving antiretroviral therapy (ART) in Tanzania.

**Materials and Methods:** Pediatric death audit forms were introduced in the project-supported health facilities to learn lessons from each child death to guide quality improvement. A retrospective chart review of the care and treatment cards and pediatric death audit forms was conducted on all deaths that occurred among children aged 0-14 years at 472 care and treatment clinics in the five supported regions between October 2022 - September 2023. Descriptive analysis was done on patient demographics and included age at death, place of death, duration on ART, and underlying causes of death recorded.

**Results:** A total of 5,999 children were receiving ART services by September 2023. Between October 2022 and September 2023, 76 (1.2%) pediatric deaths were recorded with 40 (53%) of the deaths in children under five years of age. Eight (11%) children died within the first two weeks after ART initiation, whereas 41 (54%) of the children died after being on ART for more than six months. The majority of deaths (71%) occurred within the health facility. The main underlying causes of death recorded were malnutrition in 38(50%), tuberculosis in 20 (26%), organ failure in

12 (16%), pneumonia in 8 (11%), unknown in 8(11%), diarrhea in 6 (8%). Other causes included motor traffic accident in three children, Meningitis in two children, anemia in one child and bacterial infection in one child.

**Conclusions:** Routine mortality reviews create better understanding of the major treatment challenges. Pediatric HIV programs should consider integrating nutritional intervention packages and strengthening tuberculosis monitoring to improve outcomes in children on ART.

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## Factors Associated with Weight Gain in Treatment-Naïve People Living with HIV Initiated on Dolutegravir-Based Treatment Regimen in Kenya, 2020

Muchina D<sup>1</sup>, Kaburu M<sup>1</sup>, Mugo G<sup>1</sup>, Kangai J<sup>1</sup>  
<sup>1</sup>Christian Health Association of Kenya (CHAK), Nairobi, Kenya

**Background:** Dolutegravir (DTG)-based first line antiretroviral therapy (ART) is indicated for treatment naïve people living with HIV (PLHIV) in Kenya, with >90% on DTG-based ART regimens nationally. Besides the return-to-health phenomenon, Dolutegravir is associated with a higher likelihood of weight gain in comparison to other antiretroviral agents which increases the risk of developing non-communicable diseases such as cardiovascular disease and diabetes. This study explored factors associated with weight gain in PLHIV following treatment initiation on DTG-based ART.

**Materials and Methods:** A retrospective cohort study was conducted in eight faith-based HIV clinics in Central and Eastern Kenya. All treatment-naïve PLHIV ≥20 years who initiated Dolutegravir-based ART between 1 January and 31 December 2020 were included. Demographic and clinical data were extracted from clients' electronic medical records at baseline and 18 months after treatment initiation. Mean change in weight and body mass index (BMI) was calculated. A 10% weight gain cut-off was chosen to compensate for the return-to-



health effect of treatment. Binary logistic regression was used to estimate odd ratios and 95% confidence intervals for factors associated with weight gain  $\geq 10\%$ .

**Results:** A total of 259 participants were included, of whom 64.5% were female. Mean age was 40.6 years (SD:11.3). At baseline, mean weight was 60.3 kilograms (kgs) (SD:13.2) and mean BMI was 22.5 kg/m<sup>2</sup> (SD:5.0). Average weight gain was 4.0 kgs (95%CI: 3.19-4.80) with slightly greater weight gain (4.2 kgs) among males compared to females (3.9 kgs) ( $p < 0.001$ ). The average increase in BMI was 1.48 kg/m<sup>2</sup> (95%CI: 1.17-1.79). The  $< 10\%$  and  $\geq 10\%$  weight gain cohorts included 59.8% and 40.2% of the participants, respectively. Baseline CD4 cell count  $< 200$  cells/mm<sup>3</sup> (OR: 4.98; 95%CI: 1.63-15.19), baseline BMI  $< 18.5$  kg/m<sup>2</sup> (OR: 2.57; 95%CI: 1.32-5.00) and presence of WHO Stage 3 and 4 conditions (OR: 2.59; 95%CI: 1.37-4.88) were associated with weight gain  $\geq 10\%$ . Age and first HIV viral load status were not associated with weight gain  $\geq 10\%$ .

**Conclusions:** Pre-ART underweight status, low CD4 cell count, WHO Stage 3 and 4 conditions, and being female were associated with weight gain among ART-naïve PLHIV initiated on DTG-based ART. The impact of DTG on weight gain could be further investigated.

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## The Perspective of Health Providers and People Living with HIV on Darunavir Use in Second-Line Therapy: A Prospective Study in Nigeria

**Sowale O**<sup>1</sup>, Abudior O<sup>1</sup>, Eigege W<sup>2</sup>, Otubu N<sup>1</sup>, Lufadeju F<sup>1</sup>, Wiwa O<sup>1</sup>, Rathakrishnan D<sup>2</sup>, Panos Z<sup>2</sup>, Amole C<sup>2</sup>, Sani K<sup>3</sup>, Nwaokenneya P<sup>3</sup>, Ogbeke G<sup>3</sup>, Atu U<sup>3</sup>, Mohammed P<sup>3</sup>, Bashorun A<sup>3</sup>, Agbaji O<sup>4</sup>  
<sup>1</sup>Clinton Health Access Initiative, Abuja, Nigeria, <sup>2</sup>Clinton Health Access Initiative, Boston, United States of America, <sup>3</sup>National AIDS, Viral Hepatitis and STI Control Programme, Federal Ministry of Health, Abuja, Nigeria, <sup>4</sup>Jos University Teaching Hospital, Jos, Nigeria

**Background:** Nigeria is an early adopter of the fixed-dose combination of generic ritonavir-boosted darunavir 400/50mg (DRV/r) for second-

line (2L) antiretroviral therapy (ART). While the current national treatment guidelines recommend DRV/r-based regimens as alternative 2L ART, there is limited experience with its use. This study assessed the perceptions of PLHIV newly initiated on DRV/r-based 2L regimen and their health providers. Findings from this study will inform the planned scale-up in-country.

**Materials and Methods:** This prospective study commenced in August 2022 in 12 ART sites across two states (Anambra and Benue). The study population included PLHIV eligible for DRV/r 400/50mg (aged  $\geq 12$  years and weighing  $\geq 40$ kg) who failed first-line ART or those on 2L with adverse reactions to ritonavir-boosted lopinavir transitioned to DRV/r, and health providers prescribing DRV/r. Separate structured questionnaires were administered to the PLHIV and health providers six months post-initiation to assess their experience with DRV/r. The questionnaires compared the DRV/r-based regimen with the previous regimen regarding side effects, pill burden, and ease of administration. Data was analyzed using MS Excel.

**Results:** A total of 48 PLHIV and 43 health providers responded to the survey. The mean age of PLHIV respondents was 41.9 years (SD 11.7); 68% were female, while that of the providers was 38.6 years (SD 7.1), and 51% were female. The commonest side effects reported among PLHIV respondents were headaches (12%), tiredness (10%), and skin rash (8%). Compared to their previous regimen, 54% reported better pill burden, 73% agreed/strongly agreed that DRV/r was easier to use, and 88% believed the DRV/r-based regimen was working better. 86% of interviewed health providers reported better side effect profiles in their clients, and 71% reported improved convenience compared to the previous regimen. All health providers agreed or strongly agreed that they would encourage others to prescribe DRV/r for 2L.

**Conclusions:** The study findings showed that DRV/r in 2L is highly acceptable among PLHIV and health providers. The improved side effect profile and reported ease of use are enablers for the planned national scale-up. Further studies should be conducted to assess the effect of long-term use of DRV/r among PLHIV.



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## Barriers to Viral Suppression in Young Children on Dolutegravir-Based Antiretroviral Therapy in Malawi, a Mixed-Methods Study

Phiri K<sup>1</sup>, Hagstrom C<sup>2</sup>, Lungu E<sup>1</sup>, Balakasi K<sup>1</sup>, Songo J<sup>1</sup>, Makwaya A<sup>1</sup>, Smith D<sup>1,2</sup>, Phiri S<sup>1</sup>, Dovel K<sup>2</sup>, Hoffman R<sup>2</sup>, van Oosterhout J<sup>1,2</sup>

<sup>1</sup>Partners in Hope, Lilongwe, Malawi, <sup>2</sup>University of California Los Angeles, Department of Medicine, David Geffen School of Medicine, LOS ANGELES, United States

**Background:** Despite rollout of pediatric dolutegravir, many young children enrolled in antiretroviral treatment (ART) programs still present with high viral load (HVL). There is limited insight about factors contributing to HVL among young children in eastern and southern Africa. We sought to understand factors associated with HVL and barriers to adherence among Malawian children aged <10 years, using mixed-methods.

**Materials and Methods:** Between April-July 2023, we performed a retrospective observational cohort study, using medical records from 30 health-facilities in Malawi. We enrolled children who were aged <10 years, on dolutegravir-based ART >12 months, and had a routine viral load (VL) test-result reported between January-December, 2022 that was high ( $\geq 1,000$  copies/mL), or suppressed (<200 copies/mL). We used logistic regression to determine factors associated with HVL, adjusting for age, sex, duration on current regimen and health-facility. To explore adherence barriers, we conducted in-depth interviews (IDIs) with caregivers of a random sub-set of children with HVL and with healthcare-workers providing HIV care at study facilities. Interviews were recorded, transcribed, and analyzed using constant comparison methods.

**Results:** We enrolled 538 children: 222-HVL and 316-suppressed. Children with suppressed-VL and HVL had similar median ages at ART initiation (1.6-years; IQR 1.0-2.5 vs. 1.7-years; IQR 1.0-2.7,  $p=0.11$ ), median years on ART (5.2-years; IQR 3.7-6.5 vs. 4.7-years; IQR 3.1-6.6,  $p=0.14$ ), and sex distribution (55.4% were female vs 48.7% female,  $p=0.12$ ). Being younger than 4-years old (aOR 2.75,

95%CI 1.38-5.49) and having prior treatment-interruption (>28days) (aOR 1.46, 95%CI 1.02-2.11) were significantly associated with HVL. We analyzed 54 IDIs (30-caregivers, 24-healthcare-workers). Participants reported particular challenges with adherence for young children, as they transition from infancy to early childhood and assert independence. Major challenges included children resisting daily medication and difficulty managing multiple pills at once, lack of food, and fear that young children may unintentionally disclose their status by mentioning medication to others.

**Conclusions:** The youngest children and those experiencing treatment-interruption are at increased risk of HVL in Malawi. Challenges related to developmental/behavioral, psychosocial and socio-economic factors contributed to poor adherence. Interventions specific to young children targeting these challenges are needed to improve virological ART outcomes in this population in Malawi.

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## Evaluation of HIV-1 DNA Levels Among Perinatally Infected Adolescents in Yaounde, Cameroon: A Contribution to Paediatric HIV Cure Research in Sub-Saharan Africa

Ka'e A<sup>1</sup>, Santoro M<sup>2</sup>, Duca L<sup>2</sup>, Chenwi C<sup>1,2</sup>, Ngoufack Jagni Semengue E<sup>1</sup>, Nka A<sup>1</sup>, Togna Pabo W<sup>3</sup>, Beloumou G<sup>1</sup>, Mpouel M<sup>1</sup>, Djupsa S<sup>1</sup>, Takou D<sup>1</sup>, Sosso S<sup>1</sup>, Tchidjou H<sup>4</sup>, Colizzi V<sup>1,2</sup>, Halle-Ekane G<sup>5</sup>, Perno C<sup>6</sup>, Lewin S<sup>7</sup>, Jones R<sup>8</sup>, Tiemessen C<sup>9</sup>, Ceccherini-Silberstein F<sup>1</sup>, Fokam J<sup>1</sup>

<sup>1</sup>Chantal Biya International Reference Centre for Research on HIV/AIDS, Yaounde, Cameroon, <sup>2</sup>University of Rome Tor Vergata, Rome, Italy, <sup>3</sup>University of Antwerp, Antwerp, Belgium, <sup>4</sup>Amiens University Hospital, Amiens, France, <sup>5</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>6</sup>Bambino Gesù Pediatric Hospital, IRCCS, Rome, Italy, <sup>7</sup>The Peter Doherty Institute for Infection and Immunity, Melbourne, Victoria, Australia, <sup>8</sup>University of Antwerp, Antwerp, Belgium, <sup>9</sup>University of the Witwatersrand, Johannesburg, South Africa

**Background:** With the advent of antiretroviral therapy (ART), most children in sub-Saharan Africa (SSA) are growing toward adolescence, with



scarcity of evidence on the size of viral reservoirs to enhance paediatric cure research strategies. This study aims to compare HIV-1 proviral DNA levels according to virological response among perinatally-infected adolescents and identify associated-factors in the Cameroonian context.

**Materials and Methods:** In this observational cohort-study, HIV-1 RNA viremia and CD4+ T-cell count were assessed through RT-PCR and flow cytometry respectively at three time-points over 18 months of observation. At the third time-point, 80 randomly-selected participants were classified as viremic ( $\geq 50$  copies/mL;  $n=40$ ) or aviremic ( $<50$  copies/mL;  $n=40$ ); immune-competent ( $\geq 500$  cells/mm<sup>3</sup>) or immunocompromised ( $<500$  cells/mm<sup>3</sup>). Among these participants, total HIV-1 DNA load was quantified through droplet digital PCR using Bio-rad QX-200.

**Results:** Of the 80 randomly-selected adolescents, median [IQR] age was 15 [13-17] years, 56.2% were female, duration on ART was 9.3 [5.4-12.2] years. Among the 40 viremic participants (median viremia 7312 [283-71482] copies/ml, 75.0% (30/40) were in virological failure ( $\geq 1,000$  copies/ml), while median of CD4 cells were 494 [360-793] cell/mm<sup>3</sup> with 48.8% (39/80) immunocompromised. No significant variation in HIV-1 RNA viremia and CD4-cell count was observed between the three time-points, and 13.7% (11/80) participants remained aviremic and immune-competent throughout (stable adolescents). A positive and moderate correlation ( $r=0.59$ ;  $p<0.001$ ) was found between HIV-1 DNA levels and RNA viremia. Regarding CD4-cell count, a negative and weak correlation ( $r=-0.28$ ;  $p=0.014$ ) was found with HIV-1 DNA loads only among viremic adolescents. Adolescents who started ART within the first-year of life, those on ART  $>9$  years and those aviremic appear as predictors of low HIV-1 DNA loads.

**Conclusions:** Among HIV perinatally-infected adolescents, high HIV-1 RNA indicates an elevated viral reservoir size, representing a drawback to cure research. Interestingly, early ART-initiation and longer ART-duration lead to sustained viral control and limited HIV-1 reservoir size. As limited size of viral reservoir appears consistent with viral control and immune-competence, adolescents with sustained viral control (about 14% of this target population) would be candidates for analytical ART interruptions toward establishing pediatric post-treatment controllers in SSA.

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## Génotypage de la Résistance du VIH-2 Aux Antirétroviraux ET Charge Virale Chez Les Adultes Infectés Par Le VIH-2 AU Burkina Faso, Afrique de L'Ouest

Serge Theophile S<sup>1</sup>, Yonli A<sup>2</sup>, Simpore J<sup>3</sup>

<sup>1</sup>Institut De Recherche En Sciences De La Santé (IRSS), Ouagadougou, Burkina Faso, <sup>2</sup>Centre de Recherche Biomoléculaire Pietro Annigoni, Ouagadougou, Burkina Faso, <sup>3</sup>Université Joseph Ki-Zerbo, Ouagadougou, Burkina Faso

**Contexte :** Au Burkina Faso, il existe peu de données sur la charge virale du VIH-2 et le génotypage de la résistance aux antirétroviraux du VIH-2. L'objectif de cette étude était d'évaluer la charge virale du VIH-2 et la résistance du VIH-2 aux antirétroviraux chez les patients adultes infectés par le VIH-2 au Burkina Faso.

**Matériels et Méthodes :** Il s'agit d'une étude transversale menée de février 2017 à mars 2019. Cette étude a inclus des patients adultes infectés par le VIH-2 recevant un traitement antirétroviral et suivis dans les centres de prise en charge à Ouagadougou, au Burkina Faso. Des prélèvements de sang total ont été réalisés et les charges virales plasmatiques du VIH-2 ont été déterminées à l'aide du thermocycleur ABI PRISM 7500. Les acides nucléiques ont été extraits, puis les gènes de la transcriptase inverse et de la protéase du VIH-2 ont été amplifiés, séquencés et analysés pour détecter les mutations de résistance et les groupes VIH-2. Les génotypes ont été évalués pour détecter les signes de résistance aux antirétroviraux à l'aide de l'outil web HIV2EU et du programme Stanford HIVdb pour le VIH-2.

**Résultats :** Au total, 126 patients infectés par le VIH-2 ont été inclus. L'âge moyen était de 58,99  $\pm$  8,66 ans. Les femmes étaient les plus représentées (63,5 %). La majorité des patients (55,5 %) avaient une charge virale indétectable et seuls 15,9 % avaient une charge virale élevée (plus de 1000 copies/mL). Les groupes A et B ont été détectés dans cette étude, la majorité étant le groupe A (15,1 %). Le sous-type CRF01\_AB du VIH-2 a été détecté chez 3 patients (3,75 %). Seuls 7 patients ont présenté des mutations de résistance



aux antirétroviraux. Les mutations RT étaient (K65R, Q151M, M184V) et les mutations PR étaient (V47A, I84V, I82F, I50V).

**Conclusions :** Cette étude a révélé des données récentes sur l'état de la charge virale du VIH-2 et de la résistance génotypique au Burkina Faso. Bien que peu de patients infectés par le VIH-2 sous ARV aient développé une résistance, il est important de mettre en place un système de surveillance de la résistance du VIH-2 aux antirétroviraux.

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## TLR3 Agonist Interferes with Dendritic Cell Immune Dysregulation by HIV Envelope via IL-10 Secretion

Lumngwena E<sup>1</sup>, Lumngwena E<sup>2</sup>, Shuping L<sup>1</sup>, Cicala C<sup>3</sup>, Arthos J<sup>3</sup>, Woodman Z<sup>4</sup>

<sup>1</sup>School of Clinical Medicine, University of Witwatersrand, Johannesburg, South Africa, <sup>2</sup>CREMER, IMPM, Ministry of Scientific Research and innovation, Yaoundé, Cameroon, <sup>3</sup>NIAID, National Institutes of Health, Bethesda, United States of America, <sup>4</sup>Department of integrated biomedical Sciences, University of Cape Town, Cape Town, South Africa

**Background:** Antiretroviral therapies have effectively improved the quality of life, but not effective cure due to latent viral reservoirs. Thus, eradication of HIV is by preventing viral entry. Many HIV envelope (Env) vaccines have failed to induce an effective innate and adaptive immune responses partially due to the Env N-glycosylations that shields epitopes from neutralizing antibodies. The N-glycans of subtype C Env can additionally dysregulate dendritic cells (DC) immune responses by inducing the secretion of IL-10 and other modulatory cytokines via the C-type lectin receptor, DC-SIGN which impairs the induction of an effective T cell response that can clear the virus. Toll like receptors (TLRs) play a critical role in induction of inflammation and initiation of effective innate and adaptive immune response. While TLR 7 agonists induced intracellular IFN- $\gamma$ , IL-2 and TNF- $\alpha$  and CD107a production in plasmaloid DCs and CD4+ T cells leading to HIV specific IRs and memory responses in HIV non-responders and viraemic patients, the role of TLRs on DCs in the presence of HIV immunogens have not been investigated.

**Materials and Methods:** Env Pseudotypes (PSVs) and Env proteins of HIV subtype C with varying N-glycosylation isolated from single variant transmission participants were tested for their ability to modulate monocyte derived DCs (MDDC) function via induction of modulatory cytokines with or without TLR ligands.

**Results:** Env trimeric proteins induced more MDDC IL-10 and inflammatory cytokines than the monomeric proteins. When TLR2 and TLR4 agonists were used with Env proteins, the difference between monomers or trimers proteins and between T/F and chronic Envs was masked probably due to saturation. While TLR2 and TLR4 ligands induced cytokine production in healthy DCs, HIV PSVs Env induced IL-10 secretion which may interfere with an effective immune response. However, using Env PSVs together with TLR3 ligand Poly (I:C) almost abrogated IL-10 release, impaired IL-1 $\beta$  and a tendency towards IL-12 secretion by MDDCs was seen.

**Conclusions:** As Env may use specific N-glycans to dysregulate DC responses via IL-10 and other cytokines secretion, adjuvating TLR3 agonist to Env based immunogen may potentially prevent IL-10 mediated DC dysregulation to improve presentation of Env based immunogen to immune responses.

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## “The Training Has Empowered Me to Help EMTCT in Ghana” a Needs Assessment for Mentor Mothers Training in HIV Testing and Counseling in Ghana

Nyano A<sup>1</sup>, Tagoe H<sup>1</sup>, Nartey D<sup>1</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>

<sup>1</sup>JSI Research and Training Institute, Inc, Takoradi, Ghana

**Background:** Mentor mothers are HIV-positive women who provide peer support for pregnant and breastfeeding women living with HIV (WLHIV). They play a key role in the prevention of mother-to-child transmission (PMTCT) of HIV in sub-



Saharan Africa. However, there is no standardized training curriculum for mentor mothers in Ghana. We conducted this needs assessment to identify the training gaps and preferences of mentor mothers in three PEPFAR-supported regions in Ghana.

**Materials and Methods:** We conducted a qualitative study using focus group discussions with 19 mentor mothers from Ahafo, Western and Western North regions in January 2023. The mentor mothers were part of a two-arm prospective cohort study that evaluated the impact of standardized peer support for PMTCT. The intervention group received a 3-day training on HIV testing and counseling (HTC), early infant diagnosis (EID), virtual support, and data collection tools. The control group received no training, tools, or support. The FGDs covered topics such as work conditions, challenges, skills, and competencies. We transcribed and analyzed the data using a grounded approach.

**Results:** The mentor mothers linked their competency to their passion to help clients accept their HIV status and adhere to treatment. They found the baseline training useful in building their confidence and knowledge on HTC, EID, and self-disclosure. They identified specific additional training needs on family planning, index testing, couple counseling, partner disclosure, and writing skills. They also suggested biannual refresher training to maintain their competency.

**Conclusions:** Our findings show that mentor mothers have diverse and evolving training needs, to optimize their impact on PMTCT outcomes. A structured and periodic training curriculum that addresses these needs is essential for enhancing their skills and confidence. We recommend developing and implementing such a curriculum for mentor mothers in Ghana and other similar settings.

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## État des Lieux de la Couverture de L'Examen de Charge Virale Chez les Adolescent.e.s et Jeunes Vivant Avec le VIH au Cameroun

**Sonwa Lontsi** L<sup>1</sup>, **KEDI GUY P**<sup>1</sup>, **MONTHE E**<sup>1</sup>, **LONTSI TSAKOU L**<sup>1</sup>, **AWOULBE MASSAGA M**<sup>1</sup>, **FOUDA P**<sup>1</sup>  
<sup>1</sup>Réseau Camerounais Des Adolescents Et Jeunes Positifs, Yaoundé, Cameroon

**Contexte :** L'examen de charge virale est capital pour suivre l'efficacité du traitement ARV chez l'enfant, l'adolescent et le jeune. Il permet de détecter précocement les échecs thérapeutiques. Selon les directives nationales de prévention et de prise en charge du VIH/Sida au Cameroun, sa prescription doit être faite une fois par an chez l'enfant, l'adolescent et le jeune. Elle permet de prévenir les résistances des ARV fréquentes et indique l'efficacité du traitement ARV. L'objectif était d'évaluer la couverture de l'examen de charge virale chez les adolescents et jeunes vivant avec le VIH (AJvVIH) au Cameroun à travers le suivi dirigé par les communauté jeunes (Youth-CLM) menés par le réseau camerounais des adolescents et jeunes positifs (RéCAJ+).

**Matériels et Méthodes :** Dans le cadre du Youth-CLM, le suivi de l'examen de charge virale chez les AJvVIH a été réalisé de décembre 2022 à septembre 2023 dans 47 formations sanitaires (FOSA) répartie dans les 10 région du pays. Il est effectué à travers la collecte des données au niveau des FOSA par des AJvVIH formés auprès de leurs pairs de 10 à 24 ans à l'aide des questionnaires. Les données collectées sont par la suite saisies via l'application Kobo collect et analysées à l'aide des logiciels Excel et tableau 2019.

**Résultats :** Au cours de la période de collecte, 1208 AJvVIH ont répondu aux questionnaires, 14,6% (176) des bénéficiaires interrogés n'ont pas effectué un examen de charge virale au cours des 12 derniers mois et 20,3% (203) de ceux ayant effectués n'ont pas effectivement reçu leurs résultats. Le délai de rendu de résultats était respectivement long et très long pour 18,8% (120) et 20,9% (134) des AJvVIH. Le délai idéal de rendu



des résultats déclaré par les bénéficiaires est de 2 semaines à un mois.

**Conclusions :** La couverture en examens de charge virale pose un problème car 14,6% des AJVVIH interrogés n'ont pas effectué cet examen au cours des 12 derniers mois. De plus, le résultat doit être systématiquement mis à la disposition des bénéficiaires et dans un délai court pour un suivi optimal.

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## Scaling Up Harm Reduction Services for People Who Inject Drugs in Tanzania: Reaching last Mile PWID Communities

**Hotis Wambura A<sup>1</sup>**, Kwame Mhina J<sup>1</sup>, Lucas Kabwali D<sup>1</sup>, Leonard Nyandindi C<sup>2</sup>, Muko Ochanda R<sup>3</sup>

<sup>1</sup>Tanzania Network For People Who Use Drugs (tanpud), Dar es Salaam, Tanzania, United Republic of, <sup>2</sup>Drug Control and Enforcement Authority (DCEA), Tanzania, Dar es Salaam, Tanzania, <sup>3</sup>AIDS Vaccine Advocacy Coalition (AVAC), New York, United State of America

**Background:** Harm reduction interventions MAT and NSP proven to be effective in reducing HIV/AIDS prevalence among PWID globally. Tanzania has a coverage of 19.40% for NSP and 41.20% for MAT respectively. This is below WHO's recommendations of a minimum 80% for NSP and 50% for MAT coverage. PWIDs in Tanzania estimated 50,000 in 2022 only 23% (11,088 men and 587 women) have access to MAT and other harm reduction services. MAT services available only at 15 facilities (11 MAT clinics and 4 Satellites) in the country. The service gap for PWID in the country is quite big bringing about a need for the scaling up harm reduction services.

**Materials and Methods:** A community-led study using mixed approaches conducted between January to June 2023 identified gaps in access to and quality of harm reduction services in 19 districts of the country, 2 police posts and 2 prisons in Dar es Salaam. Quantitative data collected through questionnaires, while qualitative data collected through FGD and KII. Data variables included; information on service availability, challenges experienced by clients while accessing

services and clients' recommendations for service improvements.

**Results:** 41% of the respondents had no knowledge of harm reduction services (MAT and NSP). 70% of clients indicated that were satisfied; 30% were not at all satisfied. 73% of PWID had challenges with Police and other law enforcement authorities. Moreover MAT services have coverage of 41.20% while NSP has 19.40%. Apart from Segerea, Ruanda and Kihonda Prisons, all other prisons lack harm reduction services thus putting incarcerated PWIDs not on or on treatment at high risks of serious withdrawals.

**Conclusions:** The current scope of harm reduction services is quite small compared to the total needs of PWIDs in the country. It is important that Tanzania invests in strategies that would reach the last mile PWID with harm reduction services including mobile outreaches, take home doses, establishing harm reduction in prisons and reaching needy districts and regions. Scaling up of harm reduction services will not only improve the well being of PWID but also contribute to the reduction of new HIV infections among PWIDs in Tanzania.

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## 'Community-Led Quality Improvement Efforts to Addressing Low TB Contact Tracing Coverage' in Kampala

**Sylvia N<sup>1,3</sup>**, Abwot M<sup>2,3</sup>, Priscilla A<sup>1,3</sup>, Andrew K<sup>1,3</sup>, Mudiopi M<sup>2,3</sup>

<sup>1</sup>The Aids Support Organisation, Kampala, Uganda, <sup>2</sup>Infectious Disease Institute, Makerere University college of health sciences, Makerere University, Kampala capital city, Uganda, <sup>3</sup>USAID/Local Partner Health services-TB Activity, Kampala city, Uganda

**Background:** The World Health Organisation (WHO) recommends systematic TB screening among social and household contacts of index TB patients (TB contact tracing). Suboptimal coverage of TB contact tracing at Kisenyi HCIV led to missed opportunities in identifying individuals at risk of TB and linking them to prevention, diagnosis, and treatment services; hampering progress towards attainment of Global END TB targets. Kisenyi is





located at the center of the Kampala metropolitan area. It notifies over 150 Pulmonary Bacteriologically Confirmed (PBC) TB patients in a quarter, but only less than 52% of PBC TB patient investigations for their contacts were done. Collaborating with other stakeholders, with USAID Local Partner Health Services TB Activity (LPHS TBA) support. we set out to address this gap using a quality improvement approach

**Materials and Methods:** We identified key stakeholders including; the facility TB focal person, community Linkage facilitators, project staff, village health teams, and TB champions. Brainstorming was used to understand the root causes of low contact tracing coverage. Contributing factors were; non-update of data tools registers, and long travel to index patients' homes Corrective actions implemented were; weekly data review, triangulation on respective registers, mapping and assigning of distant index TB patients to community health workers.

**Results:** During implementation time, we observed that the proportion of PBC TB patients whose contacts had been visited improved from 52% (30/58) in January 2023 to 92% (40/48) in June 2023. The proportion of contacts who were elicited and then screened for TB increased from 51% (88/172) in January to 84% in June 2023. Number of cases identified from contact tracing went from 3 TB cases per quarter to 10 TB cases identified using contact tracing. During the provision of TB/HIV co-infection services, 55 TB patients out of 92 were found to be PLHIV, Males accounted for 56.4% and females accounted for 43.6%.

**Conclusions:** Using continuous quality improvement approaches provides an effective approach to Increasing coverage of TB contact tracing.

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## Understanding Community-Led Monitoring for Increased Community Engagement in Differentiated Service Delivery Decision Making and Programming in Zimbabwe

Mukuwapasi W<sup>1</sup>, Makoni T<sup>1</sup>, Mademutsa C<sup>1</sup>, Nhapi A<sup>1</sup>, Munemo N<sup>1</sup>

<sup>1</sup>Znnp+, Harare, Zimbabwe

**Background:** Community-led monitoring (CLM) is a powerful tool empowering communities to evaluate service quality and enhance service delivery and accountability. Zimbabwe faces challenges in utilizing CLM to boost community engagement in differentiated service delivery (DSD) decision-making and programming. These challenges include limited resources, inadequate participation, insufficient government support, communication gaps, coordination difficulties, and trust deficits.

**Materials and Methods:** To tackle these multifaceted challenges, the Zimbabwe National Network of People Living with HIV (ZNNP+) engaged communities and stakeholders through collaborative and participatory efforts. This included extensive training in 15 districts across Matabeleland South, Masvingo, Bulawayo, and Harare provinces. A key resource was the Comprehensive Guide (CG), aiding service delivery monitoring and enabling communities to evaluate DSDs while nurturing trust between communities and service providers.

In partnership with the Organization for Public Health Interventions and Development (OPHID) and with funding from USAID to capacitate 315 Community HIV and AIDS Support Agents (CHASAs). CHASAs played a pivotal role in boosting community engagement in DSD decision-making and programming by participating in community-level meetings, providing feedback, and ensuring DSDs' utilization.

**Results:** The CHASAs reached 100225 PLHIV through the training of CG. 48% of 196225 HIV positive clients registered in the ZNNP+ database are in DSD. CLM holds promise to enhance community engagement in DSD decision-making



and programming. 1200 community leaders were engaged through the CG trainings. Effective CLM demands community empowerment through training and resources. Cultural and social barriers can hinder participation, necessitating engagement with community gatekeepers and context-specific monitoring. Building trust hinges on transparent communication, regular feedback, and mutual respect. Advocating for government support is vital to sustain CLM initiatives.

**Conclusions:** Based on ZNNP+'s experience, recommendations include capacity building, addressing cultural barriers, fostering communication, trust, and advocating for government support. These steps aim to improve community engagement in DSD decision-making and programming through effective CLM, enhancing DSD uptake and accountability. By providing training, engaging marginalized groups, promoting communication, trust-building, and advocating for government support, CLM strengthens DSD and service delivery in Zimbabwe.

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## Examining Sustainable Financing of the HIV Response in Nigeria

Ogbuabor D<sup>1</sup>, Semini I<sup>2</sup>, Onwujekwe O<sup>1</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria, <sup>2</sup>Joint United Nations Program on HIV/AIDS (UNAIDS), Geneva, Switzerland

**Background:** Countries transitioning out of donor HIV support require financial sustainability planning. This study, therefore, investigated the HIV funding gap, transition readiness, factors affecting sustainable HIV financing, and the benefit-cost ratio of investing in HIV response in Nigeria.

**Materials and Methods:** We estimated Nigeria's HIV resource needs, available funds from domestic and donor sources, and funding gap analysis for 2022-2027. We also reviewed documents (n=13) and conducted semi-structured interviews with purposively selected stakeholders (n=35) between December 2021 and January 2022. Qualitative data were analyzed thematically using a health financing framework. We co-created a financial sustainability plan (FSP) with the stakeholders. We

estimated the cost of action /inaction and the benefit-cost ratios of investing in HIV given a baseline (5%), moderate (50%), and aggressive (90%) scale-ups using years of life lost (YLL) and percentage of gross domestic product (%GDP) lost due to morbidity and mortality.

**Results:** A \$2.5 billion funding gap exists in Nigeria's HIV response between 2022 and 2027. No clear donor transition plan exists. The FSP addresses low domestic public and private sector HIV financing, including low, unpredictable, and unstable government budgets. A private sector-led HIV Trust Fund, emerging social health insurance, and philanthropy are opportunities for increasing domestic funding. Purchasing interventions focus on inefficiencies due to duplications, ineffective coordination, weak priority-setting, and low use of primary care and private providers. One-stop-shop facilities targeting key and priority populations receive low priority. The costs of action are \$1.2, \$1.5, and \$2.2 billion at baseline, moderate, and aggressive scale-ups. The costs of inaction are \$3.5 billion, \$2.7 billion, and \$2.0 billion at baseline, moderate and aggressive scale-ups. The total %GDP lost is 0.19%, 0.15%, and 0.12% at baseline, moderate and aggressive scale-ups. The benefit-cost ratios (BCR) of investment in HIV control at moderate and aggressive scale-up scenarios are 2.5 and 0.7, respectively.

**Conclusions:** The HIV response funding gap is high. Moderate investment in HIV is more cost-beneficial than aggressive scale-up. Interventions to improve the financial sustainability of HIV response in Nigeria must incorporate predictable domestic resource mobilization, integration of HIV into universal coverage schemes, and strategic purchasing reforms that reduce inefficiencies.



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## Mobile App Use for SARS-CoV-2 Contact-Tracing is More Cost-Effective than Manual Paper-Based Tracing in Cameroon

**Songane M**<sup>1</sup>, Youngui B<sup>2</sup>, Mambo A<sup>3</sup>, Bonabe G<sup>2</sup>, Djikeussi T<sup>2</sup>, Epée E<sup>4</sup>, Bissek A<sup>5</sup>, Tchendjou P<sup>2</sup>, Akugizibwe P<sup>6</sup>, Mukherjee S<sup>7</sup>, Woelk G<sup>7</sup>, Tchounga B<sup>2</sup>

<sup>1</sup>Elizabeth Glaser Pediatric Aids Foundation, Maputo, Mozambique, <sup>2</sup>Elizabeth Glaser Pediatric AIDS Foundation, Yaoundé, Cameroon, <sup>3</sup>Regional Delegation of Public Health Littoral, Ministry of Public health, , Cameroon, <sup>4</sup>Public Health Emergency Operations Coordination Center, Ministry of Public Health, , Cameroon, <sup>5</sup>Division of Operations Research in Health, Ministry of Public Health, , Cameroon, <sup>6</sup>Foundation for Innovative New Diagnostics, Geneva, Switzerland, <sup>7</sup>Elizabeth Glaser Pediatric AIDS Foundation, Washington D.C., United States of America

**Background:** SARS-CoV-2 contact-tracing in Cameroon has been done using paper forms and phone calls. However, there were reports of inaccurate contact details, resulting in delays in identifying and testing contacts. A recently-introduced digital contact-tracing module using the Mamal Pro app automatically sends SMS messages to notify all reported contacts and sends the index case's contact list to the district unit who notifies all listed contacts of SARS-CoV-2 exposure. In this study, we assessed the total costs and the cost per contact reached and tested and, compared cost-effectiveness of manual paper-based and app-based contact-tracing approaches.

**Materials and Methods:** Costs of each approach were estimated from a health systems perspective using a micro-costing method; the cost per contact reached and tested for SARS-CoV-2 were calculated by dividing the total cost by the number of contacts reached and tested. A decision tree designed in TreeAge and a cost-effectiveness acceptability curve were used to compare the cost-effectiveness of the approaches. The effect of key parameters uncertainties on costs per client and incremental cost-effectiveness ratio (ICER) were assessed using sensitivity analysis, whereas cost-effectiveness was assessed using probabilistic sensitivity analyses.

**Results:** In the manual paper-based approach, of 849 contacts identified, 463 and 123 were reached

and tested for SARS-CoV-2, respectively, whereas in the app-based approach, of the 854 contacts identified, 801 and 182 were reached and tested, respectively, between October 2022-March 2023. In the app-based approach, the cost per contact reached was US\$48 and per contact tested was US\$210. In the manual paper-based approach, the cost per contact reached was US\$70, and per contact tested was US\$262. The app-based approach was more cost-effective, with ICER of US\$102. Personnel corresponded to 81% of the manual paper-based approach and 72% of the app-based approach cost.

**Conclusions:** Using the Mamal Pro digital contact tracing app module increased the number of clients reached and tested for SARS-CoV-2 and is cost-effective. The estimated number of contacts to be traced and personnel costs must be as accurate as possible since sensitivity analyses showed that changes in these two factors have a major effect on the total costs, cost per contact, and ICER.

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## Legislative and Policy Engagement: Lessons from the Advocacy for Increased Domestic Funding and the Removal of Import Duty and Value-Added Tax for Condoms in Zimbabwe

**Sithole H**<sup>1</sup>, Chatora K<sup>1</sup>, Machiha A, Munjoma M, Taruberekera N, Leuschner S, Chidiya S, Jones C, Balasubramanian S

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe

**Background:** Zimbabwe's condom market heavily relies on donated condoms: public sector (77%) and social marketing sector (22%). This poses challenges for sustainability and equitable access by key populations, high-risk men, and young people. To address this issue, a Total Market Approach (TMA) was implemented to increase market sustainability, target subsidies effectively, and remove barriers to the commercial sector's entry and growth.



**Description:** In 2019, we developed a National TMA Strategy, laying the foundation for subsequent high-level advocacy efforts with key stakeholders. We co-created a concept note with the commercial sector to lobby the Ministry of Finance and cabinet. In 2022, we conducted high-level advocacy meetings with the Parliamentary Health and Finance Committees, articulating the impact of VAT and duty on condoms in the commercial sector, and presenting the benefits of their removal to the government, commercial sector, and consumers.

**Lessons Learnt:** US\$1.2m availed for condoms under FP in the 2022 budget. Buy-in was obtained from the Parliamentarians, culminating in the tabling of a motion in Parliament in 2023 to increase domestic funding and remove VAT and duty on commercial condoms. Strengthening the stewardship role of the Ministry of Health helps establish an authoritative voice, ensuring effective coordination and implementation. Involving all key stakeholders through technical working groups and high-level advocacy meetings fosters ownership and enables collective decision-making. Co-creating a concept note driven by evidence strengthens the credibility of the advocacy efforts. Benchmarking and drawing comparisons with other countries strengthens the need for policy change and provides evidence for proposed effective and feasible actions. Engaging parliamentarians early in their terms of office allows for a longer runway and avoids potential challenges associated with election preparations. Leveraging media support helps to amplify the advocacy message and adds pressure on policymakers to act.

**Recommendations:** Implementing a Total Market Approach, coupled with legislative and policy engagement, has the potential to develop a sustainable condom market in Zimbabwe. Removing import duty and VAT on condoms can reduce landing costs, promote market growth, increase affordability, and expand consumer choice. Such measures are crucial for HIV prevention programming and reducing the risk of new STIs.

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## Prevalence and Determinants of Health Insurance Coverage Among Women Living with Human immunodeficiency virus in West Africa

Ghasi N<sup>1</sup>, Ogbuabor D<sup>1</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria

**Background:** Studies examining health insurance ownership in low and middle-income countries show that individual and household factors are important determinants of health insurance enrolment. Nonetheless, studies on social determinants of health insurance ownership among persons living with HIV in sub-Saharan Africa are scarce. This study aimed to assess the prevalence and determinants of health insurance coverage among women living with human immunodeficiency virus (HIV) in West Africa.

**Method and Materials:** We conducted a secondary analysis of women's data from the most recent Demographic and Health Surveys in 10 West African countries. Our sample included women living with HIV (n = 1773). We adjusted the data for multi-stage sampling, stratification, and clustering. The outcome variable was health insurance coverage among WLWH. The independent variables included individual and household social characteristics of WLWH. Pearson's chi-squared test evaluated the association between the outcome and independent variables. We modelled the significant variables from the bivariate analyses using complex sample logistic regression. We reported the fixed effect results of the logistic regression using adjusted odds ratios at a 95% confidence interval. The statistical significance for the analyses was p-value < 0.05.

**Results:** 8.2% (6.7-10%) of WLWH was insured. WLHIV in Burkina Faso and Niger had no health insurance coverage. The coverage in Ghana was 57.5%, and 1.6-6.2% in other countries. Residing in lower-middle-income country (AOR:11.02 95%CI: 6.33-19.17, p<0.001), having primary education(AOR: 2.06, 95%CI:1.04-4.07, p<0.001), secondary education (AOR: 6.10, 95%CI: 3.32-11.20, p<0.001), higher education (AOR:22.11, 95%CI:7.95-61.55, p=0.006), being separated



(AOR: 1.12, 95%CI:0.10-12.46, p=0.001), professional/technical/managerial occupation (AOR: 2.01, 95%CI:0.62-6.58, p=0.042), getting permission to seek medical help not being a big problem (AOR:4.18, 95%CI:1.62-10.78, p=0.003), money to seek medical help not being a big problem (AOR:1.92, 95%CI:1.15-3.21, p=0.012), women alone deciding healthcare (AOR:3.38, 95%CI:1.48-7.68, p=0.004) and women and husband/someone else deciding women's healthcare (AOR:3.66, 95%CI:1.81-7.43, p<0.001) increased women's likelihood of being insured.

**Conclusions:** Health insurance coverage must improve for West African countries to achieve universal financial protection among WLWH, especially in low-income countries. Policies for integrating HIV into universal coverage schemes must prioritize women with low education, informal occupations, gender barriers to healthcare decision-making, and financial barriers to accessing healthcare.

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## Developing a Framework for Moving to Social Health Insurance Financing of HIV/AIDS in sub-Saharan Africa

Ogbuabor D<sup>1</sup>, Semini I<sup>2</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria, <sup>2</sup>Joint United Nations Program on HIV/AIDS (UNAIDS), Geneva, Switzerland

**Background:** Despite health insurance improving access to HIV services and financial protection among persons living with HIV in low and middle-income countries (LMICs), integrating HIV into health insurance in sub-Saharan Africa (SSA) has been slow. This study synthesized evidence, identified opportunities, and developed a framework for integrating HIV into health insurance in SSA's emerging health insurance dynamics.

**Materials and Methods:** We reviewed empirical and grey literature published in English in the last ten years on factors enabling or constraining HIV integration into health insurance schemes in LMICs. We included articles on all study designs and methods describing or analyzing the processes of integrating HIV into health insurance.

Additionally, we reviewed empirical literature on the emerging health insurance dynamics in SSA. We identified themes related to funding, enrolment, pooling, benefits, purchasing, and governance to highlight opportunities for integrating HIV into health insurance.

**Results:** Funding strategies include public subsidies, philanthropic contributions, HIV Trust fundraising, debt reliefs, and mandatory air ticket tax. Countries might consider media campaigns to raise awareness of health insurance benefits and address misconceptions about health insurance among persons living with HIV, universal treatment programs regardless of qualifying factors, decriminalizing key populations, deploying sliding scale premiums, and transparent administrative procedures to sustain enrolment. Single national health insurance schemes and HIV-sensitive schemes reduce fragmentation. Benefits work better with a uniform HIV service package, including preventive care, periodic review, explicit referral guidelines and gate-keeping policies, and consumer preferences. Regarding purchasing, the options include differentiated payment schemes for different levels of care and types of providers, classifying HIV medicines as chronic care drugs, pooled procurement, drug pricing programs, and the use of private providers and key-population-friendly facilities. Countries require supportive laws, policies, improved fiscal space, and broader stakeholder participation to integrate HIV into insurance schemes.

**Conclusions:** Our health insurance-HIV integration framework provides a valuable guide to support the integration of HIV into health insurance in SSA and other LMICs.

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## Cost Analysis of DREAMS Clinical and Community Programs in Mozambique

Songane M<sup>1</sup>, Batanero M<sup>1</sup>, Bonou M<sup>1</sup>, Chivite J<sup>1</sup>, Duffy M<sup>2</sup>, Mukherjee S<sup>3</sup>

<sup>1</sup>Elizabeth Glazer Pediatric Aids Foundation, Maputo, Mozambique, <sup>2</sup>Centers for Disease Control, Maputo, Mozambique, <sup>3</sup>Elizabeth Glazer Pediatric Aids Foundation, United States of America



**Background:** PEPFAR's DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe) project is a comprehensive package of core community and clinical interventions to address key factors that make adolescent girls and young women (AGYW) particularly vulnerable to HIV. Here, we estimated the total costs and cost per AGYW (cost/AGYW) of the clinical and community components of DREAMS in two Mozambican provinces, Gaza and Inhambane.

**Materials and Methods:** In Inhambane, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) implements DREAMS in 5 health facilities and 3 school corners, and in Gaza, in 57 health facilities and 13 school corners. Total costs of the clinical (Gaza and Inhambane) and community (Inhambane only) components of DREAMS were estimated from a health systems perspective using a micro-costing method. The cost/AGYW enrolled in each province and component were calculated by dividing the total costs of implementing each component of the project in each province by the number of AGYW enrolled.

**Results:** A total of 19,477 AGYW were enrolled in Gaza, and 3,320 in Inhambane from October 2022-June 2023. The total cost of implementing the clinic component was \$70,367 in Inhambane and \$193,483 in Gaza. The total cost of implementing the community component in Inhambane was \$130,783. The cost/AGYW enrolled in the clinical component in Inhambane and Gaza were \$21 and \$10, respectively. The cost/AGYW enrolled in the community component was \$39 without Siyakha (a comprehensive economic strengthening package for the most vulnerable AGYW that prepares them to enter the job market), \$467 for the 59 AGYW who received the Siyakha light package (without internship), and \$552 for the 54 AGYW who received the Siyakha comprehensive package (with professional internship). In both components and provinces, the biggest cost was human resources, which corresponded to over 60% of the total cost of DREAMS. One-way sensitivity analysis showed that the cost/AGYW in both components and provinces had an inverse correlation with the number of AGYW enrolled.

**Conclusions:** Given the inverse correlation, improvement in enrollment of AGYW would further lower the cost/AGYW. However, large increases in enrollment (i.e. >30%) would require additional human resources and supplies which would lead to higher cost/AGYW.

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## User Costs of Accessing HIV Testing Services Among Rural Communities in Zimbabwe

Chiworeka P<sup>1</sup>, Mashoko L<sup>1</sup>, Watadzaushe C<sup>1</sup>, Tumushime M<sup>1</sup>, Matsikire E<sup>1</sup>, Dirawo J<sup>1</sup>, Hatzold K<sup>3</sup>, Corbert E<sup>2,5</sup>, Sibanda E<sup>1</sup>, Terris-Presholt F<sup>4</sup>, Cowan F<sup>1,2</sup>

<sup>1</sup>Ceshhar Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK, <sup>3</sup>HIV and Tuberculosis, Population Services International Global, Washington DC, USA, <sup>4</sup>London School of Hygiene and Tropical Medicine, London, UK, <sup>5</sup>Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi

**Background:** Although HIV testing services (HTS) are free in Zimbabwe public health facilities, user costs may discourage uptake. We evaluated user costs associated with accessing HIV testing Zimbabwean rural communities in 2018.

**Materials and Methods:** Following community-based distribution of HIV self-tests in 40 rural communities from five districts, we analysed a cost survey nested within a population-based survey among participants reporting health-facility provider-delivered HTS in the last 12 months. Participants completed a self-administered questionnaire including questions on their most recent facility-based provider-delivered HTS episode. We elicited direct and indirect costs including transport, food and incidentals, and childcare, and lost time in productive activities. Opportunity cost of time was valued from self-reported lost time accessing services. Costs were analysed by individual, summarised by district and compared to the average daily income of \$4.16.

**Results:** Among 1,212 participants, mean user cost for testing access was US\$5.96 (US\$5.31-US\$6.61). The largest contributor was food and other incidentals (\$3.10, 52%). Time spent accessing services (time for travel, waiting and actual testing time) averaged 3 hours, translating to an opportunity cost of US\$1.48. Transport costs were \$1.38 (US\$0.78-US\$1.70). The average user cost for testers exceeded the average daily income by \$1.80(43%).

**Conclusions:** Although testing itself was free, respondents incurred substantially high HTS costs, exceeding their daily income and could create



uptake barriers. Reducing waiting time at facilities and community-based and community-led provision of services would directly reduce user cost and indirectly the need for purchasing food and other incidentals. If universal health coverage is to be attained, recognising user costs as a substantial barrier to service uptake and identifying ways to reduce this will be crucial.

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## Study of the Factors Associated with the Use of Primary Health Care Services in the Context of the COVID-19 Pandemic in Senegal in 2020-2021: Focus on the Pre-, Per- And Post-natal Follow-up of the Mother-Child Couple

Keita J<sup>1</sup>, Leye M<sup>2</sup>, Sougou N<sup>2</sup>, Gueye K<sup>1</sup>, Sow K<sup>1</sup>, Mbengue C<sup>3</sup>, Thioub S<sup>1</sup>, Yoda H<sup>4</sup>, Barry D<sup>4</sup>, Kabore J<sup>4</sup>, Diop B<sup>1</sup>, Ndiaye E<sup>1</sup>

<sup>1</sup>Ministry Of Health And Social Action, Rue Aimé Césaire, Fann Résidence, Senegal, <sup>2</sup>Cheikh Anta DIOP University, Dakar, Senegal, <sup>3</sup>Ministry of the Environment and Sustainable Development, Dakar, Sénégal, <sup>4</sup>Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso

**Background:** COVID-19 has affected the use of health services, particularly PHC. To understand this phenomenon, the National Epidemic Management Committee (CNGE) aimed to study the factors associated with the use of PHC services in the COVID-19 era in Senegal.

**Materials and Methods:** A mixed (Quantitative-Qualitative) cross-sectional study with analytical purposes was conducted from 01/03/2020 to 28/02/2021 using a combination of stratified, random, cluster, and multistage surveys. Data were collected on tablets and analyzed with Excel2010®, EPI Info7.2.4.0®, and StataSE/15.1® software in simple logistic regression by service. Anonymity and free and informed consent were in place as well as the COVID-19 prevention and control measures. Administrative authorization and approval from the National Ethics Committee for Health Research (CNERS) were obtained.

**Results:** A total of 999 interviews and 100 focus groups were conducted. The mean age was 27 ±1.5 years, 66% [CI: 63.02%; 68.9%] were within 5 km of a health facility and had community-based support (72.3% [CI: 69.5%; 75%]) from which completion of ANC (53.6% [CI: 50.4%; 56.7%]) included use (95.2% [CI: 93%; 96.5%]) of LLINs, IPT (99.03% [CI: 97.8%; 99.5%]), early HIV testing (58.3% [CI: 55.1%; 61.4%]) including 0.1% [CI: 0%; 0.007%] of seropositivity, and vaccination (ATV2: 77.2% [CI: 74.3%; 79.9%]). Determinants associated with service use were related to ANC (midwife-assisted delivery (AOR=8.786 [1.792-43.087]), malaria (community support (AOR=2.016 [1.472-2.761])), HIV (household size (AOR=2, 621 [1.334-5.149]), immunisation (immediate newborn care (AOR=11.066 [2.423-50.542])), PNC (delivery at the POC (AOR=4.524 [1.384-13.392])), and PFPP (existence of income-generating activity (AOR=1.476 [1.017-2.142])). Finally, the qualitative analysis of perceptions also showed that the impact of COVID-19 was not « direct » but « indirect ».

**Conclusions:** COVID-19 has reduced the supply-demand balance of PHC services. Thus, the development of plans to improve the use of context-specific services is required.

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## Coinfection VIH/SARS-CoV-2 : A Propos de 90 Cas Hospitalisés au Service des Maladies Infectieuses et Tropicales (SMIT) du CHU de Treichville (Abidjan) Sur la Période de Mars 2020 à août 2023

Gnamou A<sup>1</sup>, Kouakou A<sup>1</sup>, Mourtada W<sup>1</sup>, Doumbia A<sup>1</sup>, Kassi A<sup>1</sup>, Tanon A<sup>1</sup>, Eholie S<sup>1</sup>

<sup>1</sup>CHU de Treichville, Abidjan, Côte d'Ivoire

**Contexte :** L'émergence de la COVID-19 a entraîné des perturbations majeures dans la santé publique mondiale, accentuées par la coexistence de cette maladie avec d'autres épidémies préexistantes, notamment le VIH/SIDA. Notre étude vise à



décrire les caractéristiques sociodémographiques, cliniques, paracliniques, évolutifs et identifier les facteurs associés aux décès de cette coinfection.

**Matériels et Méthodes :** Il s'est agi d'une étude transversale descriptive et analytique, menée au SMIT du CHU de Treichville et a inclus tous les patients coinfectés VIH/SARS-CoV-2 hospitalisés entre mars 2020 et août 2023.

L'analyse des données a été effectuée avec le logiciel STATA. Le test de Chi-carré a permis de comparer les proportions. Une analyse statistique multivariée a été réalisée en utilisant un modèle de régression logistique. Le seuil de significativité retenu était de 5%.

**Résultats :** Nous avons colligé 90 patients, l'âge médian était 48 ans avec une prédominance féminine à 70%. L'HTA était la comorbidité la plus fréquente avec 25,6%, un antécédent de tuberculose a été noté chez 12,2% des patients; cinq (5,6%) des patients étaient vaccinés contre la COVID-19. La majorité des patients (82,2%) était au stade clinique 4 OMS et 35,6% des patients étaient naïfs de TARV. Le taux médian de CD4 était de 55 cellules/mm<sup>3</sup>, environ 29,3% des patients sous traitement étaient en échec virologique. Les principaux symptômes à l'entrée étaient la fièvre 95,6%, l'asthénie 86,7%, la dyspnée 81,11%. A la biologie on notait un taux d'hémoglobine médian de 10,10g/l. Les lésions scanographiques étaient de type verre dépoli (82,7%) et étaient bilatérales dans 79,3%. La tuberculose était l'infection opportuniste la plus courante avec 56,7% des cas. Plus de la moitié des patients (64,6%) avaient une forme critique de COVID-19. La létalité était de 38,9% avec des facteurs de risques associés tels que la tuberculose active ( $p=0,01$ ), le stade SIDA ( $p=0,01$ ), l'altération de la conscience ( $p<0,01$ ), le syndrome de détresse respiratoire aiguë ( $p<0,01$ ).

**Conclusions :** Nos résultats soulignent l'impact **significatif** de cette co-infection sur la morbidité et la mortalité, mettant en évidence la nécessité d'une prise en charge médicale adaptée et de stratégies de prévention renforcées.

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## Hepatitis B Is Not a Driver of Poor Immunity to SARS-CoV-2 Among Vaccinated and Non-vaccinated Individuals: A Snapshot from the EDCTP PERFECT-Study in Cameroon

Nka A<sup>1</sup>, Fokam J<sup>1</sup>, Kengni Ngueuko A<sup>1</sup>, Takou D<sup>1</sup>, Mama L<sup>2</sup>, Christelle Ka'e A<sup>1</sup>, Djupsa S<sup>1</sup>, Beloumou Angong G<sup>1</sup>, Jagni Semengue E<sup>1</sup>, Salpini R<sup>3</sup>, Svicher V<sup>3</sup>, Mballa E<sup>4</sup>, Ndembi N<sup>5</sup>, Ndjolo A<sup>1</sup>, Perno C<sup>1</sup>, Colizzi V<sup>2</sup>, on behalf of the EDCTP PERFECT Study Group.<sup>1</sup>  
<sup>1</sup>"Chantal Biya" International Reference Center for research on HIV/AIDS Prevention and Management, Yaounde, Cameroon, <sup>2</sup>Regional Funds Office and Cité Verte Health District, Regional Delegate of Public Health, Yaounde, Yaounde, Cameroon, <sup>3</sup>University of Rome "Tor vergata", Rome, Italy, <sup>4</sup>National Public Health Emergency Operations Coordination Centre, Ministry of Public Health, Yaounde, Cameroon, <sup>5</sup>Africa Centres for Disease control and prevention, Addis Ababa, Ethiopia

**Background:** Hepatitis B virus (HBV) is highly endemic in several sub-Saharan Africa (SSA) countries like Cameroon (8.1% prevalence), and its significance on the pathophysiology of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) remains largely uncovered. Of note, knowledge gap on the effect of HBV on immunity against SARS-CoV-2 shadows guidelines on SARS-CoV-2 (or similar future pandemic) immunization for people living with HBV (PLHBV). We therefore ascertained the association between HBV infection and SARS-CoV-2 antibodies in the Cameroonian context.

**Materials and Methods:** A study was conducted among anti-SARS-CoV-2 individuals at the Chantal BIYA International Reference Centre (CIRCB) throughout April-2022 in Yaounde-Cameroon. Socio-demographic, COVID-19 vaccination status, and clinical data were collected; SARS-CoV-2 antibody and hepatitis surface antigen (HBs) were tested on whole blood and plasma using Ninonasal™ COVID-19 IgG/IgM assay and one step HBsAG test, while SARS-CoV-2 real-time PCR was performed on nasopharyngeal swabs using DaAn gene 2019-nCoV kit. Statistical analyses were performed with  $p<0.05$  statistically significant.

**Results:** A total of 966 participants were enrolled: median [IQR] age was 39 [32–48], 56.4% male, 2.4% (24/966) with flu-like symptoms, 8.6%





(83/966) with comorbidities and 19.4%(187/966) reported previous SARS-CoV-2 positivity. Regarding COVID-19 vaccination, 66.8% (645/966) had received at least one dose and 26.1%(252/966) were fully vaccinated. Median duration [IQR] post-vaccination was 3[2–7] months. Overall, HBV surface antigen(HBs) positivity was 5.7% (55/966) and anti-SARS-CoV-2(IgM or IgG) reactivity was 88.5% (855/966). By gender, HBs positivity was 8.1%(44/545) among male versus 2.6%(11/421) among female,  $p < 0.0001$ . According to HBV status, HBs carriers had a lower rate of anti-SARS-CoV-2 reactivity (85.5% vs 88.7% respectively; aOR: 0.75 [0.34-1.65];  $p = 0.478$ ). Among COVID-19 vaccinated participants, anti-SARS-CoV-2 reactivity was 82.3%(HBs-positive) versus 90.8%(HBs-negative),  $p = 0.12$ . Among COVID-19 non-vaccinated participants, anti-SARS-CoV-2 reactivity was 90.4%(HBs-positive) versus 84.3%(HBs-negative),  $p = 0.75$ . Following real-time PCR, SARS-CoV-2 confirmed cases were 15.2%(147/966), of whom 3.4%(5/147) HBs positive versus 96.5% HBs negative ( $p < 0.0001$ ), while anti-SARS-CoV-2 reactivity was 87.1%(SARS-CoV-2 positive) versus 88.8%(SARS-CoV-2-negative),  $p = 0.55$ .

**Conclusions:** According to HBV status, there is no significant disparity in anti-SARS-CoV-2 reactivity, suggesting a similar vulnerability to COVID-19 among PLHB as compared to the general population. SARS-CoV-2 antibodies were similar among vaccinated and non-vaccinated individuals irrespective of HBV status. Thus, PLHB should be not considered as vulnerable to diseases such as COVID-19 in the pandemic response strategy in our context.

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## Geospatial Clustering for Recent HIV Infections: An Underutilized Approach to Optimizing Targeted Case Identification in Chipata District of Eastern Province, Zambia

**Kibombwe G<sup>1</sup>**, Goma M<sup>1</sup>, Mutale P<sup>1</sup>, Kasambwe C<sup>5</sup>, Malebe T<sup>1</sup>, Oladele E<sup>1</sup>, Msofe J<sup>3</sup>, Satti H<sup>2</sup>, Carpenter D<sup>2</sup>, Persaud N<sup>2</sup>, Lushinga C<sup>4</sup>, Lushinga C<sup>4</sup>, Ngámbe M<sup>4</sup>, Chabikuli O<sup>5</sup>

<sup>1</sup>Public Health Program, Graduate School, Howard University, Washington, United States, <sup>2</sup>FHI360, Durham, United States, <sup>3</sup>FHI 360, Pretoria, Zambia, <sup>4</sup>EPHO, Chipata, Zambia, <sup>5</sup>Public Health Program, Graduate School, Howard University, Washington, United States

**Background:** In 2019, Zambia piloted a phased rollout of recency testing surveillance for new HIV infections. After three years, Eastern province began implementing recency testing in 35 health facilities in November 2022. Through recency, the Ministry of Health aimed to characterize incidence, identify demographic and geographic hot spots to facilitate targeted index testing, and effectively break the cycle of HIV transmission. To optimize targeted case finding and implement tailored interventions, integration of geographic information system (GIS) and spatial analysis techniques becomes crucial. We analyzed program data for distribution of recent HIV infections and geographic clusters for a one-year period in Chipata district of Eastern province.

**Description:** We extracted one-year routine program data on recent HIV infections from the electronic laboratory information management system (LIMS) from November 2022 to November 2023. Shape files, layered maps, and analysis of spatial distribution of recent HIV infections were conducted using ArcGIS v10.15 and Satscan v9.4 software. To identify statistically significant spatial clusters of recent infections (acquired within past 12 months), spatial scan statistic was applied within a discrete Poisson model. Clusters were defined as geographical areas with a disproportionate excess in recent HIV infection compared to surrounding areas. Additionally,



computation of associated relative risks with respective level of significance was done.

**Lessons Learnt:** Out of 1,143 new HIV-positive samples analyzed, 17% (199) were recent HIV infections. Spatial scan analysis showed a notable excess of recent HIV prevalence by geography of service coverage in four of the 16 facilities that recorded at least one recent infection. With an observed-to-expected ratio of 2.6, the total of 77 observed cases within the cluster significantly exceeded the expected 30 cases. Consequently, individuals living within this cluster were 5.5 times more likely to acquire new HIV infection compared to those living outside the cluster (RR = 5.5,  $p < 0.001$ ).

**Conclusions:** Integration of geographic information system (GIS) and spatial analysis techniques is important for enhancing understanding of localized HIV transmission dynamics. To be effective in breaking the cycle of transmission and attaining epidemic control, we recommend implementing these techniques at household level to enhance targeted index testing efforts.

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## Clinical Outcomes in the Era of Test and Treat Among Children Living With HIV: A Cohort Study in Zambia

**Hamooya B**<sup>1</sup>, Masenga S<sup>1</sup>, Siame L<sup>1</sup>, Mutalange M<sup>1</sup>, Cheelo C<sup>1</sup>, Muyunda B<sup>2</sup>, Mweebo K<sup>2</sup>, Kancheya N<sup>2</sup>, Sakala M<sup>3</sup>, Mvula J<sup>3</sup>, Kunda S<sup>3</sup>, Kabesha S<sup>3</sup>, Banda C<sup>3</sup>, Sikaulu D<sup>3</sup>, Fwemba I<sup>4</sup>, Mutembo S<sup>5</sup>

<sup>1</sup>Mulungushi University, School of Medicine and Health Sciences, Livingstone, Zambia, <sup>2</sup>Centers for Disease Control and Prevention, Lusaka, Zambia, <sup>3</sup>Provincial Health Office, Ministry of Health, Choma, Zambia, <sup>4</sup>University of Zambia School of Medicine, Lusaka, Zambia, <sup>5</sup>International Vaccine Access Center, Department of International Health, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, USA

**Background:** Initiating antiretroviral therapy (ART) immediately after diagnosis of HIV infection may reduce morbidity and mortality in children living with HIV (CLWH) especially when they are retained in HIV care. However, there is limited data on retention and other clinical outcomes among CLWH in sub-Saharan Africa. We aimed to

determine the retention rate before and after implementing a test and treat program among children with HIV.

**Materials and Methods:** We conducted a retrospective cohort study in 42 health facilities in 12 districts of the southern region of Zambia. We reviewed 984 files. The cohorts were divided into two groups, 405 (41.2%) before-test and treat (BTT) and 579 (58.8%) after-test and treat (ATT) policy. We collected demographic, laboratory and clinical data using a structured data collection form in REDCap. Descriptive statistics and logistic regression (xtlogit) were the statistical methods employed.

**Results:** The median age (IQR) of children abstracted was 60 months (22, 100) and 52.3% (n=515) were females. Overall retention rate (24 months) and viral suppression (at 12 months) were 82.0% (n= 807; 95%CI 79.5, 84.4) and 81.5% (538/660; 95%CI 78.3-84.4), respectively. A higher proportion of children ATT were retained in care (91.0% vs. 69.1%) and virally suppressed (83.7% vs. 78.7%) compared to BTT. Most of the children BTT were transferred out (19.0% vs. 4.8%), lost to follow (11.1% vs. 3.8%) and died (0.7% vs. 0.2%) as compared to ATT cohort. In multivariable analysis, the factors positively associated with retention were ATT cohort (odds ratio (OR) 4.98; 95%CI 4.06, 6.11) and use of DTG-based regimen (OR 2.66; 95%CI 1.05, 6.72); while female sex (OR 0.80; 95%CI 0.67, 0.95), increasing number of days from the time of HIV diagnosis to ART initiation (OR 0.99; 95%CI 0.99, 0.99), and being in world health organization (WHO) stages 3 (OR 0.68; 95%CI 0.52, 0.90) and 4 (OR 0.30; 95%CI 0.19, 0.48) were inversely associated.

**Conclusions:** The retention and viral suppression among children were suboptimal. Notably, clinical outcomes improved ATT compared to BTT. There is a need to enhance interventions aimed at improving ART retention and viral suppression among children living with HIV in resource-limited settings.



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## Determinants and Spatial Patterns of High HIV Burden in the Southern African Sub-Region

Adetokunboh O, Are E

<sup>1</sup>Stellenbosch University, Cape Town, South Africa

**Background:** Spatial analysis at different levels can help understand spatial variation of human immunodeficiency virus (HIV) infection, disease drivers, and targeted interventions. Combining spatial analysis and the evaluation of the determinants of the HIV burden in Southern African countries is essential for a better understanding of the disease dynamics in high-burden settings.

**Materials and Methods:** The study countries were selected based on the availability of demographic and health surveys and corresponding geographic coordinates. We used multivariable regression to evaluate the determinants of HIV burden and assessed the presence and nature of HIV spatial autocorrelation in six Southern African countries: Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe.

**Results:** The overall prevalence of HIV for each country varied between 11.3% in Zambia and 22.4% in South Africa. The HIV prevalence rate was higher among female respondents in all six countries. The hotspot cluster findings show that the major cities in each country are the key sites of high HIV burden. Across the countries, being older, divorced or widowed, and those who had STIs in the last 12 months had significantly higher odds of being HIV positive. The odds of HIV-positive status were higher in older respondents compared to 15 - 24 years old respondents. Among the male respondents, the odds of being HIV positive were lesser than that of female respondents. The probability of HIV infection was higher among those who had STIs in the last 12 months than those who did not report any STI. The odds of HIV-positive status were higher in people who ever tested for HIV compared to those who had never tested.

**Conclusions:** Our research findings show that analysis of survey data could provide reasonable

estimates of the wide-ranging spatial structure of the HIV epidemic in Southern African countries. Key determinants such as individuals who are divorced, middle-aged women, and people who recently treated STIs, should be the focus of HIV prevention and control interventions. The spatial distribution of high-burden areas for HIV in the selected countries was more pronounced in the major cities. Interventions should also be focused on locations identified as hotspot clusters.

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## Profile of Deceased People Living with HIV on Antiretroviral Treatment in Cameroon

Tsimene F<sup>1</sup>, Mvilongo D<sup>1</sup>, Kengne-Nde C<sup>1</sup>, Anoubissi J<sup>1</sup>, Onana R<sup>1</sup>, Billong S<sup>2</sup>, Bonono L, Ajeh R<sup>1</sup>, Hadja H<sup>1</sup>

<sup>1</sup>National Aids Committee Control, Yaounde, Cameroon, <sup>2</sup>Faculty of Medicine and Biomedical Sciences (FMBS), University of Yaounde 1, Yaounde, Cameroon

**Background:** Understanding factors associated with mortality of HIV patients on antiretroviral therapy (ART) is of paramount importance, as it can help to improve the quality of patients' follow-up while minimizing the risk of death. This study aimed at describing the profile of deceased PLHIV who were on ART in Cameroon.

**Materials and Methods:** The data used in this study were those from the feasibility study of Case-Based HIV Surveillance in Cameroon, based on routine data in 2018. Data of 9338 patients who initiated treatment between 2016 and 2017 were extracted from ART registers during a 24-month follow-up period across 60 sites. Descriptive and analytic statistics was used to characterize.

**Results:** Overall 9338 patients were followed-up, 521 died (5.6%, 51% been women). About half the patients (44.7%) died between 1 and 3 months of treatment (233/531), 23.4% between 4 and 6 months, 19.8% between 6 and 12 months and 12.1% at 12 months or more. The West (16.5%), Far North (15.4%) and Littoral (12.9%) regions recorded the highest rates. Furthermore, 59.5% of deceased patients lived in urban areas. Among



PLWHIV who died, 80% were diagnosed seropositive following clinical suspicion, versus 12% through voluntary testing. In addition, 40.9% of deceased PLHIV were in clinical stage III at the time of treatment initiation. Multiple correspondence factorial analysis followed by classification revealed three (03) groups of deceased patients: unemployed singles under 35 years of age, women from the West, North-West and Coastal regions who were housewives and, married men from the Far North region over 35 years of age.

**Conclusions:** To reduce the number of deaths among PLHIV, it would be necessary to intensify communication on voluntary screening because among the PLHIV who died, only 12% were screened voluntarily while 80% were screened through clinical suspicion.

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## Personnes Agées Infectées Par Le VIH/Sida : Caractéristiques Épidémiologiques et Clinico-Biologiques à L'Inclusion Dans Un Centre de Traitement à Dakar

Fall B<sup>1</sup>, Ngom GUEYE N<sup>1,2</sup>, Ndiaye TOURÉ K<sup>1</sup>, SY B<sup>1</sup>, SAOU H<sup>1</sup>, NIANG A<sup>1</sup>, MBOUP A<sup>1</sup>

<sup>1</sup>Cta Opals/Fann, Dakar, Senegal, <sup>2</sup>Département des maladies infectieuses et tropicales, Université Alioune Diop de Bambey, Bambey, Senegal

**Contexte :** Avec le vieillissement de la population mondiale, deux nouveaux groupes de personnes âgées vivant avec le VIH sont à distinguer : ceux qui sont infectés avant 50 ans mais qui vivent maintenant plus longtemps grâce au traitement ARV et ceux qui deviennent infectés à 50 ans ou plus. Cependant la prévalence et les caractéristiques de l'infection à VIH demeurent jusque-là mal connues dans cette tranche d'âge. Les objectifs de notre étude étaient de décrire les caractéristiques épidémiologiques, cliniques et biologiques de l'infection par le VIH/SIDA chez les personnes de plus de 50 ans à leur inclusion au CTA.

**Matériels et Méthodes :** Nous avons effectué une étude transversale descriptive allant de Janvier 2019 à Juin 2023 sur tous les PVVIH âgés de 50ans et plus, nouvellement inclus dans les soins VIH du CTA et naïfs de traitement antiretroviral. Les données ont été recueillies à partir de la base ESOPE et l'analyse effectuée sur le logiciel Excel .

**Résultats :** Durant cette période, 416 patients ont été enrôlés pour des soins VIH et la proportion des personnes âgées de 50 ans et plus naïves de traitement était de 9,6% (n=40) avec une moyenne d'âge de 59 ans [50-72]. Le sexe ratio (H/F) était de 1,7. La majorité (77,5%) était infectée par le VIH-1 et 12,5% des patients avaient une co-infection avec le virus de l'hépatite B. Vingt-cinq patients soit 62,5% étaient aux stades 3 ou 4 de l'OMS et 30% présentaient une dénutrition. Une tuberculose était retrouvée chez 7 patients (17,5%). Plus de la moitié (65%) était marié et le niveau d'étude supérieure concernait ¼ des patients. Douze patients (30%) avaient des comorbidités dont 15% d'HTA, 10% de maladie rénale chronique (MRC) et 5% de diabète. De plus, 57,5% présentaient une anémie biologique.

**Conclusions :** Notre étude a montré que les personnes âgées représentent une part importante des PVVIH mais sont dépistés à un stade tardif de l'infection. Ils sont d'autant plus fragiles car présentant souvent des comorbidités. Il devient donc important d'instaurer un dialogue continu avec cette population afin de les dépister et de les traiter précocément.



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## Fréquence et Corrélation Des Dermatoses Chez Les Personnes Infectées Par Le VIH Suivies au Centre de Traitement Ambulatoire du Chu Départemental Borgou/Alibori (Bénin) en 2021

Koudoukpo C<sup>1</sup>, Agbéssi N<sup>1</sup>, Hougbo

O<sup>1</sup>, Houmenou C<sup>1</sup>, Akpadjan F<sup>2</sup>, Dégboé B<sup>2</sup>, Adégbidi H<sup>2</sup>, Atadokpèdè F<sup>2</sup>

<sup>1</sup>Service de Dermatologie-Vénérologie du CHU Départemental Borgou-Alibori (CHUD-B/A), Faculté de Médecine, Université de Parakou, Bénin. BP 123 Parakou, Bénin., Parakou, Bénin,

<sup>2</sup>Service de Dermatologie-Vénérologie du Centre National Hospitalier Universitaire Hubert Koutoukou Maga de Cotonou, Cotonou, Bénin

**Contexte :** La peau et les muqueuses font partie des organes les plus exposés par l'immunodépression au VIH. L'objectif de ce travail était d'étudier la fréquence et la corrélation des dermatoses chez les personnes infectées par le VIH suivies au Centre de Traitement Ambulatoire (CTA) du CHUD-B/A en 2021.

**Matériels et Méthodes :** Il s'est agi d'une étude transversale à visée descriptive et analytique avec recueil prospectif des données à travers une enquête auprès de 410 PVVIH âgées d'au moins 18 ans suivies au CTA du CHUD-B/A du 29 mars au 30 juillet 2021. Les données paracliniques et thérapeutiques ont été recueillies dans le dossier médical des patients. Le test de Khi2 a été utilisé pour la comparaison des proportions et le seuil de significativité est p<5%.

**Résultats :** La fréquence des dermatoses chez les PVVIH était de 21,22%. Au total, 98 dermatoses ont été diagnostiquées. Les dermatoses infectieuses étaient les plus représentées (55,10%) ; elles étaient dominées par les dermatoses mycosiques (68,5%) et les dermatoses virales (18,52%). Les dermatoses non infectieuses étaient dominées par les dermatoses immuno-allergiques (43,20%) et les troubles de différenciation épidermiques (20,45%). Chez les patients présentant des dermatoses, le taux de CD4<200 cellules/ $\mu$ l était statistiquement significatif de même que la charge virale détectable. Un taux de

CD4<200 cellules/ $\mu$ l aggrave les lésions dermatologiques.

**Conclusions :** Les lésions dermatologiques sont fréquentes chez les PVVIH et il existe une corrélation entre les dermatoses et le degré d'immunodépression.

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## Predictors of Disengagement During the Early Treatment Period in South Africa

Maskew M<sup>1</sup>, Benade M<sup>1,2</sup>, Mutanda N<sup>1</sup>, Sande L<sup>1</sup>, Ntjikelane V<sup>1</sup>, Malala L<sup>3</sup>, Rosen S<sup>1,2</sup>

<sup>1</sup>Health Economics And Epidemiology Research Office, Faculty of Health Sciences, University Of The Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Boston University School of Public Health, Department of Global Health, Boston, United States, <sup>3</sup>HIV/AIDS Care and Treatment, National Department of Health, Pretoria, South Africa

**Background:** Disengagement from HIV care in the early treatment period is a critical obstacle to achieving UNAIDS's second 95 target. Underlying drivers of disengagement from care in the early treatment period are not clear. While South Africa's Service Delivery Guideline on Fast Track Initiation and Counseling (FTIC) define normative procedures, the effect of guideline implementation and underlying drivers of disengagement remain unclear.

**Materials and Methods:** From 8/2022-6/2023, PREFER surveyed adult ART clients initiating, re-initiating, or on ART for  $\geq 1$  post-initiation visit but  $\leq 6$  months at 18 facilities across three provinces in South Africa. We collected data on demographics, HIV testing, treatment history, and service delivery preferences. Participants were followed using routinely-collected EMR data up to 7 months after initiation. We defined disengagement from care at 6 months as no clinic visit 5-7 months after ART initiation.

**Results:** 301 participants (median age=32, 80% female, median CD4 count=316 cells/mm<sup>3</sup>) had sufficient follow-up time. At study enrollment, 19% self-reported newly initiating ART, 7% re-initiated after a period of disengagement, and 74% were on ART for  $\geq 1$  post-initiation visit. By 6-months, 58 (19%) had disengaged from HIV care. Those newly



initiating ART at study enrollment were nearly twice as likely to have disengaged by 6 months (crude relative risk (cRR)=1.93; 95% CI:1.13-3.29) as those who had remained in care for  $\geq 1$  visit. Disengagement was also more likely among younger (18-24 years) participants, those saying that queues were too long, those preferring care within the facility rather than in the community, and those who felt they needed more treatment information. Disengagement did not differ by gender, relationship status, or CD4 count.

**Conclusions:** Among adults initiating or re-initiating ART in South Africa, risk of disengagement is highest immediately after initiation. Strengthening implementation of SA's Service Delivery Guidelines may improve retention during the early treatment period.

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## Patterns of Retention in Care During Clients' First 12 Months After HIV Treatment Initiation in Zambia: A Retrospective Cohort Analysis Using Routinely Collected Data

Benade M<sup>1,2,3</sup>, Maskew M<sup>2</sup>, Chilembo P<sup>4</sup>, Mwanza M<sup>4</sup>, Rosen S<sup>1,2</sup>, Sande L<sup>2</sup>

<sup>1</sup>Boston University School Of Public Health, Boston, United States, <sup>2</sup>Health Economics and Epidemiology Research Office, University of Witwatersrand, Johannesburg, South Africa, <sup>3</sup>Department of Medical Microbiology, Amsterdam University Medical Center, Amsterdam, The Netherlands, <sup>4</sup>Center for Infectious Disease Research in Zambia, Lusaka, Zambia

**Background:** The first year after HIV treatment initiation or re-initiation remains the time of the highest risk of treatment interruption, yet little is known about the timing or patterns of early interruptions. We used routinely collected medical record data to define and describe patterns of engagement in Zambia during clients' first year after initiation.

**Materials and Methods:** Using leDEA's electronic medical record data from the 566 Zambian facilities supported by CIDRZ, we described patterns of engagement among those presenting for initiation of ART in 2018 to 2021. We merged

clinical visits and other interactions (e.g. medication dispensing and laboratory tests) to create service events; categorized events based on whether they were attended on time,  $\leq 28$  days late, or  $>28$  days late; and used these visit categories to define engagement patterns for months 0-6 and months 7-12 after initiation. Clients who remained engaged without treatment interruption were defined as continuous; those who attended  $\geq 1$  visit late  $>28$  days but returned to care were labeled cyclical. Disengagement was defined as missing a scheduled visit by  $>28$  days and without evidence of return.

**Results:** 159,429 individual client records were included (61% female, median age 33). Of the 466,101 service events observed after initiation, 63% occurred as planned, 26% were  $\leq 28$  days late, and 11% were  $>28$  days late. In months 0-6, 51% clients were continuously engaged, 12% cyclically engaged, and 33% disengaged by 6 months. Two thirds of disengagement in months 0-6 (21% of cohort) was immediate. During months 7-12, most clients who had been continuously engaged in months 0-6 (54%) remained so, while 18% moved to cyclical engagement. Among those in a cyclical pattern in months 0-6, nearly half (47%) moved to being continuously engaged by month 12. Only 34% of the study population were continuously engaged for the full 12 months period.

**Conclusions:** Fewer than 60% of clients initiating ART between 2018 and 2021 at Zambian facilities remained continuously engaged at month 6 and  $<40\%$  remained continuously engaged at month 12. Cyclical engagement and re-engagement is very common and may call for a new model of service delivery.

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## A Shift in Ghana's Viral Suppression Definition Risking UNAIDS 95 95 95 Target Achievement, A Call for Adherence Support

Azugue T<sup>1</sup>, Lwanga Noora C<sup>1</sup>, Amihere F<sup>2</sup>, Akorli N<sup>2</sup>, Nartey D<sup>3</sup>, Adii bokah E<sup>3</sup>, Inusah A<sup>3</sup>, Dindan Z<sup>3</sup>, Abdul Rahman Y<sup>3</sup>, Nagai H<sup>3</sup>



<sup>1</sup>Ghana Field Epidemiology and Laboratory Training Programme, Accra/Legon, Ghana, <sup>2</sup>Western Regional Health Directorate, Takoradi, Ghana, <sup>3</sup>JSI, Takoradi, Ghana

**Background:** Viral load, a marker for HIV progression and treatment effectiveness, is critical in achieving UNAIDS' 95-95-95 targets for 2025. With the recent shift from a 1000cp/ml in 2022 to a 50cp/ml in 2023 viral suppression threshold, concerns arise about its impact on the third 95 target. This study investigates if this change significantly increases the number of unsuppressed cases.

**Materials and Methods:** This study conducted in the Western Region; Ghana tracked the viral load results of 12,435 PLHIV from January 2022 to April 2023. The data was grouped into "exposed" (2023 results) and "unexposed" (2022 results) groups. There were 2867 and 9565 exposed and unexposed groups respectively. Cases were clients with viral un-suppression, while non-cases were clients with viral suppression, according to the respective cutoff values for each year. Descriptive statistics were run for the proportions and means. A bivariate analysis was done to measure the risk of viral un-suppressions among each group and the magnitude of associations was measured based on a p-value<0.05.

**Results:** The results revealed a mean age of 42.6 years (SD of 13.4). Among the exposed group, 75.44% of individuals were females, while the unexposed group had 75.76% females. Additionally, 84.79% of the unexposed group and 83.26% of the exposed group received care from hospitals in the Western Region, while clinics accounted for 1.95% of the unexposed group and 3.42% of the exposed group. The risk of un-suppression was estimated to be 0.096 in the unexposed group and 0.241 in the exposed group. Consequently, the Attributable Risk Proportion in the exposed group was calculated as 59.97% (95% CI: 56.23% to 63.39%). The unexposed group exhibited a 2.498-fold higher likelihood of achieving viral suppression compared to their exposed counterparts (95% CI: 2.285 to 2.733). The attributable risk in the overall population was 25.68% viral suppression if the cutoff remains 50 copies/ml.

**Conclusions:** Ghana's new viral load cutoff in 2023 is linked to rising HIV un-suppression. Targeted interventions for adherence and support to get back on track toward UNAIDS goals are critical. Healthcare providers must collaborate to improve patient outcomes in viral load monitoring.

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## Measurement of Health System Strengthening Efforts for Decentralized HIV and TB Response in Uganda: Application of the Progression Evaluation Model, 2022-2023

Muhumuza S<sup>1</sup>, Lutalo I<sup>1</sup>, Baryamutuma R<sup>1</sup>, Walusimbi S<sup>1</sup>, Wandera S<sup>2</sup>, Katureebe C<sup>2</sup>, Musisi D<sup>3</sup>, Akello E<sup>1</sup>, Namale A<sup>1</sup>

<sup>1</sup>Makerere University School of Public Health, Kampala, Uganda, <sup>2</sup>Ministry of Health, Kampala, Uganda, <sup>3</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda

**Background:** In 2019, the Uganda Ministry of Health (MoH) adopted a regional strategy which is anchored on regional referral hospitals (RRH) to strengthen planning and coordination of decentralized HIV and TB service delivery. With support from the US Centers for Disease Control and Prevention, the regional strategy was piloted in eight RRHs and focused on strengthening health systems through training in governance and leadership, reinforcing medicine therapeutic committees, provision of financial grants, digitization of health information systems, hiring critical staff and quality improvement for HIV and TB services.

**Materials and Methods:** We developed a novel evaluation model which progressively measures improvements in the above health system components. The automated Microsoft Excel-based tool was designed to measure changes in capacity for each health system component using a set of indicators and benchmarks. For each health system component, the tool generates scores as follows: >90% score for level 4 progression (surpasses basic expectations); 70-90% score for level 3 (meets basic expectations); 50-<70% score for level 2 (needs improvement); and <50% score for level 1 progression (needs urgent attention). Data were collected at the eight RRHs in September 2022 and October 2023 to measure changes. In addition, routine data on performance towards the annual HIV and TB targets for the eight RRHs during the same period was analysed.



**Results:** Between 2022 and 2023, the overall scores across all the health system components increased from 58% (level 2) to 74% (level 3). Similarly, the capacity scores for each health system component increased: Governance and leadership increased from 62% to 72%; supply chain 53% to 69%; financing 66% to 83%; health information system 58% to 78%; health workforce 59% to 65%; and HIV and TB service delivery 49% to 68%. Performance against annual targets for HIV testing increased (84% to 95%); viral suppression of clients on antiretroviral treatment increased (93% to 97%); and treatment initiation of TB cases increased (61% to 100%).

**Conclusions:** The MoH RRH strategy improved systems, contributing to efforts to end the HIV/AIDS epidemic in Uganda. The evaluation model is an important tool for measuring effects of health system strengthening efforts.

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## Documentation of HIV Care and Treatment Outcomes: A Quality Improvement Experience in Liberia

Tonorlah J<sup>1</sup>, Kamanga G<sup>1</sup>, Reeves H<sup>1</sup>, Lyimo R<sup>1</sup>, Kiazolu M<sup>1</sup>, Kumar Thakur P<sup>2</sup>, Odo M<sup>1</sup>, Darrow de Mora D<sup>2</sup>, Jackson M<sup>3</sup>, Clement Fosua N<sup>1</sup>, Flomo J<sup>3</sup>  
<sup>1</sup>FHI 360, EpiC, HIV Programs, Monrovia, Liberia, <sup>2</sup>FHI 360, EpiC, HIV Programs, Washington DC, United States, <sup>3</sup>Ministry Of Health, National AIDS & STI Control Program (NACP), Monrovia, Liberia

**Background:** The PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Liberia supports the National AIDS Control Program (NACP) to provide comprehensive HIV care and treatment in 21 health facilities. The project and country experienced significant gaps in meeting key indicators such as linkage to treatment, treatment interruption, viral load testing coverage, viral load suppression rates, and complete documentation of relevant outcomes. In response, the project launched a quality improvement intervention comprised of intensive mentorship in the 21 supported facilities.

**Description:** Between October 2021 and September 2023 EpiC supported 21 facilities to

establish quality improvement teams, including dedicated EpiC staff dubbed “shadow director” who provided intensive mentorship to facility staff through in-person meetings, phone calls and WhatsApp messaging to review data and provide feedback to facility directors. The entire clinic team met weekly to review data, discuss gaps, and monitor actionable quality improvement activities to reach 100% linkage, increase VL testing coverage, reduce treatment interruption, and improve overall documentation. Data in the registers for these indicators among all people living with HIV (PLHIV) on treatment were monitored at baseline and at 24 months, extracted from these registers and entered into the District Health Information System 2 (DHIS-2) eTracker.

**Lessons Learnt:** After the quality improvement activity, linkage to treatment improved from 76.8% (1151/1499) to 96.4% (1376/1427), treatment interruption improved from 39.5% (5823/14740) to 8.6% (1583/18436), Viral load coverage improved from 65.7% (7901/12031) to 91.8% (14216/15489), and viral load suppression improved from 81.8% (6465/7901) to 96.7% (13751/14216). Data quality measured as 100% completeness of chart per 100 charts improved from less than 50% to more than 90%.

**Conclusions:** Intensive mentorship integration, using the approach described above, into ART clinic routine contributes to improved treatment outcomes and documentation. EpiC will continue working with NACP to expand this approach to new facilities and to advocate that the Ministry of Health adopts and implements such intensive mentorship to improve ART service delivery throughout Liberia.





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## A Mixed-Methods Cluster-Randomised Study to Test the Efficacy, Acceptability and Feasibility of Whatsapp-Based Microlearning for HIV Training of Healthcare Workers in Remote South African Clinics

Chisholm B<sup>1</sup>, Orrell C<sup>2</sup>, Blockman M<sup>1</sup>

<sup>1</sup>Department of Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, <sup>2</sup>Desmond Tutu Health Foundation, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa

**Background:** HIV management changes with new developments, requiring regular guideline updates and ongoing healthcare worker (HCW) training. In South Africa, this has traditionally been face-to-face, at centralised points. Distance, cost and lack of resources reduce uptake.

South Africa has 100% cellphone penetration. 93.2% of adults use WhatsApp. We designed and tested the efficacy, acceptability, and feasibility of short, accessible, scalable, and sustainable microlearning using WhatsApp.

**Materials and Methods:** A pragmatic, mixed-methods, cluster-randomised study at 50 remote Eastern Cape clinics. HCWs were invited to join during explanatory visits to each clinic. HCWs in the intervention arm received 15-minute, 'live' lessons offered at lunchtime over three weeks. Case-based lessons with learning points from the ART guidelines were given on WhatsApp groups: one for nurses (seven lessons), the other for community health workers (five lessons).

Outcomes were measured using online questionnaires testing knowledge of learning points, WhatsApp analysis and focus groups. Baseline knowledge was measured, with repeated questionnaires by the intervention groups immediately after training; and control and intervention groups three months later. Quantitative results were reported descriptively and inferentially using linear mixed-effects regression analysis, adjusted for clustering (SPSS™). Qualitative results were described

descriptively using proportions and thematic analysis (nVivo™).

**Results:** Uptake and attendance was good. 232/293 (79%) of nurses and 207/271 (76%) of CHWs agreed to participate. In the intervention group, nurses' attendance of the 'live' sessions ranged from 27/101 (27%) to 51/101 (51%); CHWs 27/97 (28%) to 53/99 (54%). Two weeks later, 97/101 (96%) of nurses and 86/98 (88%) of CHWs had read the lessons.

Linear mixed regression modelling showed a statistically significant improvement in knowledge for nurses with an estimated mean difference in knowledge scores between the intervention and control arm after three months follow-up of 0.40 (95% CI 0.01- 0.80; p = 0.047) and insignificant difference for CHWs: 0.44 (95% CI:-0.20-1.10; p = 0.195).

Post-training surveys showed 99% of nurses (66/67) and CHWs (70/71) enjoyed the training, saying they would participate in this kind of training if it were weekly. Barriers to 'live' participation were network issues and/or loadshedding.

**Conclusion:** WhatsApp-based HIV training for HCWs is effective, acceptable, and feasible.

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## Result of the Application of the PDSA Assessment Cycles in Health Facilities to Ensure Compliance with National Standards for the Provision of HIV in Mozambique

Paulo Y<sup>1</sup>, Munguambe O<sup>1</sup>, Gaspar I<sup>1</sup>, Tiberi O<sup>1</sup>, Couto A<sup>1</sup>

<sup>1</sup>MOH Mozambique, Maputo, Mozambique

**Background:** The HIV Response Acceleration Plan (2013/17) and the Test & Start approach (2016) have increased the demand for ART and the challenge of ensuring quality of care has arisen. The Quality Improvement (QI) guideline was



developed to balance the demand for ART and the supply of services within standards with the aim of raising quality levels in service provision through interventions for HIV viral suppression.

**Description:** The QI Directorate provides for the creation of provincial and district structures, which monitor implementation through implementation reports and technical support visits. Evaluations are carried out using the PDSA model, which combines efforts to make changes that lead to better results for clients, professional development and system performance; in each cycle, indicators are selected taking into account national priorities. The activities during the cycle are monitored through: clinical services management committee meetings (weekly); intensive monitoring (monthly); mid-term evaluation (mid-cycle). Providers benefit from clinical mentoring and, in each cycle, there is an exchange of experiences between the health units/districts and the provinces, and also to recognize the health units with the best performance:

**Results:** Although the categories of indicators have varied over the years, there are indicators that have stood out significantly since the beginning of the evaluation: From 2016 to 2023 the category of Early Diagnosis of Infants performed 39%, 51%, 79%, 86%, 87%, 92% and 89% over the 7 years and Prophylactic Treatment of Tuberculosis performed 34%, 42%, 53%, 54%, 56%, 79% and 84% over the same period and 34%.

From 2017 to 2023 the Retention category performed 42%, 51%, 63%, 56%, 71% and 79% over the 6 years and Viral Load performed 3%, 5%, 12%, 21%, 36% and 46% over the same period.

**Conclusions:** This approaches has driven the improvement of the quality of care in HIV services for the control of the epidemic.

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## Strengthening Recording and Reporting of Continuity of Treatment for People Living with HIV on Antiretroviral Therapy Through Physical Review of Paper Client Records: Experiences from Manicaland and Midlands Provinces of Zimbabwe, 2023

**Nyathi K**<sup>1</sup>, Nyamundaya T<sup>1</sup>, Ndlovu M<sup>1</sup>, Sibanda T<sup>1</sup>, Tafuma T<sup>1</sup>, Muchedzi A<sup>1</sup>, Muzondo M<sup>1</sup>, Choga G<sup>1</sup>, Maringe P<sup>1</sup>, Sibanda O<sup>1</sup>, Samushonga T<sup>1</sup>, Muguse J<sup>1</sup>, Chindove B<sup>1</sup>, Mafara J<sup>1</sup>, Ganje N<sup>1</sup>, Maravanyika A<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Sithole N<sup>2</sup>, Matare T<sup>2</sup>, Mupanguri C<sup>2</sup>, Muchekeza M<sup>2</sup>, Mukuzunga M<sup>2</sup>, Mukungunugwa S<sup>3</sup>, Mhangara M<sup>3</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>USAID, Harare, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is supporting the government of Zimbabwe to achieve and sustain HIV epidemic control. ZHI used the cohort adjustment method when reporting clients on antiretroviral therapy (ART) i.e., adding new initiations, transfers-in and return-to-care; and subtracting deaths, transfers out, treatment interruptions from number reported in previous month. This method does not verify the previously reported base figure and is therefore prone to reporting errors. Routine data quality assessments (RDQA) conducted in June 2023 revealed 16% overreporting of clients on ART in Midlands province, and this prompted the client records review.

**Materials and Methods:** We conducted a physical review of facility-held client records to verify numbers of clients on ART across all ZHI-supported facilities in Manicaland and Midlands provinces. Clients who visited the facility or sent a representative on or within 28 days of appointment day were considered active. Those who missed appointments were followed up for 90 days before declaring outcomes. Standard Operating Procedure (SOP) was used to guide data collection. All paper records of ART clients were reviewed with results recorded on tally sheets.



Data were captured, merged and analyzed using Ms Excel. All inactive/lost clients were discounted from treatment continuity number. Assessment was covered by the Medical Research Council of Zimbabwe protocol (MRCZ/E/159).

**Results:** There was an overall 9.3% (20,569/221,050) reduction in the number of ART clients, 3.9% (4,301/108,938) in Manicaland and 14.5% (16,268/112,112) in Midlands. About 52% (10,700/20,569) of losses occurred before project inception in October 2021. About 65% of clients lost were not in differentiated service delivery (DSD) models. Contribution of the 0–25 year age groups to ART clients decreased from 13.5% to 10.3%, and for 50 years and above increased from 23.0% to 31.7%. The age group with the highest number of ART clients remained the 40-44 years old (15.8%). The Ministry of Health and Child Care adopted this method.

**Conclusions:** Physical review of facility-level client records is a useful Data Quality Assurance (DQA) strategy complementing the cohort adjustment method. We recommend physical review of client's records annually at high-volume sites, and bi-annually at lower-volume sites to accurately report clients on ART.

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## Exploring the Efficacy of Mobile Technologies in Managing Care for HIV Exposed Children in Eswatini

**Themba M**

<sup>1</sup>Young Heroes Organisation, Hhohho, Eswatini

**Background:** The population of HIV-exposed uninfected (HEI) children expands rapidly. However, mother-to-child transmission of HIV remains a global health challenge despite being largely preventable. One main challenge being poor tracking and support for mothers to honor clinical appointments thus exposing the child to HIV vulnerabilities. Mobile technology has been increasingly adopted by humanitarian programs worldwide, creating leverage for better programmatic design and improved monitoring and evaluation of programs. Phila Unotse project implemented by Young Heroes Organization

therefore supports the government of Eswatini to prevent new HIV infections among young children where as part of the targeted population groups are HIV Exposed Infants tracked through Commcare mobile application.

**Study Aim:** To ascertain the effectiveness of using Commcare mobile application in managing HIV exposed infants.

**Materials and Methods:** Secondary data analysis of routine data collected from January 2023 to September 2023 within ongoing implementation of Phila Unotse project was explored. Trained Community Health workers called Home Visitors (HVs) identify HIV exposed children, provide consent to identified caregivers for enrollment into the project and provide health support and linkages to care to ensure that children stay HIV negative until end of exposure. An electronic appointment tracker (Commcare mobile application) for HEIs is maintained. Monthly, HVs review the online tracker to identify HEIs due for testing and provide follow-up support to caregivers. HEIs who missed clinic appointments are visited and issued referrals within 3 days and document on the online follow-up log tracker.

**Results:** 399 HEIs were tracked over the 9 months period. In the first quarter of the year, HEI tracking was 100% with 99% HEIs testing HIV negative and 1 testing HIV positive and 0% missed appointment. Quarter 2 maintained 100% tracking, 99% HEI testing HIV negative and 1 tested positive. In quarter 3, 100% tracking rate with 0% missed appointments and all HEIs were on track with interval HIV testing was maintained.

**Conclusions:** Commcare mobile application offers emerging solutions to HIV prevention and keep HIV exposed children safe and healthy. Active tracking and support for Caregivers of HEIs ensured they honor scheduled clinic visits and kept exposed children HIV negative.



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## Enhancing Viral Load Monitoring Among People on Antiretroviral Therapy Using Structured Mentorship by Cluster Differentiated Service Delivery Nurses: Lessons from Buhera District of Zimbabwe, 2023

**Kufa G**<sup>1</sup>, Rusero G<sup>1</sup>, Ndlovu M<sup>1</sup>, Mataruse R<sup>1</sup>, Chimwaza T<sup>1</sup>, Muguse J<sup>1</sup>, Chindove B<sup>1</sup>, Muzondo M<sup>1</sup>, Maringe P<sup>1</sup>, Tafuma T<sup>1</sup>, Muchedzi A<sup>1</sup>, Apollo T<sup>2</sup>, Mupanguri C<sup>2</sup>, Mukuzunga M<sup>2</sup>, Mukungunugwa S<sup>3</sup>, Mhangara M<sup>3</sup>, Sibanda T<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Nyathi K<sup>1</sup>, Nyamundaya T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Zimbabwe, <sup>3</sup>United States Agency for International Development, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is supporting government of Zimbabwe (GoZ) to achieve and sustain HIV epidemic control. Despite the country achieving 95% viral load (VL) coverage, some districts remain with suboptimal coverage. Between January and March 2022, Buhera district had a VL coverage of 62% resulting in suboptimal viral suppression (93%); this has potential to cause negative outcomes including HIV transmission, development of opportunistic infections and HIV drug resistance, and death. We documented effectiveness of structured mentorship by cluster differentiated service delivery (DSD) nurses in improving VL coverage and suppression in Buhera district for the period October 2022 to December 2023.

**Description:** Cluster DSD nurses were hired and deployed by ZHI to support a cluster of health facilities (maximum 10 facilities), and their activities included cohort cleaning i.e. ensuring clients' health records were well documented, line listing of clients due for VL testing, mobilization of clients who missed VL testing through phone calls and home visits by lay community referral facilitators (CRFs), and targeted follow-ups for community ART refill groups (CARG) and hard-to-reach clients. VL service uptake data were captured in health facility registers and the program DHIS2 database. Data for the January

2022 to December 2023 period were analyzed using MS Excel and STATA 15 generating proportions. The assessment was covered by the Medical Research Council of Zimbabwe approved protocol (MRCZ/E/159).

**Lessons Learnt:** Viral load coverage significantly increased from 62% in January to March 2022 to 88% ( $z = -59.52$ ,  $p < 0.0001$ ), in the July to September 2023 period. Similarly, VL suppression increased from 93% in January to March 2022 to 98% ( $z = -21.36$ ,  $p < 0.0001$ ) in the July to September 2023 period.

**Conclusions:** Use of structured mentorship and quality improvement approach to a cluster of health facilities by DSD nurses contributed to the significant improvement in VL coverage and suppression rates in Buhera district. We recommend interventions that optimize identification of clients due for VL test, mobilization of clients who missed VL testing, and targeted follow-ups of community ART refill groups and hard-to-reach clients.

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## Le Processus de Collecte de Données du Projet VIHeillir : Entre Difficultés et Stratégies d'Adaptation

**Sy S**<sup>1</sup>, Diop E<sup>1</sup>, Gueye M<sup>1</sup>, Modibo S<sup>2</sup>, Diouf R<sup>1</sup>, Balkire I<sup>3</sup>, Ngom Gueye N<sup>4</sup>, Ciaffi L<sup>5</sup>, Taverne B<sup>5</sup>, Laborde-balen G<sup>1</sup>

<sup>1</sup>Centre de recherche et de formation à la prise en charge de Fann (CRCF) CHU Fann, Dakar, Senegal, <sup>2</sup>Comité National de lutte contre le Sida, Yaounde, Cameroon, <sup>3</sup>Hôpital Militaire de Ouakam, Dakar, Senegal, <sup>4</sup>Centre de Traitement Ambulatoire, de Fann, Dakar, Senegal, <sup>5</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France

**Contexte :** Le projet intitulé « VIHeillir : bien vieillir avec le VIH au Cameroun et au Sénégal » propose d'améliorer le dispositif de prise en charge des PVVIH âgées de plus de 50 ans en intégrant la prise en charge des cinq comorbidités prioritaires durant les visites de routine. L'objectif de cette présentation est de décrire le processus de collecte de données dans le cadre du projet au Sénégal.



**Matériels et Méthodes :** Au Sénégal, la collecte de données est effectuée par des professionnels de santé impliqués dans la prise en charge des patients de la cohorte, suivis dans trois formations sanitaires de référence pour le VIH à Dakar. Les données de consultation, des examens paracliniques, de traitement, et de suivi des rendez-vous sont enregistrées sur une tablette configurée. Le gestionnaire de base de données (BDD) assure un suivi hebdomadaire à travers le logiciel REDCAP sur la promptitude, la complétude, la validité et les données manquantes. Un rapport est suivi d'une supervision hebdomadaire, d'un rattrapage et de coaching mensuels sur site pour obtenir une BDD de qualité.

**Résultats :** Au Sénégal, le projet avait prévu une inclusion de 400 PAVVIH, suivies pendant deux ans. En janvier 2023, 373 patients ont été inclus dont 118 PAVVIH ont atteint deux ans de suivi. Des difficultés de collecte des données ont été relevées. Elles sont liées à des défaillances du logiciel et du serveur, à un déficit en personnels sur les sites et à leur surcharge de travail. Des formations sur la saisie des données ont été organisées pour renforcer les compétences. D'autre part, les données manquantes ont pu être récupérées par une saisie directe à partir des dossiers des patients. Ainsi 96% des patients ont eu les données de leur première visite à jour.

**Conclusions :** Le rattrapage des données permet de mettre à jour la BDD mais les contraintes essentiellement liées au manque de personnel sur les sites ralentissent le processus. Il est impératif de rendre disponible un assistant de données chargé de la saisie pour une BDD de qualité.

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## Reaping Fruits of the Global Fund Condom Strategic Initiative: A Revitalized Comprehensive Condom and Lubricant Program in Malawi

**Sato B**<sup>1</sup>, Mwansambo A<sup>1</sup>, Mablekisi C<sup>1</sup>, Matanje B<sup>1</sup>, Chinyama M<sup>2</sup>, Chikhoswe-Mvalo A<sup>1</sup>, Mabedi F<sup>1</sup>  
<sup>1</sup>National Aids Commission, Lilongwe, Malawi, <sup>2</sup>Ministry of Health, Malawi

**Background:** Malawi is implementing the Comprehensive Condom Program (CCP) as one method for the prevention of HIV, sexually transmitted infections and unintended pregnancies. Condoms are highly cost-effective and are reported to have averted an estimated 117000 HIV infections in the country between 2010 and 2020. However, prior to 2023 implementation of the CCP was persistently suboptimal and characterized by weak stewardship which resulted in low distribution, weak promotion of condoms and lubricants and weak implementation of the Total Market Approach (TMA) among other issues.

**Description:** The Global Fund (GF) condom Strategic Initiative (SI) provided catalytic support to Malawi to strengthen the stewardship of the CCP to optimize GF investments in the program. The support was provided both technically and financially for eighteen months from July 2022 to December 2023.

**Lessons Learnt:** The condom SI, which was country-driven, grew the capacity of the National AIDS Commission and Ministry of Health to steward the CCP from 48 percent at the baseline in 2021 to 91 percent at the endline in 2023. This led to increased condom distribution, as multi-sectoral players such as the private sector and Key Populations (KP)-led organizations, were brought together to intensify condom distribution to the last mile. Consequently, over 131 million male condoms were distributed in 2023, an increase from 69 and 107 million male condoms in 2021 and 2022 respectively. The expanded distribution means that condoms have become easily accessible to underserved populations such as the KP hence ensuring equity of access to HIV prevention services. The improved stewardship also led to improved distribution of Socially



Marketed condoms with over ten million socially marketed condoms distributed in 2023. The SM condoms are offered alongside free condoms in spaces such as bars, thus providing choice to users, strengthening TMA implementation, and setting a step towards program sustainability.

**Conclusions:** Strong stewardship is key to the success of HIV prevention programs which involve multisectoral players like the CCP. Strong stewardship and country-driven program management not only improves implementation but also the sustainability of HIV prevention programs which is important in the wake of diminishing public resources for HIV programs.

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## Enhancing Access to Quality Primary Healthcare deliverables through Integrated Clinical Mentorship in Binga District, Zimbabwe

Musungwini E<sup>1</sup>, Murungu J<sup>2</sup>, Ndlovu L<sup>1</sup>, Mudimba M<sup>1</sup>

<sup>1</sup>Pangaea Zimbabwe - Wild4Life Health Program, HARARE, Zimbabwe, <sup>2</sup>Pangaea Zimbabwe, HARARE, Zimbabwe

**Background:** The Zimbabwean government is dedicated to ensuring access to quality primary healthcare services in alignment with the 1979 Alma Ata declaration and 2018 Astana declaration, working towards Universal Health Coverage (UHC) by 2030. Binga district, characterized by its vast rural landscape, houses 15 health facilities catering to a population of 159,982. However, the district faces challenges like workforce attrition, geographical remoteness, economic hardship and being manned by 90% primary care nurses.

**Materials and Methods:** Pangaea Zimbabwe under the Wild4Life health program introduced a comprehensive clinical mentorship initiative to address these challenges. This program aimed to build the capacity of healthcare workers, strengthen existing skills, and introduce new ones. A health clinic assessment and grading tool, covering seven thematic areas, was employed to assess and score the 15 clinics in Binga. The thematic areas included HIV, TB, viral load

monitoring, antenatal care, correct management of pneumonia and malnutrition, and retention on ART. The multidisciplinary clinical mentorship rounds occurred quarterly, supplemented by virtual contact between sessions. Experienced mentors, well-trained in mentorship, quality improvement, and data analysis, conducted these sessions. Activities included reviewing key program indicators, analyzing patient satisfaction survey findings and exit interviews, observing clinical consultations with practical demonstrations and feedback, and data verification coupled with self-assessment by the facility team. Progress against baseline performance was assessed through self-assessment and mentor evaluations on core program indicators.

**Results:** Following quarterly rounds of integrated clinical mentorship, the median performance across the 15 supported health facilities increased from 60% to 80%, with 13 clinics scoring above 80%. Significant improvements were noted in the correct diagnosis and appropriate management of pneumonia among children, increasing from 63% to 94%. ART retention in care rose from 78% to 98%, and the correct use of a partograph in managing women in labor increased from 35% to 82%. Data variance between reported, collected, and verified data for the district declined from 35% to 7%, nearing the minimal acceptable range of 5%.

**Conclusions:** The implementation of an integrated and multidisciplinary approach to clinical mentorship demonstrates substantial improvements in the quality of care and overall system performance in Binga district, Zimbabwe.



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## Strengthening the Capacity of Health Care Workers and Service Delivery Using the Echo Platform in Five States in Nigeria

**Emenogu N**<sup>1</sup>, Ibiligor C<sup>1</sup>, Kikeola A<sup>2</sup>, Ekeke V<sup>3</sup>, Kenneth O<sup>4</sup>, Deborah B<sup>5</sup>, Ajayi O<sup>1</sup>, Onwuatuolu I<sup>1</sup>, Osi J<sup>1</sup>, Okonkwo P<sup>1</sup>

<sup>1</sup>Apin Public Health Initiatives, Abuja, Nigeria, <sup>2</sup>Apin Public Health Initiatives, Ibadan, Nigeria, <sup>3</sup>Apin Public Health Initiatives, Jos, Nigeria, <sup>4</sup>Apin Public Health Initiatives, Markudi, Nigeria, <sup>5</sup>Apin Public Health Initiatives, Abeokuta, Nigeria

**Background:** The science of HIV/AIDs is rapidly evolving and people living with HIV/AIDs are increasingly needing expert care. To continuously build the capacity of available Human Resource for Health, the APIN public Health Initiative in Nigeria through a U.S. Centers for Disease Control and Prevention (CDC)-funded project, partnered with the Government of Nigeria through the Federal Ministry of Health to adopt the Tele ECHO platform for continuous training and mentorship of Health Care Workers (HCWs). Through the platform, key stakeholders and HCWs link up weekly with subject matter experts for learning sessions. This study aims to assess the contribution of the ECHO platform in strengthening HCWs' HIV-related capacity, across supported health facilities in Benue, Ogun, Oyo, Ondo and Plateau States.

**Materials and Methods:** An initial assessment and mapping of facilities with TeleECHO infrastructure was done in these states. This was followed by a 12 months period (Oct 2021 – Sep 2022) of tracking facilities' weekly TeleECHO attendance using the scoring ratings: GOOD for weekly facility attendance of  $\geq 3$  times per month; FAIR for attendance of 2 times per month; and POOR for attendance of once or none in a month. Also, we surveyed 890 HCWs across the 89 facilities with TeleECHO infrastructure to assess their perceptions of the TeleECHO sessions' impact on service delivery. Written consent obtained from all study participants. Data analysis was done using SPSS 27.

**Results:** Of the 320 supported ART sites, 89 (27.81%) had the TeleECHO Infrastructure in the following proportions: Benue (64) 71.91%, Plateau

(13)14.61%, Ogun (4) 4.49%, Oyo (4) 4.49%, and Ondo (4) 4.49%. Majority (88.74%) of the facilities had good attendance at the ECHO sessions, 7.43% had fair attendance while 3.83% had poor attendance. The survey response rate was 97.4% (906/930). Of the respondents, 100% acknowledged significant knowledge gained, 92.7% indicated improvement in patient treatment outcomes and 7.38% were indifferent.

**Conclusions:** This study showed that TeleECHO mentoring approach has facilitated significant knowledge gain especially among lower cadre of HCWs. This result reinforces the need for Nigerian Government to sustain and integrate this TeleECHO innovation into the country's health education system for quality service delivery.

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## Effectiveness of ART Optimization on Viral Load Suppression in Children and Adolescents Living with HIV in Uganda: A Quasi-Experimental Study Utilizing Real-World Data

**Izudi J**<sup>1,2</sup>, Babirye L<sup>1</sup>, Kigozi J<sup>1</sup>, Muganzi A<sup>1</sup>, Nasuuna E<sup>1,3</sup>

<sup>1</sup>Infectious Diseases Institute, Makerere University, Kampala, Uganda, <sup>2</sup>Department of Community Health, Mbarara University of Science and Technology, Mbarara, Uganda, <sup>3</sup>Non-communicable Diseases Program, Medical Research Council/Uganda Virus Research Institute and London School of Hygiene and Tropical Medicine Uganda Research Unit, Entebbe, Uganda

**Background:** ART (anti-retroviral therapy) optimization ensures access to effective, safe, well-tolerated, and affordable HIV treatment. However, there is limited data regarding the effectiveness of optimized ART regimens in real-world settings. We assessed the effectiveness of ART optimization on viral load (VL) suppression among children and adolescents living with HIV (CALHIV) in Uganda.

**Materials and Methods:** We designed an instrumental variable quasi-experimental study to control for both measured and unmeasured



confounding. We analyzed data from 21 urban and rural HIV clinics. We defined ART optimization as initiating or transitioning CALHIV on either an integrase strand transfer inhibitor (dolutegravir) or a protease inhibitor (boosted lopinavir) as the anchor drug. CALHIV on an optimized ART regimen formed the intervention group, while those on a non-optimized ART regimen constituted the comparison group. The primary outcome was VL suppression defined as VL <1,000 copies/ml after ≥6 months of ART. The instrumental variable was the calendar time —ART optimization date for the intervention group and the data retrieval date for the comparison group. We applied a two-stage least squares regression analysis. First, a logit model to predict the probability of receiving an optimized ART regimen. Second, a modified Poisson regression model with robust error variance to estimate the effect of ART optimization on VL suppression. An F-statistic ≥10 was taken suggestive of a relevant instrument.

**Results:** Of 2999 CALHIV studied, 1028 (34.3%) were aged 10-14 years (11.7±4.9), 1692 (56.5%) were female, 1522 (50.8%) were from a rural HIV clinic, and 2879 (96.0%) were on an optimized ART regimen. Overall, 76.1% (2,282/2,999) had a suppressed VL (75.9% intervention group vs. 80.0% comparison group). Our analysis showed a lower VL suppression in the intervention group than in the comparison group (RR 0.82, 95% CI 0.74-0.90). The findings remained robust in additional causal and non-causal sensitivity analysis. The F-statistics was 72.9 (p<0.001), suggesting the instrument was relevant.

**Conclusions:** In CALHIV, optimal VL suppression was not achieved despite ART optimization. Therefore, there is a need to explore and tackle context-specific factors (biological, behavioral, social, and structural factors) hindering optimal (≥95%) VL suppression among CALHIV in Uganda.

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## HIV and General Health Status of Displaced Populations Receiving Medical Care at Mobile Clinics After Severe Flooding in Mulanje District, Malawi

Njala J<sup>1</sup>, Chimbaka H<sup>1</sup>, Makwaya A<sup>1</sup>, Banda T<sup>1</sup>, Mtulutsa M<sup>1</sup>, Smith D<sup>2</sup>, Njinkho L<sup>3</sup>, Chinkonde J<sup>4</sup>, Tauzie B<sup>4</sup>, Songo J<sup>1</sup>, Mphande M<sup>1</sup>, Balakasi K<sup>1</sup>, Phiri K<sup>1</sup>, van Oosterhout J<sup>2</sup>, Phiri S<sup>1</sup>

<sup>1</sup>Partners In Hope, Lilongwe, Malawi, <sup>2</sup>University of California, Los Angeles, USA, <sup>3</sup>Ministry of Health, Mulanje, Malawi, <sup>4</sup>UNICEF, Lilongwe, Malawi

**Background:** Due to the rising impact of climate change, Malawi has experienced increased extreme weather events. These include devastating floods and mudslides, which have led to cyclical, large-scale displacement of vulnerable populations. Ministry of Health and partners have conducted outreach clinics close to camps for displaced persons. Little is known about health status and needs of the affected populations.

**Materials and Methods:** In November 2023, Partners in Hope (PIH) conducted a cross-sectional survey of individuals aged ≥18 years utilizing health services at mobile outreach clinics conducted at 7 campsites in Mulanje district, set up after flooding caused by Tropical Cyclone Freddy (March 2023). We describe demographic characteristics, prevalence of self-reported acute and chronic conditions, depression (PHQ score), intimate partner violence (IPV) and health service satisfaction, stratified by residence status (displaced/non-displaced).

**Results:** Of 341 participants surveyed, median age was 32 years (IQR 23-47 years), and 80% were female. Fifty-eight percent (197/341) were displaced persons, the rest resided close to the camps (non-displaced). Displaced participants more frequently had: no formal education (32.5% vs. 15.3%; p<0.001), worse self-reported health (41.6% vs. 23.6%; p<0.001), respiratory illness (23.8% vs. 13.4%; p=0.02), COVID-19 symptoms (19.6% vs. 11.2%; p=0.04), HIV testing need (23.4% vs. 14.6%; p=0.04) and under-5 service need (14.7% vs. 7.6%; p=0.04). The displaced had similar chronic disease prevalence (42% vs. 38%; p=0.389)





and unknown HIV status prevalence (1.0% vs. 4.2%;  $p=0.163$ ) as residents. All PLHIV in both groups were engaged in HIV care (registered on ART 18.8% vs. 18.8%;  $p=0.300$ ). Rating of mobile services as good was near-universal in both groups (98%). Similar proportions in both groups screened positive for depression (53.5% vs 56.3%,  $p=0.598$ ; 91% overall was minimal/mild) and IPV (47.2% vs 54.6%,  $p=0.289$ ). Overall prevalence of physical IPV was 16.3% and sexual IPV 15.3%, similar between groups.

**Conclusions:** After severe flooding, mobile outreach clinics were frequented by displaced persons in camps and nearby residents, unable to reach their regular health facility. Given high rates of acute illnesses, chronic conditions (including HIV), depression and IPV, mobile clinics in these settings require multidisciplinary teams with diverse skills to meet the health needs of the attending client population.

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## Séroprévalence Facteurs Associés au Portage de L'AgHBs en Milieu Carcéral Guinéen

Sow M<sup>1</sup>, Diallo M<sup>1</sup>, Bah I<sup>1</sup>

<sup>1</sup>Centre Hospitalo-université de Conakry; Université Gamal Abdel Nasser de Conakry, Conakry, Guinée, <sup>2</sup>Centre de Recherche et de Formation en Infectiologie de Guinée (CERFIG), Conakry, Guinée

**Contexte :** L'objectif de notre étude était de déterminer la prévalence et les facteurs associés au portage de l'AgHBs en milieu carcéral guinéen.

**Matériels et Méthodes :** il s'agissait d'une étude d'observation transversale, multicentrique descriptive et analytique qui s'est déroulée sur une période de six mois dans les maisons centrales des différentes régions administratives de la Guinée. Nous avons inclus les détenus de tout âge, de tout sexe et de toute origine ayant accepté de participer à l'étude et chez qui la sérologie pour le dépistage de l'hépatite virale B a été réalisé quel que soit le résultat obtenu. Les informations sociodémographiques, cliniques et biologiques ont été collectées. L'Ag HBs a été recherché sur les prélèvements de sang veineux

grâce au test rapide CYPRESS Ag HBs BANDELETTES®. Les facteurs associés au portage de l'AgHBs ont été analysés à l'aide d'une régression logistique multivariée.

**Résultats :** Sur 873 détenus, 153 étaient porteur de l'AgHBs, soit une prévalence 17,5% IC 95% [15,1 – 19,8]. L'âge moyen a été de 29,70±10,08 ans avec une prédominance masculine de 96,9%. Les proportions de l'AgHBs étaient plus importantes dans les régions administratives de Boké et Kindia avec respectivement 21,7 et 20,5%. L'analyse logistique multivariée a révélé que la durée de détention de 5 – 10 ans (OR = 2,20, IC à 95% = 1,05 – 4,63,  $p = 0,03$ ), de plus 10 ans (OR = 4,08, IC à 95% = 1,49 – 11,18,  $p < 0,01$ ), le portage de lame entre détenus (OR = 4,08, IC à 95% = 2,07 – 4,38,  $p < 0,01$ ), l'usage de cocaïne (OR = 7,75, IC à 95% = 1,66 – 36,09,  $p < 0,01$ ) étaient indépendamment associés au portage de l'AgHBs.

**Conclusions :** la prévalence de l'infection à VHB parmi les détenus reste élevée. Les facteurs indépendamment associés au portage de l'AgHBs ont été être âgé de plus de 5ans, le portage de lame et l'usage de Cocaïne. La lutte contre cette affection en milieu pénitentiaire nécessite un dépistage, une sensibilisation carcérale. Des études plus approfondies sur la circulation virale et l'impact du milieu carcéral sur l'infection par le VHB semblent nécessaire.

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## Vivre en Zone Rurale Comme Facteur de Protection Pour Les Maladies Métaboliques Parmi Les Personnes Vivant Avec Le VIH âgées de 50 Ans et Plus au Cameroun ? Expérience de VIHeillir

Modibo S<sup>1</sup>, Géraldine M<sup>2</sup>, Christian D<sup>3</sup>, Souley Y<sup>4</sup>, Kingue B<sup>3</sup>, Laura C<sup>2</sup>, ABA'A DJAMPENE H<sup>5</sup>

<sup>1</sup>Comité National de lutte contre le Sida (CNLS), Yaoundé, Cameroun, <sup>2</sup>Projet VIHeillir, Yaoundé, Cameroun, <sup>3</sup>Hôpital Militaire de Yaoundé, Yaoundé, Cameroun, <sup>4</sup>Hôpital de District de Bafia, Bafia, Cameroun, <sup>5</sup>Laboratoire de Recherche sur les Hépatites et le Communication en Santé (LRHCS/FMSB-UYI), Cameroon



**Contexte:** L'accès élargi aux antirétroviraux (ARV) a transformé l'infection à VIH en une maladie chronique avec un vieillissement de la population sous ARV. Au Cameroun les personnes âgées de plus de 50 ans vivant avec le VIH (PAVVIH) représentent déjà 25% de la file active en 2023. Le projet VIHeillir, financé par l'Initiative intègre la prise en charge des comorbidités chez les PAVVIH au Cameroun et au Sénégal. Cette analyse présente les caractéristiques sociodémographiques et cliniques des PAVVIH sous ARV en milieu urbain et rural au Cameroun.

**Matériels et Méthodes :** Après signature de consentement éclairé, les données sociodémographiques, l'histoire de l'infection à VIH et les données sur les comorbidités et les facteurs de risque des maladies cardiovasculaires ont été collectées. Cette collecte a été faite lors des consultations de routine dans deux services VIH dont un en milieu urbain (Hôpital Militaire de Yaoundé) et l'autre en milieu rural (Hôpital de District de Bafia).

**Résultats :** Entre juin 2021 et janvier 2024, 1318 PAVVIH ont été enregistrés, soit 783 à Yaoundé et 535 à Bafia. Nous observons une prédominance féminine (69%, n=909) et un âge moyen de 57 (50-82) ans sans différences significatives entre les deux sites. Par contre, les participants de Yaoundé présentaient une prévalence significativement plus élevée d'hypertension artérielle à 58,6% (391/667) et de diabète à 10,1% (47/464) vs 36,4% (124/341) et 4,8% (11/227) à Bafia ( $p < 0,05$ ). Nous observons aussi une différence significative pour les facteurs de risque : avec une fréquence plus élevée de l'obésité à 22% (172/768), de la sédentarité à 75% (578/769) et de la pression artérielle élevée à 64% (502/780) à Yaoundé vs 9% (50/532), 66% (350/531) et 38% (205/535) à Bafia. A noter une différence importante dans les occupations professionnelles : les participants de Yaoundé constitués majoritairement des retraités et ménagères par rapport à ceux de Bafia qui sont majoritairement des agriculteurs.

**Conclusions:** L'étude révèle une différence sur le profil sociodémographique et clinique des participants suivis en milieu rural et urbain notamment pour la fréquence des maladies cardio-métaboliques. Une différence dans les activités quotidiennes pourrait être associée à ces résultats.

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## BDNF Levels and Cognitive Function in People Living with HIV Before ART Initiation in Sub-Saharan Africa

Michael H<sup>1</sup>, Rapulana A<sup>2,5,6</sup>, Smit T<sup>2</sup>, Xulu N<sup>2</sup>, Danaviah S<sup>3</sup>, Ramlall S<sup>4</sup>, Oosthuizen F<sup>1</sup>

<sup>1</sup>. Discipline of Pharmaceutical Sciences, School of Health Science, University Of Kwazulu-natal, Durban, South Africa, <sup>2</sup>Africa Health Research Institute, Durban, South Africa, <sup>3</sup>Faculty of Applied Science, Eduvos, Midrand, South Africa, <sup>4</sup>Department of Psychiatry, University of KwaZulu-Natal, Durban, South Africa, <sup>5</sup>School of Laboratory Medicine and Medical Science, University of KwaZulu-Natal, Durban, South Africa, <sup>6</sup>UCL Centre for Clinical Microbiology, Division of Infection & Immunity, University College London, London, United Kingdom

**Background:** This study estimates the association between serum mature and precursor Brain-Derived Neurotrophic Factors (mBDNF and proBDNF) and neurocognitive function in ART-naïve adults living with HIV in sub-Saharan Africa. It aims to differentiate the impacts of mature BDNF and proBDNF on cognitive performance in the context of HIV neuropathogenesis.

**Materials and Methods:** Stored specimens and neuropsychological data from participants of the AIDS Clinical Trials Group (ACTG) A5199 study (2006 – 2010) in Johannesburg and Harare sites were analyzed. Serum mBDNF and proBDNF levels were quantified using ELISA. Neurocognitive function was assessed using Grooved Pegboard, Finger Tapping, Timed Gait, and Semantic Verbal Fluency Tests. Three linear regression models evaluated the relationship of NPZ-6 (a composite cognitive score) with log-transformed mBDNF, proBDNF, and their ratio, adjusting for age, sex, education, and HIV factors. Quantile regression was used to analyze these relationships across cognitive function levels, and structural equation modelling (SEM) was used to explore the interplay between neurotrophic factors and individual cognitive test scores.

**Results:** Regression analyses showed a positive relationship between log-transformed BDNF and cognitive performance (NPZ-6 score;  $\beta=1.303$ ,  $p=0.0158$ ), while higher proBDNF levels were associated with lower NPZ-6 ( $\beta=-0.377$ ,  $p=0.0035$ ). The mBDNF to proBDNF ratio also showed a non-significant positive trend toward association with NPZ-6 ( $\beta=0.044$ ,  $p=0.085$ ). Quantile regression



analyses revealed a nuanced impact of mBDNF and proBDNF on cognitive performance. Mature BDNF significantly enhanced neurocognitive function at the lower 25th percentile ( $\beta=1.068$ ,  $p<0.05$ ), but this effect waned at higher percentiles.

Conversely, elevated proBDNF consistently correlated with poorer cognitive outcomes, significantly so at the median and 75th percentiles ( $\beta=-0.318$  and  $\beta=-0.207$ , respectively,  $p<0.05$ ). The SEM analysis showed that higher mBDNF levels significantly improved scores in tests assessing fine motor dexterity and speed (Finger tapping;  $\beta = 0.161$ ,  $p = 0.032$ ). In contrast, increased proBDNF levels negatively impacted these same scores ( $\beta = -0.222$ ,  $p = 0.002$ ).

**Conclusions:** The findings suggest that increased mBDNF correlates with better cognitive function, while proBDNF is linked to poorer cognitive outcomes in ART-naïve adults living with HIV. Longitudinal studies are needed to understand the temporal dynamics of BDNF levels with cognitive changes during ART initiation.

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## Overtreatment of Women Living with HIV With Suspected Invasive Cervical Cancer Using Loop Electrosurgical Excision Procedure Within Public Sector Health Facilities of Manicaland and Midlands Provinces of Zimbabwe, 2023

Tachiwenyika E<sup>1</sup>, Ndlovu M<sup>1</sup>, Chimwaza T<sup>1</sup>, Ganje N<sup>1</sup>, Maravanyika A<sup>1</sup>, Choga G<sup>1</sup>, Mukuzunga M<sup>2</sup>, Muchekeza M<sup>2</sup>, Tafuma T<sup>1</sup>, Muchedzi A<sup>1</sup>, Muzondo M<sup>1</sup>, Muguse J<sup>1</sup>, Chindove B<sup>1</sup>, Mupanguri C<sup>2</sup>, Gwanzura C<sup>2</sup>, Mhangara M<sup>3</sup>, Mukungunugwa S<sup>3</sup>, Sibanda T<sup>1</sup>, Nyathi K<sup>1</sup>, Nyamundaya T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe

**Background:** Zimbabwe has high cervical cancer (CC) burden of 19% and mortality rate of 64%. Zimbabwe uses Visual Inspection with Acetic Acid and Cervicography (VIAC) for CC screening.

Zimbabwe Health Interventions (ZHI) supports the government of Zimbabwe (GoZ) to optimize CC screening and treatment among women living with HIV (WLHIV). About 52% (696/1,320) of VIAC positive WLHIV were treated using loop electrosurgical excision (LEEP) procedure between October 2022 and September 2023. We assessed treatment of VIAC-positive WLHIV with histology results.

**Materials and Methods:** A descriptive cross-sectional study was conducted among VIAC-positive WLHIV with histology results in Manicaland and Midlands provinces of Zimbabwe between October 2022 and September 2023. VIAC positive WLHIV were treated using Thermocoagulation, Cryotherapy, or LEEP based on extent of their lesions; those with lesions covering <75% of transformation zone, not disappearing into uterine external OS, and no abnormal blood vessels were treated with Thermocoagulation/Cryotherapy where's those with lesions covering >75% of transformation zone, disappearing into OS, or with abnormal blood vessels had LEEP and a biopsy taken for histology. Routine program and histology results data were analyzed using Ms. Excel generating proportions, and the assessment was covered by Medical Research Council of Zimbabwe approved protocol (MRCZ/E/159).

**Results:** We analyzed data for 696 VIAC positive WLHIV who were treated using LEEP between October 2022 and September 2023. Median age was 43 years (IQR 37-49) and median turnaround time (TAT) from biopsy collection to laboratory producing histology results was 2 days (IQR 2-5). Out of the 696 clients who had LEEP, 29.1%(n=203) had cancer, 36.7%(n=256) had precancerous lesions, 29%(n=202) had cervicitis/polyp, 1.7%(n=12) had schistosomiasis, 2.8%(n=20) we normal, and 0.4%(n=3) were inconclusive. Out of the 203 clients with cancer, 86.2% (n=175) had squamous cell carcinoma and the remainder had adenocarcinoma. About 24.6% (n=50) of clients who had cancer were aged between 45-49 years.

**Conclusions:** There was over diagnosis of clients requiring LEEP using VIAC, resulting in overtreatment. We recommend scale-up of high-specific screening tests such as Human Papilloma Virus Deoxyribonucleic Acid (HPV DNA) test, Automated Visual Evaluation (AVE) and capacity building of clinicians offering VIAC and cervical cancer treatment services.



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## Transforming Cervical Cancer Screening to Women Living with HIV Using Digital Health Application: Experiences from Tanzania

**Kibona A**<sup>1</sup>, Van de Ven R<sup>1</sup>, Ngalla P<sup>2</sup>, Mkumbo J<sup>1</sup>, Haraka F<sup>1</sup>, Kimambo S<sup>1</sup>, Yuma S<sup>3</sup>, Kombe M<sup>4</sup>

<sup>1</sup>Elizabeth Glaser Pediatric Aids Foundation, Dar Es Sallam, Tanzania, United Republic of, <sup>2</sup>Sky connect, Dar es Sallam, Tanzania, <sup>3</sup>Ministry of Health, Dodoma, Tanzania, <sup>4</sup>USAID, Dar es sallam, Tanzania

**Background:** Cervical cancer is the leading cause of cancer morbidity and mortality among women in Tanzania. The World Health Organization recommends visual inspection with acetic acid (VIA) for screening in lower-resource settings. However, it is user-dependent technique and can vary in ascertaining cervical lesions. The Elizabeth Glaser Pediatric AIDS Foundation rolled out a digital health platform, the smartphone-enhanced VIA (SEVIA) application, for secured sharing of cervical images, enabling remote supportive supervision and verification of diagnosis by secondary experts. This study aimed to evaluate how a digital health solution improved quality of cervical cancer screening

**Materials and Methods:** Cross-sectional analysis of routine program data was conducted from 178 health facilities across five supported regions providing cervical cancer screening and among them 45 facilities used the SEVIA application. Data were extracted from DHIS2 and the SkyConnect server on aggregate level for the period of April 2022 till October 2023.

**Results:** A total of 62,824 women living with HIV (WLHIV) were screened for cervical cancer, among them 3.3% were found VIA positive. In SEVIA facilities, 6,766 WLHIV were screened and images shared for review. Over time the mismatch of VIA results between the provider and reviewer decreased from 21% in April-June 2022 to 4% in July-September 2023. Among the 546 images with mismatch, 245 images (45%) were reported VIA negative by providers, but according reviewers 176 (72%) were VIA positive, 24 (10%) were suspected cancer and 45 (18%) had other conditions such as polyps and cervicitis.

**Conclusions:** The use of digital health platform enabled virtual supervision and built capacity of service providers, enhancing quality of cervical cancer screening provided to WLHIV and reducing misdiagnoses. As technology continues to advance, the integration of digital health into service delivery models is a promising step towards reducing the global burden of this preventable disease.

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## Depression and Suicide Among Adolescent Girls Living with HIV in Refugee Settlements in Northern Uganda

**Otika D**<sup>1</sup>, Odongo G<sup>1</sup>, Mary Muzaki R<sup>1</sup>, Lamwaka Oweka B<sup>1</sup>, Bongomin F<sup>1</sup>, Pebalo F<sup>1</sup>

<sup>1</sup>Gulu University, Gulu, Uganda

**Background:** Depression and HIV are among the leading causes of disability, morbidity, and mortality among adolescent girls in Africa, with varying prevalence across different populations. However, there is paucity of information on depression among priority groups in unique settings like adolescent girls living with HIV in refugee settlements, where access to HIV services and mental health services including psychosocial support and psychiatric consultation is scarce.

**Materials and Methods:** We conducted a cross sectional descriptive study on conveniently sampled adolescent girls living with HIV from four selected refugee settlements in Obongi and Yumbe districts, Uganda. A multi-stage sampling, and cluster sampling techniques, where each settlement represented one cluster was done. Prevalence of depression was assessed using the patient health questionnaire – 9 (PHQ-9) modified for adolescents, followed by a P4 assessment tool for suicidal risks. We performed modified Poisson regression analysis for predictors of depression.

**Results:** We included 385 participants with a mean age of 17 (IQR: 15-18) years. The prevalence of depression was 15.1% (n=58, 95% CI: 11.6 – 19.0). Overall, 8.6% (n=33) participants had recent suicidal thoughts (within 1 month) and 2.3% (n=9)



attempted suicide. Pregnancy (aOR: 2.4, 95% CI: 1.00 – 5.94,  $P = 0.049$ ), sexual abuse (aOR: 2.1, 95% CI: 1.19 – 3.76,  $P = 0.011$ ), and physical abuse (aOR: 1.7, 95% CI: 1.01 – 2.74,  $P = 0.044$ ) were independently associated with depression.

**Conclusion:** We found out that 1 in 6 adolescents living with HIV in refugee settlements of northern Uganda suffer from depression, particularly among those who experienced adolescent pregnancy and abuses. Incorporating mental health care in the existing HIV care settings and social structures within the refugee settlements, exploring legal options against perpetrators of sexual abuse and encouraging education will go a long way in dealing with challenges related to depression, reducing morbidity and suicide risks in this vulnerable population.

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## Comparative Analysis of Women's Cancer Screening Methods and Their Relationship with HIV at the Buea Regional Hospital in Cameroon

Moko Fotso L<sup>1,9</sup>, Tommo Tchouaket M<sup>1,2</sup>, Fokam J<sup>1,2,3,4</sup>, Nges C<sup>2</sup>, Sosso S<sup>1</sup>, Kamgaing Simo R<sup>1</sup>, Ngoufack Jagni Semengue E<sup>1,5,6</sup>, Yagai B<sup>1,6</sup>, Sando Z<sup>3,5</sup>, Takou D<sup>1</sup>, Fainguem N<sup>1,6,7</sup>, Chenwi C<sup>1,3</sup>, Ka'e A<sup>1</sup>, Abba A<sup>1</sup>, Nnomo Zam M<sup>1</sup>, Perno C<sup>8</sup>, Colizzi V<sup>1,6,7</sup>, Ndjolo A<sup>1,3</sup>

<sup>1</sup>Chantal Biya International Reference Centre, Yaounde, Cameroon, <sup>2</sup>Faculty of Health Sciences, University of Buea, Cameroon, Buea, Cameroon, <sup>3</sup>University of Yaoundé I, Cameroon, Yaounde, Cameroon, <sup>4</sup>School of Health Sciences Catholic University of Central Africa Yaoundé Cameroon, Yaounde, Cameroon, <sup>5</sup>Yaoundé Gynaeco-obstetrics and paediatric hospital, Yaoundé, Cameroon, <sup>6</sup>University of Rome "Tor Vergata", Rome, Italy, Rome, Italy, <sup>7</sup>Evangelical University of Bandjoun, Cameroon, Bandjoun, Cameroon, <sup>8</sup>Bambino Gesù Pediatric Hospital, Rome, Italy, Rome, Italy, <sup>9</sup>Faculty of Medicine and Biomedical Sciences, Yaoundé, Cameroun, Yaoundé, Cameroun

**Background:** Cervical Cancer occurs after persistent infection of high-risk human papillomavirus (HR-HPV) genotypes that play a central role in pathogenesis when undiagnosed. The primary objective of the study was to

determine the diagnostic performance of VIA/VILI compared with HR-HPV testing in reference to conventional PAP smears.

**Materials and Methods:** A cross-sectional comparative study was conducted among women aged 18-65 years attending the gynaecological division of Buea Regional Hospital in south-west Cameroon between March and June 2022. Eligible women were screened by VIA/VILI, HPV testing by real time pcr and Cervico-Vaginal Smear (CVS) by papanicolau staining. Data were analysed using SPSS v. 25, with statistical significance set at  $P < 0.05$  with a 95% confidence interval.

**Results:** a total of 281 participants were enrolled, with the mean age of 39 years (+/-13.4 years). The HR-HPV positivity rate was 32.81% with a low rate of genotypes 16 and 18 (28.57%) compared to 71.42% of other genotypes (31,33,35,39,45,51,52,56,58,59,66 and 68). The CVS positivity rate was 21%, following the association of CVS with HR-HPV, 31.9% of the dysplasias had HR-HPV present. According to HIV status, only 10.3% of HIV-positive patients had a cervical dysplasia and only 20% of this population have the presence of HR-HPV genotype. Among the risk factors, only age at first intercourse (18 and 24 years) was associated with HR-HPV infection with  $P = 0.023$ . On the basis of CVS, the sensitivity, specificity, PPV and NPV of VIA were 47.5%, 77.0%, 35.4% and 84.7% respectively (AOR=3.028 95% CI: 1.664-5.513),  $P = 0.0001$ . VILI had a sensitivity, specificity, PPV and NPV of 54.2%, 82.4%, 45.1% and 87.1% respectively (AOR=3.018 95% CI: 1.063-4.312  $P = 0.0001$ ).

**Conclusions:** Regarding to Cervical Cancer screening, the prevalence of CVS is high, with comparable performance of VIA/VILI in detecting CVS, although VILI is more accurate. Interestingly, a positive HR-HPV test result predicts the presence of CVS.



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## Characteristics of PLHIV Who Contract TB Disease After Completion of TB Preventive Therapy at a Large ART Facility in Kampala, Uganda

Bitira L<sup>1</sup>, Namale G<sup>1</sup>, Sendaula E<sup>1</sup>, Kaleebi J<sup>1</sup>  
<sup>1</sup>Reach Out Mbuya Community Initiative, Kampala, Uganda

**Background:** Tuberculosis preventive therapy (TPT) effectively reduces rates of developing active tuberculosis (TB) disease in people living with HIV (PLHIV) who are at increased risk. We aimed at investigating the characteristics of PLHIV diagnosed with TB after the successful completion of a standard course of TPT.

**Materials and Methods:** We performed a retrospective cohort analysis of PLHIV records in TB and ART registers between 1st January 2022 and 31st December 2023 at Kawaala Health Centre IV, a large ART facility in Kampala. Data on socio-demographic and clinical characteristics were collected using a data transcription form. Data were entered in Excel and later exported to SPSS for further management and analysis. In Excel, we traced back TPT completion using ART numbers from EMR and client files. The participant characteristics were summarised in descriptive terms such as mean, median, standard deviation (SD) or percentage, as appropriate.

**Results:** A total of 9,417 PLHIV who had completed TPT were included in the analysis; the mean age was 36.6 (SD 13.6) years old and most were female 6,912 (73.4%). Eighty-seven (0.9%) PLHIV contracted TB disease after completion of TPT and of these 68 (78%) had a documented TPT completion date with the average duration between TPT completion and TB diagnosis 2.5 (SD 13.1) years, 55 (63%) were bacteriologically diagnosed, more than half were female 46 (53%), majority 80 (92%) were on DTG based regimens, most 66 (76%) had a documented viral load within 1 year of being diagnosed with TB and of these 52(79%) were virologically suppressed (viral load <200 copies/ml). Of the 87, 2 died before completion of treatment.

**Conclusions:** The characteristics of PLHIV that acquire TB disease after completion of TPT are

describe a stable population. This emphasizes the need for intentional routine screening of TB even among stable clients enrolled in various community and facility models Differentiated Service Delivery.

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## Bridging The Mental Health Gap Among People Living with HIV In the Era of COVID Using the Common Elements Treatment Approach: Lessons Learned From 4 Provinces in Zambia.

Matongo E<sup>1</sup>, Chambwe C<sup>1</sup>, Mudenda C<sup>1</sup>, Munthali V<sup>1</sup>, Chitala M<sup>1</sup>, Wa Mwanza M<sup>1</sup>, Moomba K<sup>1</sup>, Savory T<sup>1</sup>, Herce M<sup>1</sup>  
<sup>1</sup>Centre for Infectious Disease Research in Zambia, Lusaka, Zambia

**Background:** Access to mental health services remains a challenge especially among people living with HIV (PLHIV) in Zambia. The provider-patient ratio for mental health in Zambia is currently undocumented, and the ratio remains low in Africa, standing at 0.05/100,000 population. Mental health problems are major risk factors for poor patient level HIV treatment outcomes and constitute impediments to the attainment of the UNAIDS 95-95-95 targets for epidemic control. To address this, we implemented the Common Elements Treatment Approach (CETA), a scientifically proven multi-problem intervention, combining treatments for a range of mental health issues (trauma, depression, anxiety, substance abuse) into a single mode. The objective of integrating cognitive behavioral therapy into the antiretroviral therapy (ART) services is to improve adherence and viral load suppression (VLS).

**Materials and Methods:** Data was collected from 43 public health facilities in Western, Southern, Eastern and Lusaka provinces of Zambia between October 2022 and September 2023. All data were analyzed descriptively. Implementation included consultative meetings, orientation, designing data collection tools and monitoring & evaluation (M&E) systems. Clients were evaluated to



determine eligibility for CETA, through the utilization of a client monitoring form (CMF), which assessed and monitored an extensive array of mental health problems. Data were collected and entered in the District Health Information System 2 (DHIS2), a database and M&E reporting system.

**Results:** Out of the 3,247 clients assigned to counsellors for screening, 1,824 (56%) were recruited. Among these, 1,136 (62%) clients were eligible and enrolled in CETA. Other than 1,136 newly enrolled, 343 (23%) clients were still actively undergoing CETA at the end of September 2023. Meanwhile, 332 (22%) dropped out due to busy schedules, no phones, distance to the facility or they were not ready. A total of 1121 (75%) completed CETA, while 37 (3%) were on hold, 21(1%) discontinued treatment, and 8(1%) clients died. Additionally, 10(1%) were referred to Psychiatry.

**Conclusions:** The results indicate that CETA presents potential to effectively address mental health issues among PLHIV thereby improving retention in care and treatment. Implementation of CETA at scale is recommended to improve mental health and retention for PLHIV across the entire country of Zambia.

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## Patterns of Non-communicable Disease Multi-Morbidity in the HIV Population Attending the NCD Clinic at Two Primary Health Care Level Hospitals in Zambia - A Cross Sectional Study

Ng'andu M<sup>1</sup>, Mulenga B<sup>1</sup>, Bosomprah S<sup>1</sup>, Goma F<sup>1,2</sup>

<sup>1</sup>Centre for Infectious Disease Research In Zambia (CIDRZ), Lusaka, Zambia, <sup>2</sup>Health Professions Council of Zambia, Lusaka, Zambia

**Background:** Many low and middle-income countries including Zambia are experiencing an epidemiological shift of chronic infectious to non-communicable diseases (NCD). As a result, the prevalence of multiple morbidities (MM) is seen to be rising.

**Materials and Methods:** We conducted a point prevalence analysis to describe the epidemiology of multimorbidity in HIV infected patients attending the NCD clinic in two (2) primary health care level hospitals in urban and rural Zambia. Multimorbidity was measured by the presence one or more NCDs identified between November 2022 to Jan 2024 using the routinely collected data entered on the District Health Information Software version 2 (DHIS2) and a logistic regression analysis was run to assess correlates. STATA was used to run all statistical tests and analyses.

**Results:** By the end of Jan 2024, a total of 1231 patients were enrolled in the NCD clinic. HIV and NCD multimorbidity accounted for 8.7% (107/1231) of all visits and among the HIV infected patients NCD multimorbidities accounted for 37.9% (107/283). Across both hospitals 36% (102/283) of the HIV infected population had 2 NCDs while 1.8 % (5/283) had 3 NCDs at enrollment. Among those who had 3 NCDs, the patterns observed was Cardiac, Diabetes Mellitus (DM) and Hypertension. DM and hypertension were the highest multi-morbidity with an increasing prevalence with age.

**Conclusions:** The simultaneous occurrence of HIV and NCD multi-morbidities creates challenges in terms of the complexity and impact on health services, providers, and patients. However, it also opens up opportunities for screening for chronic diseases within a population linked to care. Furthermore, it calls for a reevaluation of healthcare delivery models and necessitates policy interventions to integrate and coordinate the management of co-morbid chronic diseases.



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## Facteurs Associés à la Mortalité chez les Patients Hospitalisés pour Tuberculose au Service des Maladies Infectieuses et Tropicales de Fann

Ka D<sup>1</sup>, Badiane A<sup>1</sup>, Diop M<sup>1</sup>, Thioub D<sup>1</sup>, Fall N<sup>1</sup>, Massaly A<sup>1</sup>, Diallo Mbaye K<sup>1</sup>, Lakhe N<sup>1</sup>, Cisse Diallo V<sup>1</sup>, Diouf A<sup>1</sup>, Seydi M<sup>1</sup>

<sup>1</sup>Service Des Maladies Infectieuses Et Tropicales de Fann / Université Cheikh Anta Diop De Dakar (smit/ucad), Dakar, Senegal

**Contexte :** Différents facteurs associés à la mortalité sont décrits dans la littérature chez les patients présentant une tuberculose. Les objectifs de notre travail étaient de décrire les aspects épidémio-cliniques, paracliniques et évolutifs de la tuberculose et d'identifier les facteurs associés à la mortalité.

**Matériels et Méthodes :** Il s'agissait d'une étude rétrospective à visée descriptive, et analytique. Elle a été menée auprès des malades hospitalisés pour une tuberculose au service des maladies infectieuses et tropicales de Dakar du 1er janvier 2018 au 31 décembre 2022. Les données ont été saisies et analysées en utilisant les logiciels Excel et Epi-info version 7.2.5.

**Résultats :** Durant la période d'étude, nous avons colligé 167 dossiers de patient hospitalisés pour tuberculose toutes formes confondues soit une fréquence hospitalière de 4,6%. L'âge moyen des patients était de 40,95 ± 16,14 ans. Le sexe masculin était prédominant avec un sex-ratio H/F de 2,1. Le VIH (64,15%), le tabagisme (24,55%) et l'antécédent de tuberculose (17%) étaient les terrains les plus retrouvés. Les signes cliniques étaient dominés par la toux (78,72%), la fièvre (88,68%) et l'altération de l'état général (67,65%). La localisation pulmonaire était la plus fréquente (86,23%) suivie des localisations digestive (47,90%) et neurologique (33,53%). Sur le plan paraclinique, la majorité des patients a présenté une anémie avec un taux d'hémoglobine < 12g/dl (87,4%). Nous avons retrouvé une pancytopenie chez 31,74% des patients. Près de la moitié (45,28%) des patients avait présenté une cytolysé hépatique. Dans notre série, la létalité était de

29,34%. En analyse multivariée les facteurs associés à la mortalité étaient : le sexe masculin [aOR (IC 95%) : 4,12(1,1-15,42)], un antécédent de tuberculose [aOR (IC 95%) : 8,7 (1,98-38,42)], l'asthme [aOR (IC 95%) : 12,7(1,14-143,85)], la présence de signes neurologiques [aOR (IC 95%):2,89 (0,94-8,84)] et la présence d'une pancytopenie [aOR (IC 95%) : 6,6 (1,99-21,93)].

**Conclusions :** La morbi-mortalité de la tuberculose reste élevée. La connaissance des facteurs de risque de mortalité permettrait d'améliorer la prise en charge. Notre travail a retrouvé les facteurs suivants : le sexe masculin, l'antécédent de tuberculose, l'asthme, les signes neurologiques et la pancytopenie.

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## Assessing the Burden of Advanced HIV Disease and Mortality among People Living with HIV Who Are Treatment Naïve and Treatment Experience: A Quantitative Study from Nigeria HIV Program

Nwofe J<sup>1</sup>, Odido M<sup>1</sup>, Henshaw A<sup>1</sup>, Amali O<sup>1</sup>, Onyenike M<sup>1</sup>, Ogaga J<sup>1</sup>, Ameh S<sup>1</sup>, Okonkwo P<sup>1</sup>, Bodunrin S<sup>1</sup>, Osho O<sup>1</sup>, Abeeblahi O<sup>1</sup>, Oguh D<sup>1</sup>, Olaniyi O<sup>1</sup>, Offie D<sup>1</sup>, Edeh C<sup>1</sup>, Omole T<sup>1</sup>, Pwoll K<sup>1</sup>, Ojo E<sup>1</sup>, Obaje M<sup>1</sup>, Owolagba F<sup>1</sup>, Ofuche E<sup>1</sup>, Jwange P<sup>1</sup>, Okezie U<sup>1</sup>, Samuels J<sup>1</sup>, Okonkwo P<sup>1</sup>, Audu I<sup>2</sup>, Okoye M<sup>2</sup>, Onotu D<sup>2</sup>

<sup>1</sup>APIN Public Health Initiatives, Plot 1551 Apo Resettlement Zone E Abuja FCT, Nigeria, <sup>2</sup>US Centers for Disease Control and Prevention Nigeria, Abuja, Nigeria

**Background:** Antiretroviral treatment (ART) has been massively scaled up to decrease HIV-related morbidity, mortality, and HIV transmission. However, despite documented increases in ART coverage, morbidity and mortality have plateaued since 2014 in Nigeria because a significant proportion of individuals present to care with advanced HIV disease (AHD). We evaluated the burden of advanced HIV diseases among treatment naïve and treatment-experienced





people living with HIV/AIDS and mortality in APIN-managed facilities with support from US-CDC.

**Materials and Methods:** A multicenter retrospective study of AHD package of care implementation in 334 treatment sites across APIN-supported states in Nigeria. Persons newly diagnosed with HIV and Clients who returned to care (RTT) after interrupting treatment for at least 90-days and those with unsuppressed viral load for >1 year of treatment between October 2021 and September 2023 who were provided with complete AHD package of care were assessed. Data was exported from the register to Excel and analyzed using SAS version 9.4. The cause of death was established using the WHO verbal Autopsy standard checklist.

**Results:** 65,714 were screened for CD4, 1315(2%) were RTT, 329(0.5%) were viral unsuppressed. Among treatment naïve, 14,540 (22%) had CD4 below 200 cells/mm<sup>3</sup>. 8987 (62%) were screened for TB using the Abbott Urine Lipoarabinomannan kit, and 1881 (21%) were diagnosed with TB and were started on treatment. 7421(51%) were screened for Cryptococcal infection using Immy Cryptococcal Antigen lateral flow assay, 145(2%) were diagnosed with Cryptococcal infection. 13(30%) were diagnosed with Cryptococcal Meningitis. Among treatment experience, 720(44%) are AHD. Mortality surveillance was carried out for 671 clients, 320(48%) died of HIV, Malaria 127(19%), chronic diseases 76(11%), Myocardial infarction 20(3%), Pneumonia 20(5%), Cancers 7(1%), Maternal 7 (1), road traffic 47(7%), Other infectious diseases 13(2%), undetermined 34(5%).

**Conclusions:** Advanced HIV disease is still high among individuals newly diagnosed with HIV and contributes to AIDS-related death. HIV-associated morbidity is also largely from treatment-experienced clients not being in continuous care or not being fully virologically suppressed. Screening for persons affected with HIV for opportunistic infection and associated illnesses before ART initiation and when in treatment should be a global focus to reduce HIV-related mortality and achieve epidemic control.

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## Improving Screening and Diagnosis of Hypertension and Diabetes Mellitus among People Living with HIV in Western Kenya

Odiyo N<sup>1</sup>

<sup>1</sup>Path, Kisumu, Kenya

**Background:** Diagnosis of non-communicable diseases (NCD) among people living with HIV (PLHIV) has remained low despite aging cohort of patients due to low screening in the clinics. According to STEPs survey, 71% of men and 41% of women have never screened for hypertension. Low screening has been occasioned by factors such as knowledge gap among healthcare providers (HCPs), lack of screening equipment, low level of awareness among PLHIV and poor documentation and reporting for NCD cases.

**Materials and Methods:** In February 2023, we began clinical conceptualization of HIV/NCD integration in HIV clinics, collecting baseline data on hypertension in 50 high volume health facilities supported by USAID Nuru Ya Mtoto (UNYM) Project. In collaboration with Ministry of Health (MOH), the project trained 39 Training of Trainers (TOTs) on hypertension and diabetes mellitus screening and management among PLHIV. The TOTs then supported roll out of trainings to additional 195 HCPs in 4 counties of Western Kenya.

The project procured blood pressure machines, glucometer machines, and consumables as well as printing of NCD registers. HCPs were trained on using NCD registers and electronic medical record system (EMR) for documenting and reporting NCD cases. Expert patients were engaged to incorporate topics on NCDs during weekly health talks with PLHIV. Job aids and protocols were availed to improve staff knowledge on screening and management.

**Results:** Number of PLHIV screened for hypertension and diabetes improved from 25% in February 2023 to 85% in December 2023. Number of PLHIV diagnosed with hypertension and/or diabetes increased from 893 to 5,097 in the same period. Prevalence of hypertension and/or diabetes comorbidity among PLHIV also increased



from 1.7% in February 2023 to 7.5% in December 2023.

**Conclusions:** Primary care networks are key in improving of NCDs screening and diagnosis among PLHIV. Capacity building of HCPs, improved patient awareness and availability of screening equipment are necessary in improving diagnosis of NCD comorbidities among PLHIV. Availability of data management systems including reporting tools and EMR are also key in improving documentation and reporting of NCD cases.

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## Detecting Hidden Syphilis Clusters Among Young Women in Central Uganda: A Sub-Group Analysis

**Nsubuga R**<sup>1</sup>, Muwonge R T<sup>1</sup>, Mujugira A<sup>1,2</sup>, Castelnuovo B<sup>1</sup>, Nakku J E<sup>3</sup>, Kiragga A<sup>1,4</sup>

<sup>1</sup>Makerere University Infectious Disease Institute, Kampala, Uganda, <sup>2</sup>University of Washington, Seattle, USA, <sup>3</sup>Makerere University School of Public Health, Kampala, Uganda, <sup>4</sup>African Population and Health Research Center, Nairobi, Kenya

**Background:** Spatial analysis is a valuable tool for identifying high-rate syphilis clusters. The spatial distribution of syphilis prevalence in Uganda varies by age, gender, and region. However, it is not known which administrative divisions (clusters) have higher syphilis prevalence, hindering strategic targeting of interventions for HIV/STIs.

**Materials and Methods:** We used secondary data from a completed randomized trial that evaluated the effectiveness of three partner notification approaches for women with antenatal syphilis (NCT02262390). Using a Kulldorff spatial-scan Poisson model, we identified clusters with high syphilis cases among young women attending antenatal care in Kampala and Wakiso districts (Central Uganda). Syphilis cases were classified as belonging to either high prevalence or low prevalence (HP/LP) clusters. Using modified Poisson regression, we estimated prevalence ratios for sociodemographic and biobehavioral HIV risk factors associated with clustering, stratified by HIV status. Data were analyzed using SaTScan and R Studio (version 4.2.2).

**Results:** The analysis included 422 young women diagnosed with syphilis in 12 clusters. Of these, 26 (6%) had both HIV and syphilis. The median age was 26 years (IQR 24, 29). Most (314, 74%) were in monogamous marriages, and half (50.0%) had completed  $\leq 13$  years of schooling. Syphilis prevalence clustering was associated with being in a monogamous marriage (prevalence ratio [PR] 1.81, 95% CI:1.25,2.63), having an HIV test  $> 3$  months prior (PR 0.44, 95% CI: 0.34, 0.57] and having  $\geq 2$  children (PR 1.71, 95% CI: 1.07, 2.72). For HIV-negative women, syphilis prevalence was significantly higher in 2 of 12 clusters – Kasangati (relative risk [RR] 6.89,  $p < 0.001$ ), and Nabweru (RR 2.17,  $p < 0.001$ ) – and lower in 3 of 12 clusters: Central (RR 0.42,  $p = 0.03$ ), Kira (RR 0.27,  $p < 0.001$ ), and Kyengeru clusters (RR 0.13,  $p < 0.001$ ). For women with HIV, syphilis prevalence was similar by cluster ( $p = 0.9$ ).

**Conclusions:** Geographic clustering of syphilis prevalence was associated with marital status, number of children, and HIV testing history indicating a disproportionate level of exposure. Future studies should assess the potential use of cluster analysis in identifying hotspots with micro epidemics of HIV and other STIs.

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## Incidence and Risk Factors for Treatment-Emergent Metabolic Syndrome Among Zambian Adults Receiving Antiretroviral Therapy: A Cohort Study

**Hamooya B**<sup>1,8,9</sup>, Masenga S<sup>1</sup>, Cheelo C<sup>1</sup>, Siame L<sup>1</sup>, Mwakyoma T<sup>2</sup>, Mudenda J<sup>3</sup>, Mutale W<sup>4</sup>, Halwiindi H<sup>4</sup>, Bedimo R<sup>5</sup>, Lipworth L<sup>6,7</sup>, Heimbürger D<sup>3,6,7</sup>, Shrestha S<sup>8</sup>, Bosomprah S<sup>9</sup>

<sup>1</sup>Mulungushi University, School of Medicine and Health Sciences, Livingstone, Zambia, <sup>2</sup>Livingstone University Teaching Hospital, Livingstone, Zambia, <sup>3</sup>University of Zambia School of Medicine, Lusaka, Zambia, <sup>4</sup>University of Zambia School of Public Health, Lusaka, Zambia, <sup>5</sup>Office of Global Health, UT Southwestern Medical Center, Dallas, USA, <sup>6</sup>Vanderbilt Institute for Global Health, Nashville, USA, <sup>7</sup>Vanderbilt University Medical Center, Nashville, USA, <sup>8</sup>University of Alabama at Birmingham (UAB) School of Public Health, Birmingham, Alabama, USA, <sup>9</sup>Centre for Infectious Disease Research in Zambia, Lusaka, Zambia



**Background:** There is limited longitudinal epidemiological data on metabolic changes among people with HIV (PWH) receiving ART in sub-Saharan Africa. We estimated the incidence of treatment-emergent metabolic syndrome (tMetS) and identified associated risk factors among adult PWH at a tertiary health facility in Zambia.

**Materials and Methods:** We enrolled PWH initiating care (n=12) and those on ART for ≥6 months (n=313), without prevalent MetS, at Livingstone University Teaching Hospital between April 2019 and April 2020. Participants returned for a follow-up visit between December 2022 and June 2023. Demographic, clinical and laboratory data were collected by structured questionnaire and medical chart abstraction. The primary outcome was incident tMetS, defined as having ≥3 of the following: low high-density lipoprotein cholesterol (HDL-c) <1.0 mmol/L for men, <1.3 for women), elevated waist circumference (WC, ≥94 cm for men, ≥80 cm for women), elevated triglycerides (TG, ≥1.7 mmol/L), elevated fasting blood glucose (FBG, ≥5.6 mmol/L), and elevated blood pressure (BP) (systolic BP ≥130 or diastolic BP ≥85 mm Hg). Multivariable robust Poisson logistic regression was used to examine risk factors for tMetS.

**Results:** The median age was 43 years at baseline, and 61.9% were female. The prevalences of abnormal FBG (12.8% vs. 25.9%), HDL-c (31.7% vs. 71.35%), WC (29.9% vs. 44.8%) and TG (8.9% vs. 45.2%) increased significantly between baseline and follow-up (p<0.001 for all comparisons). Over a median follow-up of 43 months, the cumulative incidence of tMetS was 38.8% (126/325; 95% confidence interval (CI) 33.4, 44.3). In multivariable analysis, factors positively associated with MetS were older age (incidence rate ratio (IRR) 1.02; 95%CI 1.01, 1.04), female sex (IRR 1.58; 95%CI 1.11, 2.24), dolutegravir (DTG)-based regimen use (IRR 1.50; 95%CI 1.01, 2.23) and higher body mass index (BMI) (IRR 1.14; 95%CI 1.10, 1.18); while larger hip circumference was inversely associated (IRR 0.98; 95%CI 0.97, 0.99).

**Conclusions:** The incidence of MetS was high among PWH and was significantly influenced by demographic and clinical factors. The results suggest a need for targeted screening, particularly among older women, those using DTG and overweight/obese individuals. Longitudinal studies focusing on the mechanism through which DTG induces metabolic dysregulation are warranted.

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## Serological Screening of HTLV Virus Among Voluntary Blood Donors in Benin

Roukiyath A<sup>1</sup>, Simone<sup>2</sup>, Didier<sup>3</sup>, Fernanda Khouri<sup>4</sup>, Denise<sup>5</sup>, Andre<sup>3</sup>, Ludovic A<sup>5</sup>, Jose<sup>6</sup>, Marta<sup>4</sup>, Ester<sup>7</sup>, Mohamed Cherif<sup>1</sup>, Luiz Carlos Junior<sup>4</sup>

<sup>1</sup>Université D'Abomey Calavi, Centre de Prise en Charge Médicale Intégrée du Nourrisson et de la Femme Enceinte atteints de Drépanocytose, Abomey calavi, Benin, <sup>2</sup>Hemocentro de Ribeirao Preto, Ribeirao Preto, Brasil, <sup>3</sup>Service d'Immunologie Banque de sang, Cotonou, Benin, <sup>4</sup>Instituto Gonçalo Moniz, Fundação Oswaldo Cruz, Salvador, Brasil, <sup>5</sup>Agence Nationale pour la Transfusion Sanguine, Cotonou, Benin, <sup>6</sup>University of Oxford, Oxford, UK, <sup>7</sup>University of Sao Paulo, Sao Paulo, Brasil

**Background:** Effective screening of blood specimens from donors is crucial to prevent the dissemination of infectious agents including viruses in medical facilities by blood transfusion. Human T-Lymphotropic Virus (HTLV) is a retrovirus that can be transmitted by blood transfusion, so it remains a safety issue for blood products. In order to estimate the risk of HTLV transmission by blood products, this study aimed to investigate the prevalence of the HTLV virus among voluntary blood donors in Benin and to describe the characteristics of positive donors.

**Materials and Methods:** A HTLV prevalence study was carried out by screening 2,035 plasma samples from six blood donation banks in the Republic of Benin using enzyme-linked immunosorbent assay (ELISA). All positive specimens were quantified by PCR for confirmation and typing.

**Results:** Twelve subjects, all voluntary blood donors, were found with positive serology and confirmed by specific HTLV type 1 PCR assay, representing an overall seroprevalence of 0.59%. Furthermore, within seven subjects with indeterminate results for anti-HTLV-1/2 antibody and only one sample was confirmed positive for HTLV type 1 with PCR reaction. These are the first cases of HTLV detection among blood donors in Benin Republic, and unfortunately whose blood was already transfused to recipients. This result emphasizes that HTLV needs to be considered as a Public Health issue in the Republic of Benin.

**Conclusions:** This study reports positive results of HTLV prevalence among blood donors in the blood



banks of Benin in West Africa and highlights the inclusion of HTLV in screening tests to reduce its transmission to patients in the transfusion of blood products.

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## Prevalence of Suicidal Ideation and Attempts Among Adults Living with HIV and Without HIV and Its Associations with HIV and Mental Disorders

Tlali M<sup>1</sup>, Whitesell Skrivankova V<sup>2</sup>, van den Heuvel L<sup>3</sup>, Orrell C<sup>4</sup>, Seedat S<sup>5</sup>, Prozesky H<sup>6</sup>, Joska J<sup>7,8</sup>, Euvrard J<sup>1</sup>, Rabie S<sup>7,8</sup>, Egger M<sup>1,2</sup>, Davies M<sup>1</sup>, Johnson L<sup>1</sup>, Kassanje R<sup>1</sup>, Haas A<sup>1,2</sup>

<sup>1</sup>Centre for Infectious Disease Epidemiology & Research, School of Public Health, University of Cape Town, Cape Town, South Africa, <sup>2</sup>Institute of Social and Preventive Medicine, Bern, Switzerland, <sup>3</sup>Department of Psychiatry, Faculty of Medicine and Health Sciences, University of Stellenbosch, Cape Town, South Africa, <sup>4</sup>Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa, <sup>5</sup>South African Medical Research Council/Stellenbosch University Genomics of Brain Disorders Research Unit, Stellenbosch University, Cape Town, South Africa, <sup>6</sup>Division of Infectious Diseases, Department of Medicine, Tygerberg Academic Hospital, University of Stellenbosch, Cape Town, South Africa, <sup>7</sup>HIV Mental Health Research Unit, Department of Psychiatry and Mental Health, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, <sup>8</sup>Neuroscience Institute, University of Cape Town, Cape Town, South Africa

**Background:** Rates of suicide in South Africa are high. However, people living with HIV (PWH) are at greater risk of suicide than the general population. Data on the estimates and predictors for suicidality (suicidal ideation and attempts) in South Africa are limited. We describe the prevalence of suicidality and associated mental disorders in a high burden HIV population.

**Materials and Methods:** We analysed baseline data from an ongoing cross-sectional survey. We recruited adults aged 18 years or older, stratified by HIV status, age, and sex. We used the MINI diagnostic instrument to collect data on suicidality and psychiatric disorders. We estimated the prevalence of current (past 30 days) suicide ideation, current and lifetime suicide attempts. Logistic regression was used to estimate adjusted

odds ratios (aOR) of current suicidal ideation, HIV and mental disorders adjusting for age and sex.

**Results:** Between March 2023 and January 2024, we recruited 358 participants. Of these, (65.5%) were PWH, 61.3% female and had a median age of 38 years (IQR 28-48). The prevalence of common mental disorders (depression, PTSD, and anxiety) and alcohol and substance disorder was 35.8% and 36.7% respectively. The proportion reporting suicidal ideation, current or lifetime attempt was 38.4%, 2.3%, and 18.1% respectively. PWH had a higher prevalence of suicidal ideation 40.9% (95% CI 34.8% – 47.4%) than those living without HIV 34.6% (95% 25.7% – 42.4%). Factors associated with suicidal ideation included, living with HIV (aOR 1.6, 95% CI 0.9 – 2.7), younger age (aOR 2.4, 95% CI 1.3 – 4.4, 18-29 years compared to 30-44 years), older age (aOR 1.9, 95% CI 1.1 – 3.6, 45+ years compared to 30-44 years), female sex (aOR 2.3, 95% CI 1.3 – 3.8), common mental disorders (aOR 5.1, 95% CI 3.1 – 8.4), alcohol and substance dependence (aOR 2.7, 95% CI 1.6 – 4.5), and severe mental disorders (mania and psychosis) (aOR 2.6, 95% CI 0.96 – 6.9).

**Conclusions:** The study demonstrates a high burden of suicidality for a predominately HIV positive population with a high prevalence of mental disorders. This underscores the importance of enhanced mental health screening, treatment, and referral pathways for PWH.

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## Co-infection VIH/VHB au Sein de la File Active des PVVIH au Bénin et Efficacité des Schémas Thérapeutiques à Base de Ténofovir (TDF) sur le VHB en 2023

Keke K<sup>1</sup>, Attolou M<sup>2</sup>, Tchiakpe E<sup>2</sup>, Sekpe O<sup>2</sup>, Dagba Gbessin H<sup>2</sup>, Zoglobossou R<sup>2</sup>, Gbeguidi E<sup>1</sup>, Afangnihoun A<sup>1</sup>, Gangbo A<sup>1</sup>, Bachabi M<sup>1</sup>

<sup>1</sup>PSLS, Cotonou, Bénin, <sup>2</sup>Laboratoire National de Référence/VIH, Cotonou, Bénin

**Contexte :** La co-infection VIH/VHB constitue une comorbidité pour les PvVIH qui malgré le



traitement de première ligne comportant le Ténofovir doivent faire l'objet d'un suivi du VHB pour détecter précocement les complications mais également bénéficier de la vaccination pour les négatifs. L'objectif de ce travail est de déterminer la proportion de coinfectés VIH/VHB de la file active des PvVIH puis d'évaluer l'efficacité des schémas thérapeutiques à base de Ténofovir (TDF) sur le VHB

**Matériels et Méthodes :** Etude transversale descriptive prenant en compte l'exhaustivité des dossiers des PvVIH de la file active suivie sur les sites à septembre 2023 et screenée pour l'Ag HBS sur une période de 12 mois avec offre de la charge virale aux éligibles. Les données collectées ont été traitées et apurées avec le logiciel SPSS, Excel et Python 3.10.9 avec les librairies Pandas, Numpy.

**Résultats :** Sur les 58190 PvVIH suivis sur les sites de prise en charge, 30870 (54,3%) ont bénéficié de la recherche de l'Ag HBs avec des variations de 28% (Donga) à 72,4% (Mono) selon les départements. La prévalence de la coinfection VIH/VHB était de 8,6% (2647/30870) avec des extrêmes de 5,1% (Mono) à 12,3% dans le Borgou. L'âge moyen des coinfectés était  $41,9 \pm 11,5$  ans avec des extrêmes allant de 15 à 72 ans avec un sex ratio H/F 0,68. Dans 95,8%, le régime comprenait le TDF, Parmi les PvVIH co-infectés, la demande de la charge pour le VHB est de 45% et varie de 35 à 57%. Le taux d'indélectabilité de la CV VHB est de 72% et varie de 65% à 88 % selon les départements.

**Conclusions :** La prévalence du VHB reste élevée au sein des PvVIH et la charge virale reste détectable malgré le TDF. Nécessité de screener toute la file active et de promouvoir la vaccination au sein des PvVIH non infectées mais également d'ajuster le TARV en y intégrant systématiquement le ténofovir. Une surveillance de la charge virale du VHB au même titre que celui du VIH permettra d'éviter les complications surajoutées du VHB.

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## Genotyping of Human Papillomavirus and Associated Risk Factors in HPV/HIV Co- and Mono-Infection among Women Attending Kiu-Th, Uganda

**Terkimbi S<sup>1</sup>**

<sup>1</sup>Kampala International University Western Campus, Ishaka-bushenyi, Uganda, <sup>2</sup>College of Veterinary Medicine, Animals Resources and Biosecurity, Makerere University, Kampala, Uganda, Makerere University, Kampala, Uganda, Uganda, <sup>3</sup>Department of Medical Laboratory Science, School of Allied Health science, Kampala International University, Ishaka Uganda, Ishaka-bushenyi, Uganda, <sup>4</sup>Department of Human Anatomy, Collage of Medicine and Health Sciences, University of Rwanda, University of Rwanda, Rwanda

**Background:** The persistence of high-risk human papillomavirus (Hr-HPV) genotype(s) among HIV positive women has played a pivotal role in cervical cancer prevalence in Uganda. HPV/HIV co-infection has been proven to have significant implications in progression and reactivation of HPV infection leading to cervical cancer. About 80% of Hr-HPV infections are cleared by the host immune system living no symptoms behind and the remaining 20% has been reported to progress to cervical cancer. However, it becomes more complicated for the host immune system in the presence of HPV/HIV co-infection. The aim of this study was to determine the circulating Hr-HPV genotype(s) and risk factors among HPV/HIV co-infection and mono-infection attending Kampala International University Teaching Hospital.

**Materials and Methods:** Total of 114 women attending KIU-TH Clinton Health Accesses Initiative and gynecology units were recruited for this study. Questionnaires were administered and information regarding the risk factors associated with HPV infection was collected. All participants were examined for cervical cytological features using VIA and Pap smear. Further HPV genotypes were assessed by gene Xpert. Data was analyzed with SPSS and  $P < 0.05$  was considered significant.

**Results:** The findings showed that 37 (32%) of patients were VIA positive, (28) 24% were Pap smear positive, 3(3%) and 2(2%) were ASCUS for VIA and Pap smear respectively. Furthermore, study revealed that 20% Hr-HPV were from co-



infections and 10% from mono-infection. The circulating Hr-HPV genotypes were in the order other HPV (17.2%), HPV16 (9%) and HPV 18/45 (7%). Risk factors such as multiple partners, marital status and use of condoms were found to be significantly associated with Hr-HPV infection at  $P < 0.05$ , whereas age, education, vaccination and educational level were not.

**Conclusions:** The study revealed factors that are linked to Hr-HPV infection and call for integration of cervical cancer screening using the combination of both VIA and Pap smear for cytological examination and gene Xpert. Additionally, It also creates awareness and call for implementation of vaccination program within Bushenyi District and Uganda at-large most especially among HIV positive women who are vulnerable to Hr-HPV infection.

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## Implementation of the Advanced HIV Disease Package of Care in Nigeria: Outcome and Challenges of Treatment of Cryptococcal Meningitis

Otubu N<sup>1</sup>, Abudioro O<sup>1</sup>, Eigege W<sup>2</sup>, Sowale O<sup>1</sup>, Levy-Braide B<sup>1</sup>, Inyang A<sup>1</sup>, Rathakrishnan D<sup>2</sup>, Amamilo I<sup>2</sup>, Conroy J<sup>2</sup>, Lufadeju F<sup>1</sup>, Amole C<sup>2</sup>, Wiwa O<sup>1</sup>, Onotu D<sup>3</sup>, Sanni K<sup>4</sup>, Nwaokenneya P<sup>4</sup>, Ibrahim-Mohammed P<sup>4</sup>, Ikpeazu A<sup>4</sup>, Bashorun A<sup>4</sup>, Akase I<sup>5</sup>, Kanu O<sup>5</sup>, Agabi O<sup>5</sup>, Oguiche S<sup>6</sup>, Oladele R<sup>5</sup>, Agbaji O<sup>6</sup>, Akanmu S<sup>5</sup>

<sup>1</sup>Clinton Health Access Initiative, Abuja, Nigeria, <sup>2</sup>Clinton Health Access Initiative, Boston, United States of America, <sup>3</sup>US Centres for Disease Control and Prevention, Abuja, Nigeria, <sup>4</sup>National AIDS, Hepatitis and STI Control Program, , Nigeria, <sup>5</sup>Lagos University Teaching Hospital, , Nigeria, <sup>6</sup>Jos University Teaching Hospital, Jos, Nigeria

**Background:** In 2021, Nigeria adopted and commenced the phased implementation of the Advanced HIV Disease (AHD) package of care, including cryptococcal meningitis (CM) diagnostics and therapeutics. The first phase was implemented at selected high-volume facilities to learn lessons that informed the national scale-up. This study documents some of the challenges encountered that affected the uptake of CM services across the phase one facilities.

**Materials and Methods:** The AHD package of care was piloted at 28 facilities in 4 states (Akwa-Ibom, Anambra, Lagos, Rivers) in Nigeria. The study assessed data of AHD clients newly enrolled into care from February to September 2021 who were tested for cryptococcal antigen (CrAg) using the CrAg LFA test and documented the management received following a positive result. Aggregate cascade data for AHD clients with cryptococcal infection were collected and a tool was administered to healthcare workers to obtain information on factors limiting access to optimal CM care. The data was analyzed for frequencies using MS Excel.

**Results:** A total of 6,781 clients were newly enrolled at the 28 facilities, of which 4,812 (71%) received a baseline CD4+ cell count test. Of these, 1,969 (41%) had a CD4 + cell count test result  $< 200$  cells/mm<sup>3</sup> and were identified to have AHD. 1,634 (87.6%) of these received a CrAg test, and 85 (5.2%) tested positive for serum CrAg. Three (3.5%) of serum CrAg-positive clients received a lumbar puncture, and 1 (33.3%) tested positive for cerebrospinal fluid CrAg but did not receive the recommended treatment. Common challenges that affected the management of CrAg-positive clients identified at the facilities included lack of ancillary equipment, attrition of trained staff for lumbar puncture procedure, stockout of CM diagnostic/therapeutic commodities, and out-of-pocket expenditure for CM management.

**Conclusions:** There is a significant drop along the AHD CM cascade and treatment of CM in the national program and this is due to inadequate resources, poor client literacy, and HCW capacity gaps. There is a need to strengthen capacity for lumbar puncture procedures and reduce out-of-pocket expenditure for CM management to improve service uptake.



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## Clinical Features' Frequency of Occult Hepatitis C Virus Infection in People Living with HIV / AIDS at Yaoundé Central Hospital, Cameroon

Kenfack Momo R<sup>1</sup>, Diane Kamdem T<sup>2</sup>, Ndinakie Yakum M<sup>3</sup>, Fossi Tchinda C<sup>2</sup>, Djuidje Ngounou M<sup>2</sup>  
<sup>1</sup>University of Yaoundé 1, Cameroon/ Centre Pasteur of Cameroon (CPC), Yaounde, Cameroun, <sup>2</sup>University of Yaoundé 1, Cameroon, Yaounde, Cameroun, <sup>3</sup>University of Bamenda, Bamenda, Cameroun

**Background:** Hepatitis c virus (HCV) has become the leading cause of cirrhosis and liver cancer worldwide. After HCV infection, clinical resolution (spontaneously or by direct active antiretroviral) is synonymous with complete elimination of HCV-RNA viremia. However, cases of occult hepatitis C infection (OCI), characterized by the presence of HCV-RNA in the liver or peripheral blood mononuclear cells (PBMCs), in the absence of HCV serological markers (HCV antibodies and serum HCV-RNA negative) have been highlighted by different authors. So, OCI is a silent form of infection, making it difficult to diagnose. This study aimed to investigate the immunological and biochemical features of occult hepatitis c infection in people living with HIV (PLHIV).

**Materials and Methods:** HIV-positive patients were enrolled at the Central Hospital of Yaoundé (Cameroon) from September 2017 to March 2018. Anti-HCV antibodies (anti-HCV Abs) were searched using Enzyme-Linked Immunosorbent Assay (ELISA). Alanine aminotransferase (ALT), aspartate aminotransferase (ASP), alkaline phosphatase (ALP), triglycerides (TG), and total cholesterol (TCHOL) were determined by kinetic and spectrophotometric methods. OCI was defined as follows: Anti-HCV Abs negative/high level of transaminase/high level of TG and TCHOL/normal BMC (body mass index). The study was ethically approved and we performed a Kruskal Wallis test in statistical analyses.

**Results:** A total of 267 HIV+ patients were enrolled in this study. 21 were HCV Abs positive, giving an overall HIV / HCV co-infection prevalence of 7.9%. We have observed a significant rise in ALP (P = 0.002) and aspartate aminotransferase (AST;

P=0.01) activity in HIV/HCV co-infected groups. ALT activity was significantly elevated (P=0.01) in HCV mono-infected groups. Serologic and biochemical features of OCI were found in 8 (66.7%) HIV mono-infected patients, and 1 (25%) control patient.

**Conclusions:** The prevalence of HIV/HCV co-infection remains high among HIV-positive patients. The absence of serologic markers for HCV infection (anti-HCV Abs and HCV-RNA) is not always enough to conclude the negativity of the HCV diagnosis. Determining OCI characteristics is therefore necessary to guide the diagnosis towards the search of HCV-RNA in PBMCs.

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## HIV and Viral Hepatitis B and C Infections Among Migrants Settling in Northern France

Alidjinou E<sup>1</sup>, Ajana F<sup>2</sup>, Fry M<sup>2</sup>, Coulon P<sup>1</sup>, Guigon A<sup>1</sup>, Bocket L<sup>1</sup>, Canva V<sup>2</sup>  
<sup>1</sup>University Hospital of Lille, Lille, France, <sup>2</sup>Médecins Solidarité Lille, , France

**Background:** Screening for communicable diseases is part of the medico-social assessment of newly-arrived migrants (NAM) in France. This screening is usually offered to NAM by non-governmental organizations (NGOs). We here present the results of the screening activity for HIV and hepatitis B and C viruses in migrants attending a main NGO in Northern France.

**Materials and Methods:** A single center retrospective study was conducted from January 2013 to December 2022 including all migrants screened for HIV and hepatitis B and C viruses. HIV was investigated using an antigen/antibody 4th generation test, an immunoblot as confirmatory test. HBV testing was based on three markers (HBs antigen (Ag), anti-HBc antibodies (Ab) and anti-HBs Ab) and HCV was screened using anti-HCV Ab. When several samples were available for the same patient without any pathological evolution, only the first sample was included. The prevalence of infections and results of additional investigations are reported.



**Results:** A total of 5187 patients were screened for HIV infection. A positive result was confirmed in 92 patients (1.77%). The median CD4 cell count and HIV plasma viral load (VL) were 349 cells/mm<sup>3</sup> and 4.6 Log copies/mL, respectively. Most of HIV infected patients (90%) were from Sub-Saharan African (SSA) countries. During the study period, 5621 patients were tested for HBV markers. HBs antigen (Ag) was positive in 426 patients (7.6%). HBV VL was detectable in 84% (205/244) of subjects tested with a median of 3 Log IU/mL. HCV screening was carried out in 3895 patients. A positive signal for anti-HCV antibody was obtained in 160 patients (4.1%). HCV VL was detectable in 32% (32/100) of patients, with a median of 5.75 Log IU/mL.

**Conclusions:** The prevalence of HIV and HBV is high among NAM, especially those from SSA countries. A proportion of these infections could be linked to post-migration acquisition as highlighted by recent studies especially for HIV. HCV replication was observed in around third of seropositive migrants, highlighting the need for treatment initiation as soon as possible.

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## L'Hépatite Virale C (VHC) chez les Donneurs de Sang en Afrique : Une Revue Systématique et Méta-analyse sur la Séroprévalence

Simpore A<sup>1,5</sup>, Zoure A<sup>2</sup>, Yooda P<sup>3</sup>, Bazie B<sup>2,5</sup>, Soubeiga P<sup>1</sup>, Compaore K<sup>1</sup>, Kiba-Koumare A<sup>4</sup>, Simpore J<sup>5</sup>, Kabre E<sup>1</sup>

<sup>1</sup>Agence Nationale pour la Sécurité Sanitaire de l'Environnement, de l'Alimentation, du Travail et des Produits de Santé (ANSSEAT), Ouagadougou, Burkina Faso, <sup>2</sup>Institut de Recherche en Sciences de la Santé (IRSS/CNRST), Ouagadougou, Burkina Faso, <sup>3</sup>Laboratoire National de Référence des Mycobactéries (LNR-M), Ouagadougou, Burkina Faso, <sup>4</sup>Centre National de Transfusion Sanguine (CNTS), Ouagadougou, Burkina Faso, <sup>5</sup>Laboratoire de Biologie Moléculaire et de Génétique (LABIOGENE), Université Joseph KI-ZERBO, Ouagadougou, Burkina Faso

**Contexte :** Le virus de l'hépatite C fait partie des agents pathogènes à dépistage obligatoire sur les dons de sang selon les recommandations de l'Organisation Mondiale de la Santé. Cette étude

visait à estimer la séroprévalence du VHC chez les donneurs de sang en Afrique.

**Matériels et Méthodes :** Les recherches ont été effectuées dans PubMed, Science Direct et African Journals Online de 2012 à 2022. Le modèle des effets aléatoires de Dersimonian et Laird a été utilisé pour estimer la séroprévalence poolée du VHC à un intervalle de confiance (IC) de 95 % avec le logiciel STATA version 14. L'hétérogénéité a été évaluée sur la base du test Q de Cochran et quantifiée par l'indice I<sup>2</sup>. La qualité méthodologique des articles a été évaluée à l'aide de la liste de contrôle d'évaluation critique de l'Institut Joanna Brigg.

**Résultats :** Soixante-huit articles ont rapporté une séroprévalence poolée du VHC de 01,71 % (IC à 95% : 01,21-02,30 ; I<sup>2</sup>= 99,95%). Une forte prévalence est observée dans la région du centre : 02,97% (IC à 95 % : 02,24-03,80) suivit de l'Afrique de l'Ouest : 02,72% (IC à 95 % : 01,84-03,75). L'Afrique du Sud avait la plus faible prévalence qui était de 0,13 % (IC à 95 % : 0,04- 0,27). Une prévalence de 01,93% (IC à 95 % : 01,02-3,12) et 01,41% (IC à 95 % : 0,66-02,41) a été retrouvée respectivement chez les hommes et chez les femmes avec 21 études (I<sup>2</sup> = 99,72 % et p<0,01). Les études publiées entre 2012 et 2017 ont fourni une prévalence de 01,43% (IC à 95 % : 0,78-2,26) et ceux publiées entre 2018 et 2022 ont abouti à une prévalence de 01,92% (IC à 95 % : 01,25-2,72).

**Conclusions :** L'infection par le VHC demeure une préoccupation pour la sécurité transfusionnelle en Afrique. Il est nécessaire de renforcer la surveillance du VHC, sensibiliser à fidéliser les donneurs de sang et à intégrer les tests moléculaires dans le diagnostic biologique du don de sang.





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## Prévalence et Facteurs Associés au Syndrome Métabolique (SM) chez les Personnes Vivant avec le VIH (PVVIH) Suivies au Centre de Traitement Ambulatoire de Fann

**Ka D**<sup>1</sup>, Ngom Guéye N<sup>2,3</sup>, Sow N<sup>4</sup>, Ndiaye K<sup>3</sup>, Ndiaye A<sup>3</sup>, Guéye M<sup>3</sup>, Diagne A<sup>3</sup>, Mboup A<sup>3</sup>, Cissé Ndiaye F<sup>4</sup>, Seydi M<sup>1</sup>

<sup>1</sup>Service Des Maladies Infectieuses Et Tropicales De Fann / Université Cheikh Anta Diop De Dakar (smit/ucad), Dakar, Senegal, <sup>2</sup>Université Alioune Diop de Bambey, Bambey, Senegal, <sup>3</sup>Centre de Traitement Ambulatoire de Dakar, Dakar, Senegal, <sup>4</sup>Laboratoire de biochimie UCAD, Dakar, Senegal

**Contexte :** Des efforts considérables sont notés dans la prise en charge de l'infection à VIH. Cependant l'utilisation des ARV, à long terme, favorise la survenue de complications cardio-vasculaires et métaboliques. Ainsi les objectifs de cette étude étaient de déterminer la prévalence et d'identifier les facteurs associés au syndrome métabolique (SM) chez les PVVIH sous traitement antirétroviral.

**Matériels et Méthodes :** Il s'agissait d'une enquête transversale descriptive portant sur les dossiers de patients infectés par le VIH sous traitement antirétroviral suivis au CTA de FANN durant la période allant du 20 Janvier 2020 au 09 octobre 2020. Le syndrome métabolique a été défini selon les critères du NCEP-ATP III. Les données ont été recueillies à l'aide d'une fiche d'enquête et l'analyse faite grâce au logiciel STATA.

**Résultats :** Durant la période d'étude, 93 dossiers de patients ont été colligés. La tranche d'âge [45-55 ans] était la plus représentée. Le sexe féminin était prédominant avec un sex-ratio H/F de 0,63. Plus de la moitié des patients (54,5%) était au stade 3 et 4 de l'OMS. La durée moyenne du traitement d'antirétroviral était de 101,76 ± 72,440 mois. Les facteurs de risque cardio-vasculaires étaient dominés par la sédentarité (61,1%), les dyslipidémies (62,4%) et l'hypertension artérielle (47,3%). Parmi les composants du SM selon les critères de NCEP ATP III, la pression artérielle élevée,

l'hypertriglycéridémie et le tour de taille élevé étaient les plus fréquents avec respectivement de 46,7%, 42,2%, et de 32,2%.

La prévalence du SM à l'inclusion était de 16,1%, elle est passée à 25,6% après 5 mois. Cette prévalence était plus élevée chez les femmes et augmentait avec l'âge. Les facteurs associés au SM étaient l'âge avancé ( $p=0,000$ ), le sexe féminin ( $p=0,005$ ), le niveau d'étude ( $p=0,018$ ), la sédentarité ( $p=0,023$ ), l'IMC élevé ( $p=0,010$ ), le tour de taille ( $p=0,000$ ), la PA élevée ( $p=0,000$ ), le stade clinique de l'OMS ( $p=0,033$ ), l'hyperglycémie ( $p=0,000$ ), hypertriglycéridémie ( $p=0,000$ ) et la durée de traitement ( $p=0,020$ ).

**Conclusions :** Le SM est non négligeable chez les PVVIH. Il est associé à plusieurs facteurs dont la prise en compte est nécessaire pour la prévention des complications cardio-vasculaires et métaboliques.

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## Improving Cervical Cancer Screening and Treatment Outcomes for Women Living with HIV Utilizing Virtual and Social Media Platforms in Zambézia Province, Mozambique

**Tique J**<sup>1</sup>, Bravo M<sup>1</sup>, Graves E<sup>2</sup>, De Schacht C<sup>1</sup>, Ntasis T<sup>1</sup>, Correia D<sup>3</sup>, Matsimbe J<sup>4</sup>, Castolino B<sup>4</sup>, Verissimo C<sup>5</sup>, Wester C<sup>2,6</sup>

<sup>1</sup>Friends in Global Health (FGH), Maputo, Mozambique, <sup>2</sup>Vanderbilt University Medical Center, Vanderbilt Institute for Global Health, Nashville, United States, <sup>3</sup>Centers for Disease Control and Prevention, Maputo, Mozambique, <sup>4</sup>Friends in Global Health (FGH), Quelimane, Mozambique, <sup>5</sup>Ministry of Health, Provincial Health Directorate of Zambézia, Quelimane, Mozambique, <sup>6</sup>Vanderbilt University Medical Center, Department of Medicine, Division of Infectious Diseases, Nashville, United States

**Background:** Cervical cancer (CC) is a leading cause of cancer-related deaths among women in sub-Saharan Africa, particularly those living with HIV. In Mozambique, CC is the most frequent cancer among women over 25 years of age. We report the impact of a capacity-building intervention utilizing virtual and social media platforms as



training tools to enhance early identification of pre-cancerous/cancerous lesions among women living with HIV (WLH) in Zambézia Province, Mozambique.

**Materials and Methods:** We used a conceptual framework for quality improvement to understand barriers to CC screening, design and implement interventions. Lack of continuous training for nurses was the main barrier identified. Interventions commenced in October 2022, including virtual training sessions using Zoom-application and weekly training via WhatsApp groups, during which teaching images were discussed on how to identify squamous columnar junction, transformation zone, low- and high-grade lesions, and characteristics of cervixes with malignant transformation(s). Concomitantly, access to thermocoagulation treatment was expanded. We analyzed aggregated data from 140 health facilities to describe trends in WLH undergoing screening via visual inspection with acetic acid and in WLH diagnosed with abnormal lesions and receiving treatment, comparing the periods October 2021-September 2022 (12 months pre-implementation) and October 2022-September 2023 (12 months during-implementation).

**Results:** During the implementation period, 38 virtual (Zoom) trainings and 38 weekly WhatsApp sessions were done involving 144 Maternal and Child Health nurses, with average participation rates of 30% (mainly due to challenges related to inconsistent internet access at peripheral sites) and 72%, respectively. Pre-implementation, 3,754 (3.5%) of 106,301 screened WLH were identified with pre-cancerous lesions, with 3,082 (82%) receiving treatment: predominantly via cryotherapy (73%), also via thermocoagulation (20%) and/or loop electrosurgical excision procedure (LEEP) (7%). During implementation, there was a 3.5-fold increase in positive screening yield, with 12,267 (13%) of 94,405 screened WLH identified with pre-cancerous lesions, and a 13% increase in proportion receiving treatment (93%): 18% via cryotherapy, 79% via thermocoagulation, and 3% via LEEP.

**Conclusions:** Using continuous virtual training, we saw an improvement in CC pre-cancerous lesions identification. The success of this approach underscores the potential of leveraging clinical quality improvement methods and m-health technology in resource-constrained settings.

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## High Prevalence of Hepatitis B Virus Drug Resistance Mutations to Lamivudine Among People with HIV/HBV Coinfection in Rural and Peri-Urban Communities in Botswana

Phinius B<sup>1,2</sup>, Anderson M<sup>1</sup>, Gobe I<sup>2</sup>, Mokomane M<sup>2</sup>, Choga W<sup>1,2</sup>, Phakedi B<sup>1</sup>, Ratsoma T<sup>1</sup>, Mpebe G<sup>1</sup>, Makhema J<sup>1,3</sup>, Shapiro R<sup>1,3</sup>, Lockman S<sup>1,3</sup>, Musonda R<sup>1</sup>, Moyo S<sup>1,2,3,4,5</sup>, Gaseitsiwe S<sup>1,3</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana, <sup>2</sup>School of Allied Health Professions, Faculty of Health Sciences, University of Botswana, Gaborone, Botswana, <sup>3</sup>Department of Immunology and Infectious Diseases, Harvard T. H. Chan School of Public Health, Boston, United States of America, <sup>4</sup>Division of Medical Virology, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa, <sup>5</sup>School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa

**Background:** Hepatitis B virus (HBV) remains a global health concern even in the era of potent vaccines and antiretroviral therapy (ART) that can greatly reduce morbidity and mortality. Prolonged antiviral use without adequate monitoring may lead to the selection of variants with resistance associated mutations (RAMs) that reduce ART susceptibility. We aimed to determine the prevalence of hepatitis B virus (HBV) resistance-associated mutations (RAMs) in people with HBV and human immunodeficiency virus (HBV/HIV) coinfection in Botswana

**Materials and Methods:** Plasma samples from PWH recruited in the Botswana Combination Prevention Project (BCPP) (2013 – 2018) were used in this study. We employed next generation sequencing to sequence HBV from participants with HBV/HIV coinfection. FASTQ were uploaded into Genome Detective for reference assembly. Consensus sequences were analyzed for genotypic and mutational profiles using Geno2pheno and Stanford HBV database.

**Results:** Overall, 98 HBV sequences had evaluable reverse transcriptase (RT) region coverage. The median participant age was 43 years (IQR: 37, 49) and 66/98 (67.4%) were female. Most participants, 85/97 (87.6%) had suppressed HIV viral load (VL).



HBV RAMs were identified in 61/98 (62.2%) participants in 7 HBV RT positions, all associated with lamivudine (3TC) resistance and none to tenofovir. Most RAMs were in positions 204 (60.3%), 180 (50.5%) and 173 (33.3%). The triple and double amino acid substitutions, rtV173L/L180M/M204V and rtL180M/M204V were the most predominant (17/61 [27.9%] and 10/61 [16.4%] respectively). Most participants (96.7%) with RAMs were on antiretroviral therapy for a median duration of 7.5 years (IQR: 4.8, 10.5). Approximately 27.9% (17/61) of participants with RAMs had undetectable HBV VL, 50.8% (31/63) had VL <2000 IU/mL and 13/61 (21.3%) had VL ≥2000 IU/mL.

**Conclusions:** In ART-experienced individuals with HBV/HIV coinfection, the prevalence of HBV RAMs to 3TC was high. The high prevalence of 3TC RAMs in this population discourages the use of ART regimens with 3TC as the only HBV-active drug in people living with HIV/HBV coinfection. The presence of HBV RAMs hinders HBV elimination efforts hence the need to monitor HBV drug resistance mutations in Botswana and globally.

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## Revolutionizing STI Testing: Integrating Molecular Assays for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* for Enhanced STI and HIV Programming in Zimbabwe

Dhodho M<sup>1</sup>, Chiumburu A<sup>1</sup>, Sosera R<sup>1</sup>, Munjoma<sup>1</sup>, Moga T<sup>1</sup>, Mavudze<sup>1</sup>, Taruberekera N<sup>1</sup>, Muchara<sup>2</sup>, Moyo I<sup>1</sup>, Shoko N<sup>1</sup>, Mutede B<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Harare, Zimbabwe

**Background:** Chlamydia, gonorrhoea, syphilis and trichomoniasis cause 370 million sexually transmitted infections (STIs) annually. Poorly managed STIs are associated with increased HIV risk, genitourinary cancers, sub-fertility, and pregnancy complications. STI microscopy culture and sensitivity testing poses logistical and cost challenges limiting routine clinical use. To increase access to STI diagnosis for marginalized

populations and assess feasibility of HIV/aetiological STI integration, Population Solutions for Health introduced Chlamydia trachomatis and *Neisseria gonorrhoeae* (CT/NG) nucleic acid amplification testing in the New Start Centre (NSC) clinics in June 2023.

**Description:** Aetiological CT/NG testing was enabled on the Cepheid GeneXpert platform through highly specific (>98%) and sensitive (>94%) Cepheid CT/NG assay in 5 NSCs. Providers routinely excluded urethral and vaginal discharge syndromes from recipients of care (ROCs) on site and on outreach through history taking and clinical examination of ROCs during anti-retroviral therapy and HIV prevention method resupply. Appropriate Xpert CT/NG specimen collection kits were used to collect specimens from all symptomatic ROCs for rapid laboratory testing. Data on uptake, positivity and aetiology were routinely collected through the Bahmni<sup>®</sup> electronic medical record system. Qualitative insights were routinely gathered from providers and ROCs.

**Lessons Learnt:** A total of 4,319 ROCs presented with STI symptoms of whom 72% had urethral or vaginal discharge. Almost half of these, 47% were tested for CT/NG to a positivity of 37%. Of all the tested cases, 15% had CT, 14% had NG, 8% had both, 58% tested negative and 5% were invalid. CT/NG negative ROCs were mostly women who needed evaluation for other conditions including trichomonas vaginalis (TV) and cervical cancer. Providers did not report challenges collecting, transporting, and testing specimens. The average overall turn-around time at site was 3 hours and overall client satisfaction was >85%.

**Conclusions:** Integrating aetiological STI diagnosis into HIV care settings was practical and added value to clinical evaluation of discharge syndromes. Future strategies should include broadening the assay to include TV testing and optimized service arrangements for universal aetiological testing.



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## Ten Years on Antiretroviral Therapy: A Cross-Sectional Assessment of Depression Prevalence and Coping Strategies Among Treatment-Experienced Persons Living with HIV in a Nigerian Teaching Hospital

**Isah A**<sup>1,2</sup>, Ugochukwu E<sup>1,2</sup>, Amoke C<sup>1,2</sup>, Aluh D<sup>1,2</sup>, Ezenri G<sup>1,2</sup>, Nwachuya C<sup>1,2</sup>, Onyehalu J<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Ugwuani C<sup>1,2</sup>, Okafor U<sup>2</sup>, Ukwe C<sup>1,2</sup>

<sup>1</sup>University Of Nigeria, Nsukka, Nigeria, <sup>2</sup>Person-Centred HIV Research Team, Nsukka, Nigeria

Depression is the second most common non-communicable health condition globally, and it has been shown to co-exist with other chronic medical challenges. Pill burden, periodic laboratory investigations and other care requirements place certain burdens on persons living with HIV (PLHIV) which could be stretched by the duration on treatment. The aim of this study was to assess the prevalence of depression and the coping strategies adopted by PLHIV who had been on antiretroviral therapy (ART) for over a decade in a Nigerian teaching hospital.

This cross-sectional study was conducted in January 2024 using two standard validated questionnaires: Center for Epidemiologic Studies Depression Scale, CES-D (for depression prevalence) and Social Support Survey Instrument, MOSS-SS (for coping strategies). Responses were sought from 379 randomly sampled eligible PLHIV who had been on ART for at least ten years at Enugu State University Teaching Hospital, Nigeria. Appropriate descriptive and inferential analyses were conducted, with  $p < 0.05$  considered statistically significant. Ethical approval was obtained from the hospital's institutional review board.

With a response rate of 82.3%, 327 PLHIV participated in the study (mean duration on ART =  $12.69 \pm 3.24$  years). Adolescents (10-19 years) were 185 (56.6%), while 163 (49.8%) respondents identified as females, with 286 (87.5%) being on first line ART. Based on CES-D classification,

164 (50.2%) PLHIV had 'significant depressive symptoms'. Whereas 163 (49.8%) reported "I felt that everything I did was an effort", 82 (25.1%) indicated that "people are unfriendly", most or all of the time (5-7 days/week). With an overall MOSS-SS support index of  $3.75 \pm 1.32$  (scale = 1-5), the preferred coping strategies of the respondents were emotional support ( $3.89 \pm 1.31$ ), additional information ( $3.88 \pm 1.50$ ), affectionate support ( $3.85 \pm 1.41$ ), and tangible support ( $3.40 \pm 1.41$ ). Higher educational level was associated with lower perception of overall social support need ( $r = -0.499$ ,  $p = 0.049$ ).

While half of the PLHIV in the study center exhibited depressive symptoms, majority of them adopted a variety of social coping strategies to support themselves, with their level of education being a factor in their desire for a support system. The study findings highlight the need to integrate mental health care into HIV care services as well as routine mental health screening among PLHIV.

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## A Cross-Sectional Evaluation of Depression, Coping Strategies, and Adherence to Antiretroviral Therapy as Determinants of Quality of Life Among Persons Living with HIV in Northwestern Nigeria

Abba A<sup>1</sup>, **Isah A**<sup>1,2</sup>, Aluh D<sup>1</sup>, Nwachuya C<sup>1,2</sup>, Adibe M<sup>1</sup>

<sup>1</sup>University Of Nigeria, Nsukka, Nigeria, <sup>2</sup>Person-Centred HIV Research Team, Nsukka, Nigeria

Quality of life (QoL) is an invaluable indicator of the over-all well-being of individuals managing chronic health conditions. In persons living with HIV (PLHIV), QoL could be affected by different clinical and non-clinical factors which ought to be determined and incorporated into their routine care. The aim of this study was to determine the effect of depression, coping strategies, and adherence to antiretroviral therapy (ART) on the QoL of PLHIV in northwestern Nigeria.



This cross-sectional study was conducted among PLHIV in the three federal teaching hospitals in northwestern Nigeria between February to May 2022. Four standard questionnaires were used to seek responses from 900 randomly sampled PLHIV: P-Health Questionnaire-9, PHQ-9 (depression), BREF (coping strategies), Simplified Medication Adherence, SMAQ (adherence), and 15D (quality of life). IBM-SPSS was used for data analysis, considering appropriate descriptive and inferential statistics, with significance set at  $p < 0.05$ . Ethical approval was obtained from the participating hospitals.

A total of 877 PLHIV participated in the study (response rate = 97.44%). Participants aged 31-50 years were 517 (66.0%), with 572 (64.5%) identifying as females. DTG-based first-line ART was being used by 658 (71.5%) PLHIV. With a PHQ-9 score of 4 and above, 326 (37.2%) PLHIV reported depressive symptoms, 230 of whom were females ( $p = 0.004$ ). On the BREF scale, self-distraction and acceptance coping mechanisms were the preferred coping strategies of 456 (56.6%) and 524 (60.6%) PLHIV, respectively. Non-adherence to ART was identified in 456 (52.5%), with all the participants' QoL score being  $0.97 \pm 0.42$ . Whereas higher depressive symptoms were negative predictors of the PLHIV's QoL ( $\beta = -0.29$ ,  $p = 0.0001$ ), higher adherence led to better QoL ( $\beta = 0.09$ ,  $p = 0.0017$ ). Maladaptive coping strategies had inverse relationship with the QoL of the participants ( $r = -0.119$ ,  $p = 0.001$ ), they had no predictive strength.

Although the proportion of the PLHIV in the study who expressed clinically significant depressive symptoms was less than half, it is a cause of concern that majority of such PLHIV were females, despite the adoption of different coping strategies. The findings of this study suggest that targeted interventions that would reduce depression and increase the level of adherence to ART will lead to enhanced QoL among PLHIV.

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## HIV, and Hepatitis B and C Co-infections and Correlates of HIV Infection Among Men Who Have Sex with Men, Rwanda, 2021

**Malamba S<sup>1</sup>**, Remera E<sup>1</sup>, Tuyishime E<sup>1</sup>, Kayitesi C<sup>1</sup>, Sangwayire B<sup>2</sup>, Ruisenor-Escudero H<sup>2</sup>, Oluoch T<sup>2</sup>  
<sup>1</sup>CDC, Kigali, Rwanda

**Background:** Limited data exists on HIV infection-associated risk factors and other viral co-infections among men who have sex with men (MSM) in Rwanda. We aimed at reporting the national prevalence estimates of HIV and Hepatitis B or C co-infections and identify factors associated with HIV infection among MSM in Rwanda.

**Materials and Methods:** We used respondent-driven sampling (RDS) to recruit MSM nationally between November-December, 2021. Alere-Combo and STAT-PAK were used for HIV testing. For identified HIV infected cases, recency tests were conducted. Hepatitis-B surface antigen (HBsAg) and anti-HCV tests were conducted. All statistics were adjusted for RDS design and multivariate logistic regression models were fitted to identify factors associated with HIV infection due to the available sample size.

**Results:** Of the 3,094 invitations distributed, 2,238 eligible MSM responded with 2,211 consented for testing. HIV prevalence was 6.9% (95%CI: 5.5–8.6) of whom 12.9% (5.5–27.3) were recently infected. HBV and HCV prevalence were 4.2% (3.0–5.7) and 0.7% (0.4–1.2) respectively among MSM. HIV and HBV co-infection was 0.5% (0.2–1.1); HIV with HCV was 0.1% (0.0–0.5), 10.7% (9.1–12.6) had at least one of the three infections, and no co-infection with all 3-viruses observed. MSM with increased risk of getting HIV were those who refused to answer questions about involvement in commercial sex (adjusted odds ratio (AOR) = 10.4; 3.3–32.8), ever suffered from any violence or abuse because of being an MSM (AOR = 3.4; 1.9–6.3), and those reporting inconsistent condom use (AOR = 3.1; 1.6–5.9).

**Conclusions:** Among MSM in Rwanda, one-in-ten had HIV, HBV, or HCV infections. However, the prevalence of HIV was 1.6 folds greater than that



of HBV and 10 folds that of HCV. The identified correlates of HIV infection underscore the importance of scaling interventions to reduce structural and behavioral factors contributing to HIV. Improved access to condoms and Pre-Exposure Prophylaxis (PrEP) would be an asset to reduce the HIV burden among MSM in Rwanda.

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## Common Mental Health and Psychosocial Conditions Among Adolescents Living with HIV Accessing Care at Lighthouse Trust ART Clinic in Lilongwe, Malawi

Lungu J<sup>1</sup>, Malata G<sup>1</sup>, Viola E<sup>1</sup>, Huwa J<sup>1</sup>, Rambiki E<sup>1</sup>, Kachere L<sup>1</sup>, Kamamia C<sup>1,2</sup>, Thawani A<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Center for Health, University of Washington, Seattle, United States of America

**Background:** Adolescents living with HIV (ALHIV) on antiretroviral therapy (ART) experience major mental health challenges which negatively affect their psychological well-being, and HIV treatment outcomes. Lighthouse Trust introduced the Psychosocial program in 2019 to address mental health and psychosocial issues among people living with HIV including adolescents. The program encompasses assessment using Lighthouse-developed Psychosocial Initial Assessment tool, psychotherapy and referral for medical treatment or psychiatric services. The assessment tool categorizes levels of risk of loss to follow up, as low, medium, and high risk. We aim to describe common psychosocial problems presented by ALHIV aged 10-19, at Lighthouse Trust ART clinic in Lilongwe, from January to December 2023.

**Materials and Methods:** We reviewed routinely collected program data in psychosocial registers for adolescents living with HIV referred for psychosocial services at Lighthouse clinic. Descriptive statistics were done on client demographics, reasons for referral, psychosocial conditions, and risk categorization.

**Results:** There were 284 adolescents living with HIV referred for mental health and psychosocial

services, of which 175 (61.6%) were females. The median age was 15 years (IQR of 13-17 years). Reasons for referral included high viral load 125 (44%), client HIV status disclosure 56 (19.7%), self-referrals 43 (15.1%), poor adherence 16 (5.6%), ART initiation 13 (4.6%), loss to follow up 12 (4.2%), missed appointments 11 (3.9%), and gender-based violence 8 (2.8%).

Upon assessment, 69 (24.3%) had social issues, 66 (23.2%) had anxiety disorders, 54 (19%) had stress, 37 (13%) depression, 15 (5.3%) had anger, 18 (6.3%) had stigma and discrimination and 11 (3.9%) had trauma, 8 (2.8%) had grief, 6 (2.1%) had alcohol and substance abuse.

On the level of risk of loss to follow up, the assessment found 181 (63.7%) on high risk, and out of these, 97 (34.2%) had anxiety, depression, and substance abuse as the common mental health issues. All adolescents were then managed accordingly.

**Conclusions:** Social related issues, anxiety, stress, and depression are the most common issues among adolescents referred for psychosocial care. Increased awareness of psychosocial services has also led to self-referrals in adolescents. Continued psychosocial support is recommended to prevent clients from experiencing negative health outcomes.

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## Access to Advanced HIV Disease Interventions and Testing Outcomes Among New and Unsuppressed Treatment-Experienced PLHIV Living With HIV: Observational Lessons from Uganda

Kirungi R<sup>1</sup>, Nabitaka V<sup>1</sup>, Nuwagira A<sup>1</sup>, Kabunga L<sup>1</sup>, Batusa J<sup>1</sup>, Eigege W<sup>2</sup>, Amamilo I<sup>2</sup>, Conroy J<sup>2</sup>, Amole C<sup>2</sup>, Namuwenge P<sup>3</sup>, Kasone V<sup>3</sup>

<sup>1</sup>Clinton Health Access Initiative, Uganda, Kololo, Kampala, Uganda, <sup>2</sup>Clinton Health Access Initiative, Boston, Boston, United States, <sup>3</sup>Ministry of Health, Uganda, Kampala, Uganda



**Background:** The Ugandan HIV treatment guidelines recommend the Advanced HIV Disease (AHD) package of care (PoC) for all new people living with HIV (PLHIV) diagnosed with HIV and those failing on their antiretroviral treatment (ART). This analysis compares access to some components of the AHD PoC and the testing outcomes between newly diagnosed and unsuppressed treatment-experienced PLHIV.

**Description:** The Uganda Ministry of Health (MOH) with support from partners scaled-up the AHD PoC in 2021 following initial implementation in focal facilities. The AHD interventions included CD4 testing to identify AHD PLHIV; screening for opportunistic infections (OIs); prophylaxis and treatment for OIs; and rapid ART initiation. We have analyzed DHIS2 data on AHD service delivery among new and unsuppressed treatment-experienced PLHIV from October 2022 to September 2023 to identify any gaps along the AHD cascade in these two client populations.

**Lessons Learnt:** Access to CD4+ testing was higher (84%) among the new PLHIV compared to the unsuppressed treatment-experienced PLHIV (57.3%). While access to TB-LAM testing was also better among the new PLHIV with AHD compared to the failing PLHIV, a greater proportion of the unsuppressed treatment-experienced PLHIV received CrAg testing. On testing outcomes, AHD prevalence and TB-LAM positivity among new PLHIV was marginally higher than the unsuppressed treatment-experienced PLHIV. However, CrAg positivity was slightly higher among unsuppressed treatment-experienced PLHIV than new PLHIV.

**Conclusions:** Our findings showed lower uptake of CD4+ and TB LAM testing among unsuppressed treatment-experienced PLHIV, revealing gaps in AHD screening. This results in missed opportunities to identify and manage life-threatening OIs. Further research is warranted, and it is essential to strengthen AHD interventions for this population to effectively reduce AIDS morbidity and mortality.

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## Molecular Characterization of Hepatitis Delta Virus Strains Among HBV/HIV Coinfected Individuals Circulating in Abuja, Nigeria

**Bakarey A**<sup>1</sup>

<sup>1</sup>College Of Medicine, University Of Ibadan, Nigeria, Ibadan, Nigeria

**Background:** Hepatitis Delta virus (HDV) is a sub-viral agent that is dependent on HBV envelope to form its own virion. It is responsible for the most severe form of liver disease in humans. HDV is the sole member of the Deltavirus genus and so far, 8 genotypes (HDV-1 to 8) have been individualized worldwide, each, further segregated into two to four subgenotypes. Therefore, little is known about HDV strains circulating in Nigeria and thus, this study was designed to assess HDV genotype distribution in the country.

**Materials and Methods:** Blood samples collected from 206 consenting participants from two cohorts (113 HBV/HIV co-infected from antiretroviral clinics and 193 HBsAg positive, HIV negative blood donors) from four selected hospitals in Abuja, Nigeria were analyzed for HBVDNA by amplifying and sequencing the HBV pre-S1 gene. Eighteen of the 19 samples with enough volume were retested for total anti-HDV-Ab, using commercial ETI-AB-DELTAK-2 kit. The 15 confirmed positive samples were further explored for both HDV RNA viral load and HBV and HDV genotyping.

**Results:** Phylogenetic analysis of amplicons of the R0 region of the genome of ten out of the 15 samples with detectable HDV RNA revealed that nine were HDV-1 and the remaining one was HDV-6. Two HDV-1 isolates (NGR-D-21A and NGR-D-2A) exhibited an Alanine residue at position 202 of the large Delta antigen and clustered with HDV-1 European/Asian strains. Interestingly, NGR-D-015 and NGR-D-014 strains, isolated from two members of a couple, showed no variation in the HDV nucleotide sequence, however the HBV envelope seems to be derived from two different HBV-E strains, according to pre-S1 region sequence analyses.



**Conclusion:** This study shows that both African and European/Asian HDV-1, and HDV-6 strains are circulating in Nigeria. It also shows that two different helper HBV strains can envelop the same HDV ribonucleoprotein in a cohabiting couple as observed.

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## High Seroprevalence of Hepatitis D in Declared HBV Negative Patients in Cameroon

Toumansie Mfonkou J<sup>1</sup>, Foupouapouognigni Y<sup>2</sup>, Onana B<sup>1</sup>, Njouom R<sup>3</sup>

<sup>1</sup>Laboratory of Microbiology, UNVIVERSITY OF YAOUNDE I, Yaounde, Cameroon, <sup>2</sup>Laboratory of Pharmacology and Toxicology, University of Yaounde I, Yaounde, Cameroon, <sup>3</sup>Centre Pasteur of Cameroon, Yaounde, Cameroon, Yaounde, Cameroon

**Background:** Hepatitis D virus (HDV) infection has been considered a serious neglected pandemic, particularly in developing countries. It is the most severe form of chronic viral hepatitis; carriers of HBsAg superinfected by the HDV are the major victims and the reservoir of the infection. Hepatitis D is ubiquitous but prevalence varies throughout the world. A study in 2018 estimated the worldwide number of HDV infections at approximately 62–72 million, and this number was recently upwardly revised to 74 million corresponding to approximately 5% to 20% of HBV carriers. Societally, patients with indications of liver damage are screened for HBV markers but not always for HDV.

**Materials and Methods:** We conducted a cross-sectional study on 859 patients who came for an HBV screening test in Centre Pasteur of Cameroon over the period from January 2019 to January 2023. The study had been approved by the institution's ethical committee. To assess the prevalence and clinical characteristics of HDV infection among Cameroonian patients testing for HBV infection, all patients were evaluated for the presence of HDV using anti-HDV-Ab. In addition, transaminases (ALT and AST) level and HBeAg detection results were retrieved from the database.

**Results:** HBV DNA was detected in 66.12% (568/859) patients and 33.9% (291/859) patients

had undetectable HBV-DNA. The studied population showed the predominance of men (497/859 = 57.9%), with a mean age of 32 ±15.5 years. In the current study, the global HDV prevalence was found to be 16.9% (139/859). Among patients with undetectable HBV-DNA levels, 77/291 tested positive for the HDV antibodies for an overall prevalence of 26.5%, with a highly significant association between HDV-positive and HBV-negative patients ( $P < 0.001$ ). 17.3% (24/139) of delta patients were HBeAg negative. ALT and AST data were available for 53 delta patients of which, 56% (30/53) and 45% (24/53), had normal levels of ALT and AST (respectively) without significant difference between HDV positive and HDV negative patients.

**Conclusion:** HDV prevalence is high in Cameroon. Delta infection was associated with negative HBeAg status, and reduction of HBV replication, but compared to the mono-infected HBV, HBV/HDV superinfection was not associated with elevated levels of transaminases.

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## Cervical Cancer Screening in Resource Limited Settings Using Human Papilloma Virus Molecular Nucleic Acid Technology: Lessons from Makoni District, Manicaland Province, Zimbabwe, 2022

Chimwaza T<sup>1</sup>, Ganje N<sup>1</sup>, Samushonga T<sup>1</sup>, Ndlovu M<sup>1</sup>, Muzondo M<sup>1</sup>, Maravanyika A<sup>1</sup>, Chindove B<sup>1</sup>, Maringe P<sup>1</sup>, Apollo T<sup>2</sup>, Mupanguri C<sup>2</sup>, Nyafesa T<sup>2</sup>, Mukungunugwa S<sup>3</sup>, Mhangara M<sup>3</sup>, Tachiwenyika E<sup>1</sup>, Sibanda T<sup>1</sup>, Nyamundaya T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Zimbabwe, Harare, Zimbabwe

**Background:** Cervical cancer is the most frequent cancer in sub-Saharan Africa and the leading cause of cancer deaths among HIV positive women in Zimbabwe. Uptake of cervical cancer screening using visual inspection with acetic acid and Cervicography (VIAC) remains suboptimal in





Zimbabwe. Zimbabwe Health Interventions (ZHI) supported Government of Zimbabwe (GoZ) to pilot use of human papilloma virus molecular nucleic acid technology (HPV NAT) for cervical cancer screening in Makoni district of Manicaland province.

**Materials and Methods:** A pilot was conducted across 20 purposively selected health facilities of Makoni district from May to December 2022. High vaginal swabs were collected primarily by clients (women) and some by healthcare workers (HCW); swabs were transported to laboratory for processing. Project data were recorded in paper registers and laboratory request forms, with results printed and sent back to health facilities. HPV NAT-positive clients were screened using VIAC. Client-level data for the period May to December 2022 were abstracted from facility registers using Kobo Toolbox and analyzed using STATA. Assessment was approved by Medical Research Council of Zimbabwe (MRCZ/E/159).

**Results:** Data for 480 women with HPV NAT were collected and 95% (456/480) were aged 25 years or older. Notably, 74% (340/456) of women aged 25 years collected vaginal swabs themselves. Median turnaround time (TAT) from sample collection to receipt at the testing laboratory was 1 day (IQR 0-1), and TAT from sample receipt at the laboratory to receipt of results at facility was 26 days (IQR 17–34). Results were issued to clients on the same day of receipt by facility for clients reachable by phone and an average of 5 days TAT for those reached by community cadres. Median TAT from receipt of HPV NAT positive results at facility to VIAC was 22 days (IQR 11-49). HPV NAT positivity was 33% (156/480) and 60% (93/156) had VIAC done.

**Conclusions:** HPV NAT has potential to reduce VIAC burden on HCW as demonstrated by the 67% reduction in number of women requiring VAIC. Most clients accepted self-sample testing. We recommend capacitation of district laboratory to process HPV NAT samples, and targeted outreach for HPV NAT positive women.

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## A Pilot Study to Assess the Acceptability and Feasibility of An Adapted Counseling Care Model for Management of Female Sexual Dysfunction Among Women with HIV In Northern Nigeria

Damagum F<sup>1</sup>, Datti-Ahmed Z<sup>1,2</sup>, Salihu H<sup>3</sup>, Wester W<sup>4</sup>, Aliyu M<sup>4</sup>

<sup>1</sup>Aminu Kano Teaching Hospital, Kano, Nigeria, <sup>2</sup>Bayero University Kano, Kano, Nigeria, <sup>3</sup>Kano Independent Research Center Trust, Kano, Nigeria, <sup>4</sup>Vanderbilt Institute for Global Health, Nashville, USA

**Background:** Nearly 60% of the estimated 3.5 million people living with HIV in Nigeria are women. Sexual health research among women living with HIV has focused mainly on sexual practices and risk behaviors, with little consideration for treating sexual dysfunction and improving sexual satisfaction. The aim of this study is to assess the effectiveness of an adaptive counselling care model in the management of female sexual dysfunction (FSD) among women living with HIV in northern Nigeria.

**Materials and Methods:** This is a prospective observational cohort study of 200 women with HIV and matched comparison arm of 200 women without HIV. Sexual function was assessed with the Female Sexual Function Index (FSFI), with a score  $\leq 26.55$  indicating female sexual dysfunction (FSD). Women with FSD were counselled using the PLISSIT model. Mean differences in baseline and 6 weeks post-intervention FSFI scores were compared to evaluate the effectiveness of the PLISSIT model. R statistical software was used for data analysis.

**Results:** The overall prevalence of FSD among the 400 women was 96.8%, with no difference between HIV-positive and HIV-negative participants ( $p = 0.398$ ). Based on the six domains of the FSFI, the most common dysfunctions were sexual pain (21.7%), sexual desire disorder (17.6%), orgasm disorder (17.6%), lubrication disorder (17.2%), sexual arousal (16.9%), and poor sexual satisfaction (9.0%). Only partner's sexual dysfunction (odds ratio, OR=0.22; 95% confidence



interval, CI: 0.07-0.83;  $p = 0.015$ ) was associated with FSD in both groups. The overall mean FSFI score in both groups ( $n = 400$ ) prior to the counselling intervention was 16.05. At the end of six weeks, the overall mean FSFI score in both groups increased to 22.81, and this change was statistically significant ( $p < 0.05$ ).

**Conclusion:** FSD is very common among women in northern Nigeria, and the PLISSIT counselling model is associated with improved female sexual function, irrespective of HIV status. This simple and affordable intervention can be adapted for use in this environment.

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## The Impact of Needle and Syringe Programs on HIV & HCV Transmission Among People Who Inject Drugs in Africa: A Review of the Evidence

Ogbodum M<sup>1,2</sup>, Ogunkola I<sup>1,3</sup>, Imo U<sup>1</sup>, Adole J<sup>1</sup>  
<sup>1</sup>Students for Sensible Drug Policy International, , Austria, <sup>2</sup>YouthRISE Nigeria, , Nigeria, <sup>3</sup>YouthRISE International, , Ireland

**Background:** Drug-related harms include overdose, drug-related deaths with People who inject drugs (PWID) at high risk of blood-borne transmissions such as Human Immunodeficiency Virus (HIV) and Hepatitis C virus (HCV). Needle and syringe programs (NSPs) have been implemented globally as a harm reduction intervention to reduce HIV and HCV transmission among PWID. This review aimed to summarize the evidence on the impact of NSPs on HIV & HCV transmission among PWID in Africa.

**Materials and Methods:** A comprehensive literature search of studies that included PWID and addressed community-based NSP was conducted using various databases to identify studies that evaluated the impact of NSPs on HIV and HCV transmission among PWID. The studies were screened, and relevant data were extracted, synthesized, and analyzed.

**Results:** A total of 32 studies were included in this review, comprising observational studies, modeling studies and systematic reviews. The evidence suggests that NSPs are effective in reducing HIV and HCV transmission among PWID. Observational studies consistently reported lower rates of HIV and HCV prevalence among NSP clients compared to nonclients and further showed that NSP clients were more likely to use sterile needles and syringes, and less likely to share injection equipment than non-clients. Systematic reviews estimated that NSPs could reduce HIV/HCV incidence and prevalence by up to 50%.

**Conclusions:** The evidence supports the effectiveness of NSPs in reducing HIV and HCV transmission among PWID. NSPs should be implemented as a part of comprehensive harm reduction interventions to prevent the spread of HIV and HCV transmission among PWID. However, NSPs alone may not be sufficient to eliminate HIV and HCV transmission among PWID, and should be combined with other interventions such as opioid substitution therapy, HIV testing and counseling, and antiretroviral therapy. The scale-up of NSPs should be a public health priority to reduce the burden of HIV and HCV among PWID and their communities most especially in Africa.

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## FastPrEP: Evaluating Factors Associated with PrEP Initiation from Community-Based Mobile Clinics Compared to Fixed-Site Primary Health Facilities in Adolescents and Young People in Cape Town, South Africa

Rousseau E<sup>1</sup>, Lebelo K<sup>1</sup>, Mathola N<sup>1</sup>, Macdonald P<sup>1</sup>, Vanto O<sup>1</sup>, Fuzile P<sup>1</sup>, Smith P<sup>1</sup>, Fynn L<sup>1</sup>, Wallace M<sup>1</sup>, Davey D<sup>2,3</sup>, Bekker L<sup>1</sup>

<sup>1</sup>Desmond Tutu HIV Centre, University of Cape Town, Cape Town, South Africa, <sup>2</sup>School of Public Health, University of Cape Town, Cape Town, South Africa, <sup>3</sup>School of Medicine, University of California, Los Angeles, United States



**Background:** Effective HIV prevention will require implementing and evaluating pre-exposure prophylaxis (PrEP) service delivery options that can engage large populations of adolescent and young people (AYP) with diverse characteristics.

**Materials and Methods:** FastPrEP is an ongoing implementation science project in Cape Town, South Africa, evaluating uptake and effectiveness of a youth-focused, decentralized district-wide PrEP program. Oral PrEP is offered to AYP, aged 15 to 29 years, as part of an integrated sexual and reproductive health (SRH) service from four community-based mobile clinics and 12 primary health facilities. Descriptive statistics and logistic regression models (adjusted for age and gender) explored the factors associated with AYP's PrEP initiation from mobile clinics and fixed-site primary health facilities.

**Results:** Between August 2022 and December 2023, 9940 AYP (mean age 24 years) initiated oral PrEP. Majority were adolescent and young women (63%, n=6247) of which 3%(n=182) were pregnant. Of the 3693 men starting PrEP, 5%(n=177) identified as men who have sex with men. Most AYP were unmarried (95%) with 22% reporting multiple concurrent sex-partners. Most AYP (81%) initiated PrEP from mobile clinics compared to primary health facilities. Factors significantly associated with initiating PrEP at mobile clinics included being male (OR 1.7; 95%CI:1.53-1.9), having casual sex-partners (aOR 1.7; 95%CI:1.34-2.12), presence of STI symptoms (aOR 1.5; 95%CI:1.14-2.03), and displaying hazardous alcohol consumption (AUDIT-C score; aOR 1.5; 95%CI:1.25-1.85). PrEP initiation at mobile clinics was associated with mild depression/anxiety (PHQ4 scores; aOR 1.5; 95%CI:1.18-1.8), however people with moderate depression/anxiety were less likely to access mobiles compared to primary health facilities (aOR 0.7; 95%CI 0.53-0.84). Pregnant women were less likely to initiate PrEP at mobile clinics compared to primary health facilities. No significant difference in age, relationship status, or number of sex-partners were observed between people starting PrEP at mobile compared to health facilities.

**Conclusions:** Tailored, integrated mobile SRH services including PrEP attracted men and young people who had factors associated with higher risk for HIV acquisition. Pregnant women however chose to access PrEP from traditional healthcare facilities, possibly primarily accessing antenatal care. Further integration of mental health (depression and anxiety) and substance misuse

support for AYP in mobile services are also indicated by these data.

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## Discovery of Novel/Newer CCR5 Antagonists with Enhanced Activity and Physicochemical Profile Than Maraviroc Through Computational Screening

Amandi N<sup>1</sup>, Nwachuya C<sup>1</sup>, Ujor R<sup>1</sup>, Ademola O<sup>2</sup>

<sup>1</sup>Department of Clinical Pharmacy and Pharmacy Management University of Nigeria Nsukka, Nsukka, Nigeria, <sup>2</sup>Faculty of Pharmaceutical Sciences, University of Ilorin, Nigeria

**Background:** Maraviroc, a popular C-C Chemokine Receptor 5 (CCR5) antagonist, is acknowledged for its efficacy in slowing down the progression of HIV, particularly the R5-tropic strain. Nevertheless, it is associated with hepatotoxicity and necessitates a frequent dosing regimen of twice daily. This emphasizes the need to have a CCR5 antagonist with less harmful side effects and longer duration of action. This research identified CCR5 antagonists with improved side effect profiles and reduced dosing frequency.

**Materials and Methods:** A computational screening was conducted using molecular docking in the Molecular Operating Environment (MOE) to narrow down a dataset comprising 2588 FDA-approved drugs, including Maraviroc, from 1948 to the present date. This identified the top 10 chemical entities that exhibit the most favorable binding free energy with the V3 protein of the CCR5 receptor. Subsequently, the SwissADME tool was employed to analyze the physicochemical and pharmacokinetic attributes of these selected chemical entities. Each drug was identified using the unique identification number on the FDA database.

**Results:** Rigid docking of the compounds revealed DB06791 (free energy= -7.08kcal/mol, binding affinity= -13.66kcal/mol), DB00569 (free energy= -13.66kcal/mol, binding affinity= -11.74kcal/mol), and DB06810 (free energy= -7.67kcal/mol, binding affinity= -11.62kcal/mol) to have relatively favorable drug-receptor interaction and stability



than Maraviroc (free energy= -10.44kcal/mol, binding affinity= -8.53kcal/mol). While DB06810 (half-life= 10h – 11h) displayed a shorter half-life than Maraviroc (half-life= 14h – 18h), DB00569 (half-life= 17h – 21h) and DB06791 (half-life= 22 days) demonstrated superior half-life characteristics. In examining the side-effect profiles, DB06791 (bioavailability= 0.71, LD50= 73mg/kg, hepatotoxicity= 0.61, nephrotoxicity= 0.72) and DB06810 (bioavailability= 0.62, LD50= 500mg/kg, hepatotoxicity= 0.82, nephrotoxicity= 0.87) exhibited less favorable profiles than Maraviroc (bioavailability= 0.81, LD50= 1000mg/kg, hepatotoxicity= 0.86, nephrotoxicity= 0.72) and DB00569 (bioavailability= 0.74, LD50= 800mg/kg, hepatotoxicity= 0.62, nephrotoxicity= 0.67).

**Conclusions:** Findings indicate that DB00569 holds promise as a novel CCR5 antagonist, offering a more favorable side effect profile and reduced dosing frequency compared to Maraviroc. Subsequent investigations into DB00569 should prioritize the optimization of its pharmacokinetic and physicochemical characteristics for even more robust outcomes.

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## Access, Adherence, and Acute HIV Infections: A Characterization of Seroconversion with PrEP in Eswatini

Hettema A<sup>1</sup>, Matse S<sup>2</sup>, Nyapokoto C<sup>2</sup>, Khanyile N<sup>1</sup>, Mahlalela B<sup>1</sup>, Kudrick L<sup>3</sup>, Levy L<sup>4</sup>, Parikh U<sup>3</sup>, Peterson J<sup>4</sup>

<sup>1</sup>FHI 360, , Eswatini, <sup>2</sup>Ministry of Health, , Eswatini, <sup>3</sup>University of Pittsburgh, , USA, <sup>4</sup>FHI 360, USA

**Background:** Eswatini is one of the first countries in Africa to introduce the dapivirine vaginal ring alongside oral Tenofovir disoproxil fumarate/Lamivudine to provide Pre-exposure prophylaxis (PrEP) choice and expand HIV prevention options. Monitoring for seroconversion and understanding adherence in PrEP programs is crucial to inform ongoing scale-up and guide interventions to increase effective PrEP use. We

evaluated product interruption and self-reported adherence in individuals who acquired HIV in the Eswatini PEPFAR/USAID-supported Maximizing Options to Advance Informed Choice for HIV Prevention (MOSAIC) project.

**Materials and Methods:** The Eswatini PrEP HIV drug-resistance study is an ongoing national assessment in current or recent PrEP users (collected PrEP and/or self-reported PrEP use in the last three months) who acquire HIV as diagnosed per national algorithm using sequential third-generation rapid tests. We analyzed the demographic data as well as self-reported PrEP use to characterize individuals who seroconverted from study start in May 2023 through January 2024.

**Results:** Of approximately 15,000 PrEP initiations, 10 clients tested HIV positive during a PrEP follow-up visit. All were female, with a median age of 28.1 years (IQR 22.7–31.9); 5 were pregnant or breastfeeding. At the time seroconversion was identified, 7 were using oral PrEP and 3 were using the PrEP ring. Seroconversion was identified within 45 days of oral PrEP (re-)initiation in 1/7 oral PrEP users and all ring users. One ring user reported a product interruption of 13 days before returning to the facility to get more product; 6 of 7 oral PrEP clients reported product interruption, including 2 reporting an interruption of 3-7 days and 4 reporting an interruption of 20-84 days. Reported reasons for ineffective PrEP use included missing doses, delays in obtaining services, or unavailability of their PrEP product.

**Conclusions:** Seroconversions remain rare in the Eswatini PrEP program. Causes of seroconversion in individuals using PrEP monitored in this study may be initiating PrEP during acute HIV infection and interruption of PrEP availability and/or product use. This study highlights the importance of monitoring seroconversions and product effective use to inform and best support PrEP programs for long-term success in reducing HIV incidence.



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## Safety and Acceptability of Shang Ring Device for VMMC in Younger Adolescents in Zimbabwe

Nhando N<sup>1</sup>, Maponga B<sup>1</sup>, Chigiji H<sup>1</sup>, Taruberekera N<sup>1</sup>, Mugerungi O<sup>2</sup>, Xaba S<sup>2</sup>, Hatzhold K<sup>3</sup>, Dhodho M<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Services International, Cape Town, South Africa

**Background:** Voluntary medical male circumcision decreases the risk of HIV acquisition through heterosexual transition among males by 60%. We conducted a clinical observational study to evaluate the safety, acceptability, and technical efficiency of the Shang Ring (SR) male circumcision device among younger (13 – 14 years) and older (15 – 16 years) adolescent males in Zimbabwe

**Materials and Methods:** Between June 2022 and May 2023, 5,878 adolescent boys at 93 sites across 9 rural districts were recruited into two age group cohorts 13-14 years (offered SR only) and 15-16 years (offered either SR or surgical dorsal slit (DS) procedure). Participants were followed up on days 2, 14 and 42 (DS) and days 7, 14 and 49 for SR post-procedure to assess adverse events and wound healing process. An interviewer-administered questionnaire was used to collect data on client satisfaction and acceptability on day 14 and 49 post procedure. We collected data on mild, moderate and severe adverse events (AEs) in both cohorts and analyzed data using SPSS. Interim analysis to assess adverse events rates in the two groups was conducted.

**Results:** 5,878 adolescents, 4,076 and 1802 from the age groups 13-14 and 15-16 years respectively were recruited. Among the older age group 1,089/1802 (60.4 %) had been circumcised with the SR device. Overall, six moderate/severe AEs were observed, translating to an overall AE rate of 1.36 per 1,000 among both groups. Four AEs occurred in 13-14 age cohort (1.47 per 1,000 circumcisions (95% CI 0.54; 3.20)) and 2 AEs in the 15-16 years age cohort (incidence of 1.11 per 1,000 MCs (95% CI 0.13; 4.01)). All AEs were resolved successfully. 97.6% (3756/3845) of clients interviewed were satisfied/ very satisfied with the

procedure; 89.1% (3426/3845) were likely to recommend the procedure to their peers.

**Conclusions:** SR was highly acceptable among younger adolescents. Moderate/severe AE rates were low in both age groups. This was the largest study to evaluate the safety and acceptability of SR among <15 years old adolescents in Africa. The data may provide evidence for WHO and countries' guidance on SR circumcision as an option for circumcision.

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## Preferences for Services Delivering Pre-exposure Prophylaxis Among Sexually Active Adolescent Girls and Young Women: A Discrete Choice Experiment in Zimbabwe

Cambiano V<sup>1</sup>, Indravudh P<sup>2</sup>, Chidhanguro K<sup>3</sup>, Murenjekwa W<sup>3</sup>, Ncube G<sup>4</sup>, Copas A<sup>5</sup>, Cowan F<sup>3,6</sup>, Dirawo J<sup>3</sup>, Matsikire E<sup>3</sup>, Mpofo A<sup>7</sup>, Mugerungi O<sup>4</sup>, Phillips A<sup>1</sup>, Taramusi I<sup>8</sup>, Sibanda E<sup>3,6</sup>

<sup>1</sup>University College London, London, United Kingdom,

<sup>2</sup>Department of Global Health and Development, London School of Hygiene and Tropical Medicine, London, UK, <sup>3</sup>Centre for Sexual Health and HIV/AIDS Research (CeSHHAR) Zimbabwe, Harare, Zimbabwe, <sup>4</sup>Department of AIDS and TB Unit, Ministry of Health and Child Care, Harare, Zimbabwe, Harare, Zimbabwe, <sup>5</sup>Institute for Global Health and the MRC Clinical Trials Unit, University College London, London, United Kingdom, <sup>6</sup>Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, United Kingdom, <sup>7</sup>National AIDS Council (NAC), Harare, Zimbabwe, <sup>8</sup>UNAIDS UCO Zimbabwe, Harare, Zimbabwe

**Background:** Adolescent girls and young women (AGYW) in Zimbabwe are disproportionately affected by HIV. As pre-exposure prophylaxis (PrEP) is rolled-out in Zimbabwe, we assessed preferences for services delivering PrEP among sexually active (SA-AGYW; self-reported sex in the last year) in Zimbabwe and identify key drivers of demand for services delivering PrEP.

**Materials and Methods:** We conducted a discrete choice experiment (DCE) among SA-AGYW (aged 15 to 24) recruited using a respondent-driven sampling survey in six urban and peri-urban



districts in May-July 2023. The DCE was designed based on a literature review and qualitative studies and administered face-to-face using pictorial illustrations. Data were analyzed using a conditional logit model.

**Results:** Nine hundred AGYW completed the DCE. There was a preference for PrEP programmes over not receiving PrEP (OR programme A vs neither=2.94; 95%CI: 2.48-3.48; OR programme B vs neither=2.90; 95%CI: 2.44-3.45). Participants had strong positive preferences for (in order of strength): a programme to support parents having a more positive attitude about sexual and reproductive health services (SRHS; OR=1.76; 95%CI: 1.64-1.88); a friendly attitude by dispensing health workers (OR=1.53; 95%CI: 1.44-1.63); collecting PrEP from a community health worker (CHW; OR=1.22; 95%CI: 1.09-1.37) or the local public sector clinic (OR=1.12; 95%CI: 1.04-1.21) compared with the pharmacy; and for injectable PrEP (OR=1.15; 95%CI: 1.04-1.27) compared with oral. Participants reported negative preferences for: PrEP vaginal ring (OR=0.54; 95%CI: 0.49-0.59; compared with oral), longer distance to the venue for PrEP collection (OR ~2 hours walk vs few minutes=0.90; 95%CI: 0.84-0.97; OR ~8 hours walk vs few minutes=0.69; 95%CI: 0.64-0.74); higher fees to access PrEP (OR per 1USD increase=0.91; 95%CI: 0.89-0.92); and longer time spent at the PrEP collection venue (OR per 1 hour increase=0.96; 95%CI: 0.95-0.97). There was no evidence of preference for the integration of the PrEP dispensing venue.

**Conclusions:** PrEP programmes can be optimised to reach sexually active AGYW, if PrEP is provided by friendly CHW or local public sector clinic at low-cost for the user, at venues within walking distance, with short waiting times, and with the choice of injectable PrEP. Programmes should be accompanied by activities for building parental support for SRHS.

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## Mise en œuvre de la Prophylaxie Préexposition AU Vih en Zone Décentralisée Dans Les Pays à Ressources Limitées : Mythe OU Réalité ?

Agbogbenkou Tevi Déla-dem<sup>1</sup>, Pauline D<sup>1</sup>, Mariama B<sup>1</sup>, Haby D<sup>1</sup>, Sylvie Audrey D<sup>1</sup>  
<sup>1</sup>Ufr Des Sciences De La Santé/ Université De Thies (senegal), Thies, Senegal

**Contexte :** Evaluer la mise en œuvre de la Prophylaxie préexposition (PrEP) au VIH chez les populations clés en zone décentralisée au Sénégal.

**Matériels et Méthodes :** Etude descriptive prospective observationnelle portant sur les sujets adultes de 18ans et plus, séronégatifs, ayant un haut risque de contracter le VIH, ayant donné un consentement libre et éclairé pour bénéficier de la PrEP et suivi à l'Hôpital Régional de Thiès (Avril 2021-Mai 2023). Données saisies et analysées par le logiciel Epi info7 version 3.5.4.

**Résultats :** Trente sept personnes ont été colligées et suivies sous PrEP. Ils étaient majoritairement jeunes (âge moyen: 30,6 ans [20-70ans], de sexe masculin (Sexe ratio H/F :11,3,) et célibataires (n : 27 ; 73%). Les Hommes ayant des rapports sexuels avec des hommes (HSH) représentaient 67,6%, les hétérosexuelles ayant des rapports sexuels à risque 10,8% et les couples serodiscordants 21,6%. Malgré la prédominance des HSH, les rapports sexuels exclusivement Homme/Homme ne représentaient que 19%. Dans notre cohorte, 91,9% des participants ont opté pour la PrEP continue contre 8,1% de PrEP discontinuée. Seuls 27% des personnes ont effectué les tests de dépistage des IST (Hépatite virale B et syphilis). Dans le cadre du suivi, 59,5% (n : 22) étaient perdues de vue ; la PrEP était interrompue dans 16,2% des cas (n : 6) et 24,3% (n : 9) des personnes étaient régulièrement suivies. Deux patients ont été testés positifs au VIH motivant l'interruption de la PrEP. Le taux de réussite était de 94,6%.

**Conclusion :** La PrEP dont l'efficacité est prouvée, reste encore difficile à mettre en œuvre dans les pays à ressources limitées. L'amélioration de la prise en charge psycho-sociale et la subvention du



coût des analyses biologiques permettront une bonne adhésion de la population à cette stratégie de prévention du VIH.

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## Factors Associated with Adherence to Pre-Exposure Prophylaxis among Female Sex Workers in Kigali, Rwanda

Mubezi S<sup>1,2</sup>, Malamba S<sup>3</sup>, Uwineza J<sup>1</sup>, Kayisinga J<sup>1</sup>, Wandera M<sup>1</sup>, Mayora C<sup>2</sup>, Matovu J<sup>2,4</sup>

<sup>1</sup>Society for Family Health (SFH), Kigali, Rwanda, <sup>2</sup>Makerere University School of Public Health, Kampala, Uganda, <sup>3</sup>Health Research and Evaluation Consultant, Kampala, Uganda,

<sup>4</sup>Busitema University Faculty of Health Sciences, Mbale, Uganda

**Background:** Given the tissue makeup of the vaginal mucosa, near perfect adherence to Pre-Exposure Prophylaxis (PrEP) is needed to maintain optimum drug levels necessary in reducing HIV acquisition among female sex workers (FSW). This study aimed to determine factors associated with adherence to PrEP among FSW in Kigali, Rwanda.

**Materials and Methods:** We conducted a cross-sectional study among 486 FSW who returned for PrEP refills between April - June 2021. Data were collected on socio-demographic characteristics, sexual behavior, and PrEP adherence using a questionnaire. PrEP adherence was defined as optimal for FSW who took all their PrEP medication in the 3 days leading up to the interview and as sub-optimal for any alternative responses. Factors associated with optimal PrEP adherence were determined using a modified poisson regression. Data analysis was conducted using STATA (version 14.0).

**Results:** Of 486 FSW interviewed, forty-one percent (n=198) were below 30 years, ninety-one percent (n=440) did not have any other form of employment besides sex work, while sixty-six percent (n=319) were living in households of 3-4 members. Eighty-six percent (86%, n=418) of the FSW interviewed reported optimal adherence. Multivariable modified poisson regression revealed that taking more than 3 alcoholic drinks per week, i.e., 75mls or more (adjusted Prevalence Ratio [aPR] = 0.908, 95% Confidence Interval

[95%CI]: 0.850, 0.970) and living in a household with 3-4 persons (aPR = 0.901; 95%CI: 0.836, 0.970) were factors associated with sub-optimal adherence to PrEP.

**Conclusions:** Overall, majority of the respondents showed optimal adherence. Measures to improve adherence among those FSW with suboptimal PrEP adherence, need to focus on addressing excessive alcohol consumption and stigma that comes from household crowding.

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## Awareness, Knowledge, and Willingness to Recommend Doxy-PEP as a Preferred Post-exposure Prophylaxis Strategy by Community Pharmacists in Abuja, Nigeria: A Cross-Sectional Study

Ezenri G<sup>1,2</sup>, Onwuali U<sup>1</sup>, Ugwu D<sup>1</sup>, Onyehalu J<sup>1,2</sup>, Nwachuya C<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Isah A<sup>1,2</sup>

<sup>1</sup>University Of Nigeria, Nigeria, <sup>2</sup>Person-Centred HIV Research Team, Nigeria

**Background:** Doxycycline-based post-exposure prophylaxis (Doxy-PEP) is a novel, cost-effective strategy for the prevention of STI after a possible exposure through sexual activity. The involvement of community pharmacists, who are frontline healthcare providers, in the recommendation of Doxy-PEP will improve accessibility to the strategy. This study assessed the awareness, knowledge, and willingness to recommend Doxy-PEP as a preferred post-exposure prophylaxis by community pharmacists in Abuja, Nigeria.

**Materials and Methods:** A cross-sectional study was conducted in January 2024 among 600 randomly sampled community pharmacists in Abuja, Nigeria. Using a four-part, 19-item validated questionnaire, awareness, knowledge, and willingness to recommend Doxy-PEP as a PEP option were assessed. Appropriate descriptive and inferential analyses were conducted, with p<0.05 considered statistically significant. Ethical approval was obtained from the health research ethics committee of the Federal Capital Territory.



**Results:** Out of the 507 responses received (84.5% response rate), 288 (56.8%) identified as females. The majority of the respondents, 357 (70.4%), were aged between 25 and 34 years old. Just over half of the respondents, 297 (58.6%), were aware of Doxy-PEP, with the majority, 273 (53.8%), having 0–5 years' experience in clinical practice. Almost all the respondents, 411 (81%), had poor knowledge of Doxy-PEP, with the majority, 382 (75.3%), being among those with 0–5 years' experience ( $p = 0.0001$ ). The majority of the respondents, 339 (66.9%), were willing to recommend Doxy-PEP as a preferred post-exposure prophylaxis, and the majority of those willing to recommend Doxy-PEP had between 0 and 5 years' experience, as represented by 314 (61%) ( $p = 0.001$ ).

**Conclusions:** There is poor knowledge of Doxy-PEP among community pharmacists working in Nigeria's Federal Capital Territory, although they had a fair level of awareness and were willing to recommend Doxy-PEP as a preferred post-exposure prophylaxis. It is recommended that targeted educational campaigns and trainings be designed towards the continuous enlightenment of community pharmacists on Doxy-PEP as a preferred post-exposure prophylaxis strategy.

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## Interest in Seeking Post-trial Prep Services by Postpartum Women in Uganda: A Case for MTN-042/Deliver Study

**Ssemambo P<sup>1</sup>**, Nansimbe J<sup>1</sup>, Lubega M<sup>1</sup>, Byogero R<sup>1</sup>, Kyomukama E<sup>1</sup>, Nakabuye S<sup>1</sup>, Nalwoga J<sup>1</sup>, Mirembe B<sup>1</sup>, Nakabiito C<sup>1</sup>

<sup>1</sup>*Makerere Univ Johns Hopkins Univ Research Collaboration, Kampala, Uganda*

**Background:** Pregnant and breastfeeding women in sub-Saharan Africa have high HIV incidence rates, with 3-fold and 4-fold increase in HIV-1 acquisition risk per condomless sex act respectively. In 2015, WHO recommended once-daily oral pre-exposure prophylaxis (PrEP) for HIV prevention in people at substantial risk of HIV acquisition, including pregnant and postpartum

women. There is limited data on post-trial PrEP access following participation in PrEP trials.

**Materials and Methods:** MTN-042 is a multi-site, two-arm, randomized, open label Phase 3b study evaluating the safety, adherence, and acceptability profiles of the monthly Dapivirine Vaginal Ring and daily oral Truvada when used by HIV-uninfected pregnant women in Africa. The study took a stepwise approach to dosing as follows; Cohort 1: 36 0/7–37 6/7 weeks, Cohort 2: 30 0/7–35 6/7 weeks and Cohort 3: 12 0/7–29 6/7 weeks. Follow-up started at enrollment through 6 weeks postpartum. Referral for further PrEP services was offered at study exit.

We seek to describe; uptake of referrals for PrEP and reasons for non or delayed uptake as documented in chart notes, number of women who took PrEP at the infant 6-month visit as documented on the infant feeding assessment case report forms.

**Results:** In Uganda, 154 participants were enrolled. 22/44 (50%), 10/42 (23.8%) and 14/68 (21%) in Cohorts 1, 2 and 3, respectively were interested in post-trial PrEP. Women of advanced pregnancy were more interested than their counterparts who used study product longer. Reasons for low interest in post-trial PrEP included sexual inactivity, absence from and need to consult partners, preference for condoms, frequent HIV testing, faithfulness, drug use and hospital visits fatigue, non-readiness/unexplained lack of interest, anticipated transport constraints. At the infant's 6 months visit, none of the participants reported being on PrEP despite referral.

**Conclusions:** Results showed low interest (30%) in PrEP post-trial. More data is needed to assess HIV risk perception post-delivery, and if improved community sensitization techniques would increase interest and uptake of PrEP post-trial. There is an ongoing need for PrEP modality choices for HIV prevention, plus other support services and education to promote PrEP re-uptake in this group of sub-Saharan African women.





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## Reducing HIV Seroconversion Rates Among Oral Pre-exposure Prophylaxis (PrEP) Users Through the PrEP Case-Manager Model: Real-World Evidence From the DISCOVER-Health Project PrEP Program in Zambia

Ndhlovu A<sup>1</sup>, Kawanga L<sup>1</sup>, Musonda M<sup>2</sup>, Nyumbu M<sup>1</sup>  
<sup>1</sup>JSI; USAID DISCOVER-health Project, LUSAKA, Zambia,  
<sup>2</sup>USAID/Zambia Mission, Lusaka, Zambia

**Background:** Oral Tenofovir-based PrEP was approved by the World Health Organization in 2015 to reduce the risk of HIV acquisition in high-risk individuals, and is an effective HIV prevention modality. However, inconsistently taking the daily pill impacts adherence, explaining HIV seroconversion rates, estimated at 3% among individuals using PrEP (Ambrosioni et al., 2021). The DISCOVER-Health Project developed a case-manager model where individuals on PrEP were assigned a trained case-manager to support PrEP uptake and persistence.

**Materials and Methods:** Community-based volunteers working in Project-supported health facilities were oriented in PrEP case-management using a training curriculum adapted from national HIV treatment guidelines. At each health facility, these case-managers were assigned a defined number of PrEP users for adherence support, sending appointment reminders via text messages, phone calls or home visits. A list of individuals due for PrEP follow-up visits was generated from the PrEP management system database every week for reminders within 3 days of the appointment visit. Individuals on PrEP were followed up for a year and de-identified client-level data were generated from the database for analysis using WINPEPI.

**Results:** A total of 55,940 individuals were initiated on PrEP between 01/10/2022 and 30/09/2023 for a total of 55,940 person-years. Of these individuals, 52% were males, 47% were adolescents and young adults aged 15-24 years and 23% were key populations. Seven (7)

individuals on PrEP ranging 18 to 52 years old (mean 32.6; median 37) seroconverted in the same period for the incidence rate of 0.013 cases per 100 person-years (95% CI: 0.005 to 0.026) and mean survival time of 372 days (95% CI: 14.2-730). Two of the 7 PrEP users tested positive for HIV within one month of PrEP initiation. When compared to the general population, PrEP users in sero-discordant relationships were over ten more times likely to seroconvert (odds ratio 11.87; 95% CI: 2.66 to 53.04;  $p < 0.0001$ ).

**Conclusion:** Supporting PrEP users' adherence using approaches like the case-manager model has potential to improve PrEP persistence and reduce HIV seroconversion rates among. Adoption of such models in real world settings may be beneficial to reduce HIV infections towards the achievement of HIV epidemic control.

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## Barriers and Facilitators to Oral HIV Pre-exposure Prophylaxis (PrEP) among Adolescent Girls and Young Women in Lilongwe, Malawi.

Nicholas S<sup>1</sup>, Hosseinipour M<sup>1</sup>, Mipando L<sup>2</sup>  
<sup>1</sup>University Of North Carolina Project Malawi, Lilongwe, Malawi, <sup>2</sup>Department of Health systems, Kamuzu University of Health sciences, Blantyre, Malawi

**Background:** Seventy percent of all newly acquired HIV infections in Malawi among young people aged 15-24 occur in Adolescent Girls and Young Women (AGYW). The Ministry of Health (MoH) has rolled out an Oral Pre-Exposure Prophylaxis (PrEP) prevention program targeting high-risk groups/populations including AGYW. Since PrEP roll-out in 2021, there has been limited research exploring the factors that influence uptake of PrEP among AGYW. This study explored the barriers and facilitators to the uptake of Oral Pre-Exposure Prophylaxis among HIV High Risk Adolescents Girls and Young Women.

**Materials and Methods:** This exploratory qualitative study employed a phenomenological design and was done at Kawale Health Center in Lilongwe, Malawi in February 2023. Data were



collected using semi-structured in-depth interviews and vignettes from purposively sampled 20 AGYW and 10 health care workers based on their PrEP status and involvement in PrEP provision respectively. The data were digitally recorded, transcribed, managed using NVivo® 12.6 software and analysed using a thematic approach guided by the Consolidated Framework for Implementation Research (CFIR).

**Results:** Facilitators to PrEP uptake included knowledge of PrEP, AGYW's perceived vulnerability, perceived HIV risk, attitude of Health Care Workers (HCW), and availability of resources. The barriers were PrEP side effects, burden of work, limited information about PrEP, lack of privacy, stigma, and lack of transport.

**Conclusion:** To unlock the full potential of PrEP as an effective HIV prevention tool among AGYW, a comprehensive strategy is needed that is tailored to their unique needs, addresses structural barriers, and ensures access to quality services. Demand creation is necessary at this stage where most AGYW are unaware of PrEP.

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## Acceptability of PrEP Services Through a Pharmacy-Based Delivery Model Among Adolescents and Young Adults At-Risk of HIV/AIDS in Lagos, Nigeria: A Community-Engaged Participatory Approach

Babatunde Y<sup>1</sup>, Adedeji O<sup>2</sup>, Ibrahim A<sup>3</sup>

<sup>1</sup>University of Ilorin, Ilorin, Nigeria, <sup>2</sup>National Agency for Food and Drug Administration and Control, Lagos, Nigeria,

<sup>3</sup>University of Ilorin Teaching Hospital, Ilorin, Nigeria

**Background:** Nigerian youths are at the epicenter of a growing HIV epidemic, with the second-highest rate of new HIV infections among young people worldwide. However, there is little evidence on the acceptability of HIV pre-exposure prophylaxis (PrEP) as a prevention option among adolescents and young adults (AYA). This study aims to evaluate the acceptability of PrEP services

through a pharmacy-based delivery model among AYA in Lagos, Nigeria.

**Materials and Methods:** A seven-day interactive study through community mobilization and youth outreach was conducted in Lagos, Nigeria, among AYA (aged 14–24 years). We organized interactive discussions, focusing on youth-friendly sexual and reproductive health services, including oral PrEP, as part of a combination HIV prevention intervention. Self-administered questionnaires were used to assess the level of acceptability of PrEP through the pharmacy model. The data was analyzed using descriptive statistics and presented as frequencies and percentages for categorical variables and as means and standard deviations for continuous variables using SPSS version 28.

**Results:** From April 2022 to August 2022, 115 youth were recruited into the study but only 105 were eligible and included. Of these, the majority were between 19 and 24 years old (81%), and females (63%). About 61% had never heard of PrEP and 75% reported being unaware of how to get PrEP and had never spoken to a health provider about PrEP. Only 3% reported having used PrEP. 40% were at risk of HIV/AIDS because they injected drugs. After we introduced PrEP and explained its benefits, 64% showed a willingness to use PrEP, and 92% preferred to access PrEP at community pharmacies.

**Conclusion:** Nigerian youths are a large, diverse, and geographically dispersed population. The proposed pharmacy-based model to expand PrEP services is highly acceptable and shows great promise in delivering health services to meet the needs of adolescents and young adults in Nigeria.



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## Condom Use among Sexually Active Men Who Know their HIV Status: Findings from the 2022 Cross-sectional Kenya Demographic and Health Survey (KDHS)

Leukou Nzoutchoum O<sup>1</sup>, Akom E<sup>2,3</sup>, Kupamupindi T<sup>4</sup>, Konopka S<sup>1</sup>

<sup>1</sup>MSH, Arlington, United States, <sup>2</sup>U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, <sup>3</sup>Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, <sup>4</sup>ICAP at Columbia University, New York, United States

**Background:** Condoms remain an integral part of a comprehensive prevention package, offering triple protection: against HIV, other sexually transmitted infections, and unintended pregnancy. As Kenya nears epidemic control, it is important to understand condom use determinants among people aware of their HIV status to inform targeted prevention strategies, and thereby reducing disparities in HIV transmission risk and promoting health equity. We explored sociodemographic and behavioral factors associated with higher odds of condom use.

**Materials and Methods:** We analyzed data from the 2022 Kenya Demographic and Health Survey to identify factors associated with self-reported condom use during the most recent sexual intercourse. Descriptive analysis using frequencies and percentages was generated, and to determine association with condom use, we performed logistic regression at 95% confidence level and 5% statistical significance. All analyses were weighted and generated using SAS statistical software.

**Results:** Among 6,738 sexually active men who knew their HIV status, mean age was 32 years, 48% were married, 56% lived in rural areas, and 63% were circumcised. Only 35% reported condom use, 1.10% tested HIV-positive, 46% reported  $\geq 1$  non-spousal sexual partners, 33% completed primary education and 26% attained higher education. Logistic regression results showed condom use being positively correlated with being married (aOR: 1.625, 95% CI: 1.254-2.106, p-value:  $<0.0002$ ), and recent sexual activity (aOR: 1.358, 95% CI: 1.088-1.696, p-value: 0.0069). Primary

education (aOR: 0.394, 95% CI: 0.222-0.699, p-value: 0.0015), higher education (aOR: 0.210, 95% CI: 0.116-0.378, p-value:  $<0.0001$ ), HIV-positivity (aOR: 0.233, 95% CI: 0.120-0.452, p-value:  $<0.0001$ ), and having one (aOR: 0.065, 95% CI: 0.053-0.081, p-value:  $<0.0001$ ) or more non-spousal sexual partners (aOR: 0.039, 95% CI: 0.029-0.053, p-value:  $<0.0001$ ) were all negatively correlated with condom use. No significant association was observed between condom use and age or urban/rural residence.

**Conclusions:** Higher education, HIV-positive results, and increased number of sexual partners were unexpectedly associated with lower condom use. These findings underscore the need for enhanced HIV prevention education to promote safer sexual practices. As countries strive for epidemic control, effective investment in condom programs with person-centered demand creation and differentiated delivery systems aligned with Total Market Approach is essential for a national combined prevention strategy.

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## Knowledge, Awareness, and Acceptability of HIV Pre-Exposure Prophylaxis (PrEP) Among Selected Students in a Nigeria University

Babalola I<sup>1</sup>

<sup>1</sup>Ladoke Akintola University Teaching Hospital, Ogbomoso, Nigeria

**Background:** HIV Pre-exposure prophylaxis (PrEP) is an important preventive medication. Its Knowledge, Awareness, and Acceptability are required for widespread usage among prospective healthcare professionals. This study aimed to explore healthcare trainees' awareness, knowledge, and acceptability regarding PrEP.

**Materials and Methods:** A descriptive cross-sectional survey was conducted in March 2023, using a web-based survey and a combined simple random and snowball sampling technique. A total of 182 students from Medicine, Nursing, and Medical Laboratory Science in the College of Health Sciences, Ladoke Akintola University of



Technology, Ogbomoso, Nigeria, were recruited for the study. A questionnaire containing questions relevant to Knowledge, Awareness, and Acceptability of HIV PrEP was issued to each participant. Data collected was analyzed using IBM SPSS Version 25.

**Results:** Overall, the awareness of PrEP among sampled students was high (72.5%); with 12.6% being very knowledgeable, 40.7% somewhat knowledgeable, 24.2% neutral, 7.1% somewhat unknowledgeable, and 15.4% completely unknowledgeable of PrEP respectively. 30.2%, 41.8%, 2.2%, and 25.8% of students perceived PrEP to be highly effective, moderately effective, not effective, and do not know respectively. A majority (97.8%) believe that students should receive more education about PrEP. Moreover, 87.4% of participants expressed willingness to consider taking PrEP if they were at risk of contracting HIV. The significance values ( $p$ ) indicate that the correlation between Practice and Knowledge is statistically significant ( $p = 0.000$ ), as is the correlation between Awareness and Knowledge ( $p = 0.000$ ). However, the correlation between Practice and Awareness is marginally significant ( $p = 0.048$ ). Knowledge variable has a statistically significant positive effect on Practice (Beta = 0.279,  $p = 0.001$ ), indicating that as knowledge about Pre-Exposure Prophylaxis (PrEP) increases, the likelihood of engaging in practices related to the use of PrEP also increases.

**Conclusions:** Most of the respondents were aware of PrEP; however, knowledge about the potential benefits of PrEP is extremely low. This finding underscores the potential low level of PrEP benefit awareness among the non-healthcare population within the region of the study. Hence the finding suggests that knowledge about PrEP is a significant predictor of usage practices. Finally, increasing PrEP educational targeted awareness is advocated.

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## Profiling the HIV Risk of Voluntary Male Medical Circumcision Clients in Southern Malawi: VMMC Sites as Potential Places for Increasing PrEP Uptake Among Men

Shaba F<sup>1</sup>, Murombedzi K<sup>2</sup>, Kiggundu V<sup>3</sup>, Rodrigues J<sup>3</sup>, Nkhoma C<sup>1</sup>, Mbolebole C<sup>1</sup>, Odek J<sup>4</sup>

<sup>1</sup>Family Health Services, Blantyre, Malawi, <sup>2</sup>Population Services International-Malawi, Blantyre, Malawi, <sup>3</sup>U.S. Agency for International Development, United States, <sup>4</sup>U.S. Agency for International Development, Lilongwe, Malawi

**Background:** Malawi has made significant advances in the HIV response. However, UNAIDS data shows that the country continues to have nearly 20,000 new HIV acquisitions annually. Pre-exposure prophylaxis (PrEP) prevents HIV acquisition through intercourse by 99%. However, uptake, mostly amongst high-risk males, is a challenge. Voluntary Medical Male Circumcision (VMMC) represents a valuable entry point to reach high-risk men with other HIV prevention services. We assessed the potential of using VMMC clinics for provision of PrEP services in Malawi.

**Materials and Methods:** The HIV-risk screening tool was introduced in February 2022 within the USAID EMPOWER VMMC project in Blantyre, Phalombe and Mulanje Districts. A trained HIV Testing counsellor administered the tool before offering an HIV test. HIV risk is determined based on client responses to the following questions: HIV testing within three months, an awareness of the partner's HIV status, unprotected sex, procured sex, history of STI symptoms, and alcohol/drug use within the past 3 months. We analyzed the HIV risk client-level data to establish risk levels across VMMC clients and conducted a logistic regression analysis to determine risk significance across age groups and districts.

**Results:** Between February 2022 and December 2023, 57,103 VMMC clients were assessed for HIV risk, with 31.7% (18,115) identified as at risk of HIV. At the district level, the proportion of men at risk of HIV was 36.3%, 31.4%, and 30.4% in Phalombe, Mulanje, and Blantyre districts,



respectively. Adjusting for age, Mulanje (AOR 1.20 CI 1.15-1.25, p-value 0.00) and Phalombe (AOR 1.81 CI 1.71-1.91, p-value 0.00) showed higher HIV risk than Blantyre. Despite reaching 65% of 15-19-year-olds, the 20-plus age group had significantly higher HIV risk (AOR 2.79 CI 2.68-2.90, p-value 0.00), peaking in the 20-24 age group, followed by 25-29, and lowest in 15-19 age group.

**Conclusions:** Data reveals vulnerability to HIV among VMMC clients, necessitating PrEP for enhanced prevention. Utilizing VMMC facilities for PrEP services is a great opportunity to increase PrEP access among high-risk men already identified at these male-friendly facilities. PrEP services should be prioritized at VMMC facilities and use additional research to inform the most efficient models of PrEP uptake.

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## Understanding Awareness and Uptake of Pre-Exposure Prophylaxis among HIV Negative Pregnant Women in Uganda: A Population-Based Study

**Bulamba Malyabe R<sup>1</sup>**, Mugamba S<sup>1</sup>, Miller A<sup>2</sup>, Kyasanku E<sup>1</sup>, Nalugoda F<sup>1</sup>, Nkale Menya J<sup>1</sup>, Nakigozi G<sup>1</sup>, Kigozi Nalwoga G<sup>1</sup>, Kagaayi J<sup>1</sup>, Daama A<sup>1</sup>, Watya S<sup>1</sup>, Anna Mia E<sup>3</sup>, Kigozi G<sup>1</sup>  
<sup>1</sup>Africa Medical and Behavioral Sciences Organization (AMBSO), Kampala, Uganda, <sup>2</sup>University of California San Diego, San Diego, United States of America, <sup>3</sup>Karolinska Institutet, Karolinska, Sweden

**Background:** To achieve the global goal of ending mother-to child transmission (MTCT) of HIV, WHO recommends the integration of Pre-exposure prophylaxis (PrEP) services into both antenatal and postnatal care services as one of the key HIV prevention strategies. Despite this integration by the Ministry of Health (MOH) into Uganda's National Policy for HIV we examined PrEP awareness and uptake, and characterize HIV risk practices in this population.

**Material and Methods:** We analyzed cross-sectional data from 112 HIV negative pregnant women aged 15-49 years participating in the most

recent round (4) of AMBSO's Population Health Surveillance (APHS), an on-going longitudinal community-based cohort study in Uganda. Consenting women enrolled between 2022 - 2023 were asked to provide a urine and blood sample for HCG and HIV tests, respectively. HIV testing was performed using the standard Uganda MOH testing algorithm. Descriptive and Chi-Sq test analysis were performed to determine important correlates with PrEP awareness and uptake.

**Results:** A total of 1,326 HIV negative women were enrolled and of these, 8.5% (112/1,326) were pregnant. Majority (38%, 43/112) were from the rural, 33% (urban) and 29% (semi-urban) communities. Mean age was 25.8 years (SD=6.0). Overall, PrEP awareness was low (26.6%) and significantly higher (29.7%) among women aged 15-49 compared to other age groups (P = 0.000). Among HIV negative pregnant women, PrEP awareness was low (20%) and none of the women were currently using PrEP. Most participants (87%) reported being sexually active in the past one month. Having multiple sexual partners (18%), having a partner with multiple sexual partners (14%), not using condoms (44%) and having not received an HIV test while pregnant (41%).

**Conclusions:** Among HIV negative pregnant women in our cohort, engagement in HIV risk behaviors was high and use of HIV non-biomedical prevention methods (condoms) was low, suggesting PrEP could serve as a valuable tool in reducing risk of incident HIV among pregnant women and help end MTCT in this setting. Interventions aimed at increasing awareness, uptake persistence and adherence to PrEP in this population are urgently needed if Uganda is to achieve the UNAIDS' current target of eliminating HIV/AIDS by 2030.



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## Acceptability of HIV Pre-exposure Prophylaxis for Adolescent Girls and Young Women Among Parents and Caregivers in Matabeleland South Province of Zimbabwe, 2021

Masoka T<sup>1</sup>, Mafaune H<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Bhatasara T<sup>2</sup>, Nyamwanza B<sup>3</sup>, Dhakwa D<sup>1</sup>, Yekeye R<sup>3</sup>, Mugariri E<sup>1</sup>, Madzima B<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mudzengerere F<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>3</sup>National AIDS Council, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Childcare, Harare, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-Free, Mentored and Safe (DREAMS) program to reduce HIV infections among adolescent girls and young women (AGYW). The program links sexually active AGYW at elevated risk of contracting HIV to receive pre-exposure prophylaxis (PrEP). There was paucity of data on acceptability of AGYW PrEP use by their parents or caregivers.

**Materials and Methods:** A descriptive, qualitative cross-sectional assessment was conducted to determine caregivers' knowledge, attitudes, and practices on PrEP use by AGYW, and acceptability of PrEP parenting module. Assessment was conducted in October 2021 in Beitbridge, Bulilima, Gwanda and Mangwe districts. Forty (40) caregivers of AGYW (10 from each district) enrolled in DREAMS program and active in SINOVIYO interventions participated in twelve focus group discussions (FGDs). FGDs were audio-recorded, transcribed, and translated from Ndebele to English. Qualitative data from FGDs and field notes were analysed using ATLAS.ti. Assessment was covered by the Medical Research Council of Zimbabwe approved protocol (MRCZ/E/254).

**Results:** We collected data from 40 caregivers, 97.5% (39/40) were females and median age was 38 years (IQR: 29.5-44.5). About 20% (8/40) of the caregivers knew about PrEP. From the pre-test

assessment, all 40 caregivers had suboptimal knowledge about adolescent sexual and reproductive health (ASRH). About 80% (32/40) of caregivers had myths and misconceptions about PrEP including beliefs that it was medication for HIV positive people, it encouraged AGYW to engage in sexual activities, and fear of victimization of AGYW by their sexual partner/s. Challenges included suboptimal buy-in by political, religious, and traditional leaders for open discussions about PrEP in communities with AGYW, age of access (16 years) and limited availability of youth friendly facilities. Assessment of the PrEP parenting module pilot using pre-post test showed significant PrEP knowledge gain by caregivers from 33% to 68%.

**Conclusions:** Most caregivers had limited knowledge about PrEP, and a majority had fears and misconceptions about PrEP use by AGYW. We recommend that the DREAMS program and other stakeholders conduct regular community awareness campaigns and use digital and mass media platforms for PrEP information dissemination.

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## Awareness, Perception and Willingness to Use Doxy-PEP by Young People in Government-Mandated Service Corps in Abuja, Nigeria: A Cross-Sectional Study

Ezenri G<sup>1,2</sup>, Onwuali U<sup>1</sup>, Onyehalu J<sup>1,2</sup>, Ugwu D<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Nwachuya C<sup>1,2</sup>, Isah A<sup>1,2</sup>

<sup>1</sup>University Of Nigeria, Nigeria, <sup>2</sup>Person-Centred HIV Research Team, Nigeria

**Background:** Doxycycline-based post-exposure prophylaxis (Doxy-PEP) is a novel, cost-effective strategy for the prevention of STIs after a possible exposure through sexual activity. Young people are a key population at risk of acquiring STIs, and there is a need for multiple strategies to reduce the incidence rate. This study evaluated the knowledge, attitudes, and willingness to use Doxy-PEP among young individuals in Abuja, Nigeria's government-mandated service corps.



**Materials and Methods:** A cross-sectional study was conducted in January 2024 among 600 randomly sampled young people (aged <30 years) in the government-mandated service corps in Nigeria. Using a 19-item validated questionnaire, their awareness, perception, and willingness to use Doxy-PEP were assessed. Appropriate descriptive and inferential analyses were conducted, with  $p < 0.05$  considered statistically significant. Ethical approval was obtained from the service corps.

**Results:** Out of the 432 responses (72% response rate), 306 (70.8%) were female, and 243 (56.3%) were aged between 20 and 24 years old. Only 93 (21.5%) have heard of Doxy-PEP. Only a few, 93 (21.6%), believe that Doxy-PEP is effective in preventing STIs. As regards the potential side effects and safety issues of Doxy-PEP, only 174 (40.3%) are concerned. On willingness to use, only 144 (33.3%) are willing to use Doxy-PEP, with 105 (24.3%) being female. Only 163 (37.7%) stated factors that would influence their willingness to use or not to use Doxy-PEP, with side effects and safety issues being the most stated factors, as expressed by 57 (35% of those that stated factors that would influence their willingness to use).

**Conclusions:** There is poor awareness, inadequate perception, and a lack of willingness to use Doxy-PEP as a prophylaxis strategy. The majority of factors being stated as side effects and safety issues show that inadequate information and awareness on Doxy-PEP are available to young people as a key population. It is recommended that public health campaigns and educational interventions be focused on young people as a key population to increase awareness and create a more positive perception and willingness to use Doxy-PEP as a post-exposure prophylaxis.

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## “Is CAB-la the Answer to Oral PrEP User Challenges?” Clients’ Perceptions Towards Injectable PrEP Scale-up in Malawi: A Qualitative Study

**Msumba L**<sup>1</sup>, Bula A<sup>1</sup>, Chilongosi R<sup>2</sup>, Saidi F<sup>1</sup>, Murombedzi K<sup>2</sup>, Hoeghe D<sup>3</sup>, Hill L<sup>5</sup>, Hosseinipour M<sup>1,5</sup>, Nyirenda R<sup>9</sup>, Schwartz S<sup>6</sup>, Afirima B<sup>7</sup>, West R<sup>8</sup>, Kamgwira Y<sup>7</sup>, Nkhonjera J<sup>9</sup>, Ozituosauka W<sup>9</sup>, Holmes C<sup>5</sup>  
<sup>1</sup>University Of North Carolina, Lilongwe Malawi, Lilongwe, Malawi, <sup>2</sup>Family Health Services, Lilongwe, Malawi, <sup>3</sup>Population Services International, Blantyre, Malawi, <sup>4</sup>Georgetown University, Washington, D.C, USA, <sup>5</sup>University of North Carolina, Chapel Hill, NC, USA, <sup>6</sup>Johns Hopkins University, Baltimore, USA, <sup>7</sup>National AIDS Commission, Lilongwe, Malawi, <sup>8</sup>Ipsos, London, United Kingdom, <sup>9</sup>Department of HIV & AIDS, Ministry of Health, Lilongwe, Malawi

Despite the introduction of oral PrEP in 2018, new HIV infections persist, especially among key and priority populations, due in part to challenges with oral PrEP, including pill burden, side effects, and stigma. Introduction of injectable PrEP may reduce challenges and improve uptake and persistence. This study assessed feasibility and accessibility of introducing injectable PrEP.

69 in-depth interviews (IDIs) were conducted (May-Dec 2023) with HIV- negative key and priority populations in Malawi as part of pre-implementation study to assess preferences for injectable PrEP. IDIs explored clients’ knowledge and experiences with oral PrEP, and delivery point, and service integration preferences, as well as anticipated barriers and facilitators to use. Interviews were translated and transcribed into English, followed by a rapid analysis of interview summaries. Data was then coded and analyzed using NVivo 1.7.

Participants expressed motivation to initiate and continue injectable PrEP, citing its ease, lack of pill burden, long lasting effect, and discreteness as benefits. Many participants had previously taken but discontinued oral PrEP. Preferred injectable PrEP delivery models varied by population type; key populations noted a preference for delivery at drop-in centres, while priority populations indicated a preference for delivery at public health facilities. Respondents expressed that side effects might be a barrier, particularly given that they are



irreversible once the injection has been received. Co-administering and integration with other services was broadly accepted, though combining ART and PrEP delivery points was not accepted by many. Due to privacy concerns, participants prefer to be followed up by phone call or peer educators rather than SMS or home visits. Despite demonstrating motivation to use injectable PrEP, participants expressed some fears including the concern that ART may be less effective in the event of seroconversion. Common misconceptions about injectable PrEP were that it may lead to sexual dysfunction in men, cause infertility in women, or that it was capable of serving as a contraceptive or HIV vaccine.

Injectable PrEP was accepted by many key and priority groups and those using oral PrEP indicated readiness to switch methods. Injectable and oral PrEP communication, delivery, and follow-up should be tailored to population type.

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## Voluntarily Medical Male Circumcision; An Entry Point to PrEP Access among Men in Zambia

Masiye J<sup>1</sup>, Kamboyi R<sup>1</sup>, Haimbe P<sup>2</sup>, Mwamba T<sup>2</sup>, Michelo J<sup>2</sup>, Longwe B<sup>2</sup>

<sup>1</sup>Ministry of Health, Lusaka, Zambia, <sup>2</sup>Clinton Health Access Initiative, Lusaka, Zambia

**Background:** Globally, more than half of all men aged 24–35 years who are living with HIV are unaware of their HIV status and are not on treatment. Barriers to male involvement include confidentiality concerns, inconvenient operating hours, stigma, poverty, and feelings of compromised masculinity associated with seeking health services. This imperils their own health and increases the risk of HIV transmission. In Zambia, strategic initiatives such as men's clinic, moonlighting, are used to increase engagement. Voluntary Medical Male Circumcision (VMMC) offered through these initiatives offers an opportunity to reach more males and facilitate linkage to other prevention services.

**Materials and Methods:** The VMMC program in Zambia, conducted a national campaign from

October to December 2023. The aim was to circumcise 171,347 men and link them to PrEP. HTS and STI screening was done as part of the standard VMMC package. PrEP was provided as a linked service for all those eligible. The Ministry of Health (MoH) at national level received weekly updates and held monthly review meetings to monitor implementation. HIV prevention, program officers from the MoH in collaboration with Clinton Health Access Initiative conducted integrated technical supportive supervision to enhance performance.

**Results:** Over 382,000 clients were mobilized and provided HTS, 97% tested HIV negative and were eligible for prevention services. Notably, 54% (200,302) were circumcised, surpassing the target by 17%. There was an 18% increase in clients diagnosed with an STI compared to the previous year, with 20% of those screened for circumcision reporting an STI (33% Syphilis, 1% Genital Ulcers, 66% Urethral discharge). Additionally, 7% (24,233) of the men attended to when this period were initiated on PrEP indicating an increase from the previous year's 14,008 new PrEP users despite no proportional change.

**Conclusions:** Leveraging the VMMC program as an entry point illustrates effectiveness in reaching more men and facilitating access to other prevention services. However, it did demonstrate the need for increased sensitization on PrEP as a prevention measure that men can access. VMMC that campaigns relevant in the country's bid to reach VMMC saturation.

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## Community-Based Dreams Nurse Visitation Program Improves Access to Key Health Services in Community Settings of Matabeleland North Province, Zimbabwe

Makuyana R<sup>1</sup>, Mashapa R<sup>1</sup>, Sibanda L<sup>1</sup>, Ntini P<sup>1</sup>, Gonese G<sup>1</sup>, Makunike-Chikwinya B<sup>1</sup>, Ndlovu M<sup>1</sup>, Mutseta M<sup>2</sup>, Ncube G<sup>2</sup>, Malaba R<sup>3</sup>, Levine R<sup>4</sup>, Korn A<sup>4</sup>, Thompson K<sup>4</sup>, Wiktor S<sup>4</sup>

<sup>1</sup>Zimbabwe Technical Assistance, Training & Education Centre for Health (Zim-TTECH), Harare, Zimbabwe, <sup>2</sup>Ministry of Health





and Child Care, Harare, Zimbabwe (MOHCC), Harare, Zimbabwe, <sup>3</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention (CDC), Harare, Zimbabwe, <sup>4</sup>International Training and Education Center for Health (ITECH), Seattle, USA

**Background:** The PEPFAR-funded Determined Resilient AIDS-Free Mentored and Safe (DREAMS) program provides a set of comprehensive, evidence-based interventions that reduce the risk of HIV-acquisition among vulnerable adolescent girls and young women (AGYW). AGYW uptake of sexual and reproductive health services across Matabeleland North has been low, driven by the predominantly health facility-based model, which is characterized by long distances from the villages where most AGYW reside, stigma, unaffordability of transport costs and lack of adolescent-friendly services. This challenge has resulted in AGYW using unregistered traditional medicines which threaten their health.

**Description:** The DREAMS clinical model was initiated by Zim-TTECH in 2020 in Matabeleland North province. Twenty DREAMS program nurses (DPNs) were contracted and received training to provide adolescent-friendly health services, including non-judgmental counseling, sensitive screening and first-line support. The DPNs provide young people's Sexual Reproductive Health services at the health facility and during outreach visits to AGYW identified safe spaces. The clinic services align with the Ministry of Health and Child-Care policies and procedures and provided without stigma and discrimination.

**Lessons Learnt:** Consistent monthly visits by DPNs to safe spaces increased clinical services uptake. DPNs adopted a different approach in Year 2, where they increased their presence in most-remote areas with poor road network, which are programmatically hard-to-reach. Among AGYW 15-24 years who accessed services between Year 1 and Year 2 of implementation, and based on a similar number of enrollment in Year 1 (11,430) and Year 2 (11,661), the proportion of AGYW accessing contraceptive mix increased from 29% (3,337) to 57% (6,621), HIV testing increased from 22% (2,534) to 39% (4,560), Sexually Transmitted Infections screening/treatment increased from 43% (4,908) to 66% (7,641), Gender-based violence response increased from 21% (2,360) to 31% (3,568), and PrEP initiations increased from 9% (1,022) to 14% (1,605).

**Conclusions:** The provision of adolescent-friendly health services by DPNs in DREAMS safe spaces of Matabeleland-North province increased clinical

service uptake among AGYW. To build on this success, it is crucial to consistently provide ongoing DPN support through trainings and adequate resource-allocation, ensuring they have the necessary resources to effectively operate in all designated safe spaces.

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## Preliminary Data on the Contribution of the Adolescent and Youth Mentors Strategy (AYMS) in Creating Demand for PrEP in Adolescents and Young People in DOD-supported Sites in Mozambique.

Nhambi L<sup>1</sup>, Santos C<sup>1</sup>, Viegas A<sup>1</sup>, Machalela C<sup>1</sup>, Macaringue L<sup>1</sup>, Tuzine O<sup>2</sup>, Massangaie S<sup>2</sup>, Joaquim L<sup>2</sup>, Kelbert S<sup>1</sup>, Strachan M<sup>1</sup>

<sup>1</sup>Jhpiego, Maputo, Mozambique, <sup>2</sup>FADM, Maputo, Mozambique

**Background:** HIV prevalence among adolescent girls and young women is three times higher than boys of the same age group in Mozambique (4.5% versus 0.6%, respectively for 15-19 years; 11.8% versus 3.8% for 20-24-year-olds). Viral suppression among 15-24-year-olds was 45.2% for women and 42% for men. Since August 2023, Jhpiego has supported the FADM (Armed Forces of Mozambique) in piloting a novel mentor approach where HIV-positive adolescents and young people aged 18-24 years serve as guides on ART linkage and adherence to other adolescents and young people aged 15 to 24 years with HIV. Youth mentors also reach high-risk HIV negative adolescents and refer them for HIV testing and PrEP (through group or individual awareness-raising lectures in their communities and health units) or other available HIV prevention options.

**Materials and Methods:** This is a retrospective analysis of data collected among adolescent girls and young women 15-24 years who accessed care in three health facilities from January to November 2023. This analysis compares HIV testing and PrEP uptake before and during the implementation of the adolescent and youth mentors' strategy



(AYMS; January to July 2023 vs. August to November 2023) using proportions and statistical two proportion z-test.

**Results:** In the time period prior to the implementation of the AYMS strategy, a total of 149 youth accessed HIV testing (monthly average of 21 clients), of which 61 were eligible for PrEP and 42 patients started PrEP (69%). In comparison, during the implementation period of the AYMS strategy, there was a 21% increase in testing, where 181 were tested for HIV (monthly average of 45 clients) and out of 146 eligible youth, 118 started PrEP (81%). The differences in PrEP acceptability and uptake rates before and during the strategy is statistically significant ( $p < 0.01$ ).

**Conclusions:** These results indicate the success of AYMS in increasing access to and the uptake of HIV testing and PrEP initiation for young people aged 15–24. Expansion and effective implementation to all health facilities is recommended.

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## Perceptions of the Feasibility and Acceptability of Online Pre-exposure Prophylaxis (PrEP) Delivery as a Successful HIV Prevention Model in South Africa

Oladimeji K<sup>1</sup>, Nyamuzihwa T<sup>1</sup>, Tembo A<sup>1</sup>, Nyatela A<sup>1</sup>, Ntombela N<sup>1</sup>, Phahla C<sup>1</sup>, Nthulana M<sup>1</sup>, Madzebu M<sup>1</sup>, Kubeka P<sup>1</sup>, Tinzi S<sup>1</sup>, Mkansi M<sup>1</sup>, Wonderlik T<sup>1</sup>, Martyn N<sup>1</sup>, Edem E<sup>1</sup>, Lalla-Edward S<sup>1</sup>  
<sup>1</sup>*Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa*

**Background:** Online pre-exposure prophylaxis (PrEP) services offer a pathway for remote care. This could enhance HIV prevention efforts in numerous ways, mostly by overcoming the barriers associated with traditional clinic-based services. However, the viability is unclear. We present the perspectives of pharmacy clients from selected pharmacies across two major cities in South Africa on the perceived feasibility and acceptability of online PrEP services.

**Materials and Methods:** The Utilizing private pharmacies to initiate high risk young women and men on PrEP in South Africa programme (PPrEPP-SA) is being implemented in ten pharmacies situated in Johannesburg and Cape Town. In May and June 2023, pharmacy users were invited to participate in in-depth interviews (IDI). The interview guide was designed to gather information on the perceptions about online PrEP initiation and linked home-based/ decentralised care. The IDIs conducted mainly in English, lasted an average of 35 minutes each and data was transcribed verbatim. Thematic analysis was performed using MAXQDA version 22 software.

**Results:** Thirty IDIs were conducted; median age was 22 years (interquartile range: 20-30 years) and 22 (73%) were females. Convenience, awareness, and acceptance emerged as feasibility for online PrEP uptake. Possible barriers identified included potential stigma and discrimination through home-based mobile healthcare and PrEP delivery, challenges with the online ordering and delivery process due to internet connectivity, and incorrect address. Other concerns were safety of mobile healthcare staff, particularly in remote areas, and privacy especially when comparing online care to in-person healthcare clinic setting. Recommendations by the participants for online PrEP delivery included, healthcare providers utilising vehicles devoid of healthcare identifiers during home visits, wearing non-clinical uniforms and for a non-internet-based messaging system with readily available staff to assist with enquiries when necessary. Social media was recommended for generating demand and increasing awareness.

**Conclusions:** The findings offer useful guidance for designing online PrEP initiatives, with implications for improving HIV prevention efforts. More research is needed to develop long-term better practices for online PrEP delivery models.



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## HIV Self-Testing, Knowledge, Accessibility, and Willingness to Use Among Individuals Aged 15 to 49 Years in the Buea Health District

Mesombe C<sup>1</sup>, Seukep A<sup>1</sup>, Nokam B<sup>1</sup>

<sup>1</sup>University Of Buea Faculty, Buea, Cameroon

**Background:** HIV Self-Testing (HIVST) is universally accepted as an innovative strategy complementing existing HIV testing services to achieve the 95-95-95 goals by 2030. However, the adoption of HIVST is lagging in most sub-Saharan countries, including Cameroon. We aimed to investigate the knowledge of HIVST, accessibility, and willingness to use among individuals aged 15 to 49 years in the Buea Health District (BHD).

**Materials and Methods:** The study was a community-based cross-sectional investigation conducted in 4 health areas in the BHD. A multi-stage sampling technique was used to select participants, and a minimum sample size of 385 was estimated. A well-structured, pretested questionnaire was used to collect data, the data was managed and analyzed using SPSS. Descriptive statistics were employed to present data in frequency tables, charts, and graphs. Chi-square was used for categorical variables, and logistic regression was used to determine factors associated with knowledge, accessibility, and willingness to use HIVST.

**Results:** Four hundred (400) individuals (15 to 49 years) participated in the study, where one-third (33.3%) were within 20-24 years (median age = 23.5 years), 214 (53.5%) were female, 279 (69.8%) single, and 246 (61.5%) unemployed. A high proportion (62.5%) of participants showed poor knowledge of HIVST, and 96% reported not having access to HIVST services. More than half (53.4%) were hesitant to utilize them. HIVST knowledge was found dependent on the most recent HIV test ( $P = 0.026$ ). Marital status ( $P = 0.01$ ), level of education ( $P = 0.05$ ), and receiving payment for sex ( $P = 0.004$ ) were found as main factors statistically associated with the willingness to use HIVST.

**Conclusion:** HIVST uptake in BHD is low, as well as the proportion of participants with good knowledge, accessibility, and willingness to use. Therefore, further interventions are required to improve the uptake of HIVST among diverse populations.

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## La PrEP: Un Esprit tranquille dans un Corps sans VIH

Ag Alitini A<sup>1</sup>, Dembele S<sup>1</sup>, Sidibe F<sup>1</sup>, Tall M<sup>2</sup>, Coulibaly M<sup>2</sup>, Lambert A<sup>3</sup>, Keita M<sup>4</sup>, Dougnon J<sup>4</sup>, Diarra N<sup>5</sup>, Djbril B<sup>5</sup>

<sup>1</sup>Soutoura, Mali, Mali, <sup>2</sup>FHI360, Bamako, Mali, <sup>3</sup>FHI360, Washington, USA, <sup>4</sup>CSLSTBH, Bamako, Mali, <sup>5</sup>USAID, Bamako, Mali

**Contexte :** La situation épidémiologique du VIH chez les MSM demeure préoccupante au Mali avec une prévalence au VIH de 12,6%. Pour réduire les nouvelles infections au VIH le Mali a mis en place les lignes directrices de la mise en œuvre de la PrEP en août 2021.

**Description :** L'ONG SOUTOURA soutenu par l'USAID a mis en œuvre le programme PrEP dans les régions sanitaires de: Bamako; Sikasso et Ségou. Pour cela SOUTOURA a renforcé les capacités des agents sur la sensibilisation et la prestation des services PrEP.

Les agents formés créent la demande de services au niveau de la communauté, réfèrent les clients au niveau des cliniques et assurent la rétention des clients sous PrEP. Les médecins formés évaluent l'admissibilité des clients à la PrEP, les initient et assurent leur suivi clinique. Les données agrégées des rapports ont été générées par le DHIS2 e-tracker désagrégés par âge couvrant la période de septembre 2021 à septembre 2022.

**Leçons apprises :** Un total de 2028 (99,80%) de la cohorte de 2032 MSM dépistés négatifs ont été évalués pour la mise sous PrEP avec respectivement 816 MSM (40,3%) âgés de 18 à 24 ans et 1212 âgés de 25 ans et plus (59,7%). 2012 (99,2%) MSM évalués étaient éligibles à la PrEP avec respectivement 808 MSM âgés de 18 à 24 ans et 1204 MSM âgés de 25 ans et plus. Le taux d'acceptation globale de la PrEP était de 42,30% ( $P=0,05$ ) mais légèrement plus élevé chez les 18 à 24 ans avec un taux de 46,50% contre



39,50 % chez les 25 ans et plus. 100% (2012) des MSM ayant accepté ont été initiés à la PrEP. 32,60% (278) des MSM ont opté pour la PrEP à la demande contre 67,30% (574) qui ont opté pour une PrEP continue. Le suivi de la cohorte sous PrEP continue a permis d'obtenir des résultats variables en termes de rétention avec successivement 100% de taux de rétention au M1; 51% au M3 et 34% au M6.

**Conclusion :** La PrEP est une intervention efficace dans la prévention du VIH et devrait être proposée à toute personne exposée à un risque élevé d'infection par le VIH dans le cadre d'une approche combinée de prévention du VIH.

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## Cost-Effectiveness Analysis of Two-Way Texting (2wT) Intervention to Improve Art Retention among Newly-Initiated Antiretroviral Therapy Clients in Malawi

Kiruthu-Kamamia C<sup>1,2</sup>, Weldemariam H<sup>3</sup>, Chipanda M<sup>1</sup>, Huwa J<sup>1</sup>, Seyani J<sup>1</sup>, Chirwa H<sup>1</sup>, Kudzala A<sup>1</sup>, Chiwaya G<sup>1</sup>, Chintedza J<sup>1</sup>, Thawani A<sup>1</sup>, Tweya H<sup>2,3</sup>, Feldacker C<sup>2,3</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Center for Health, Seattle, USA, <sup>3</sup>Department of Epidemiology, University of Washington, Seattle, USA

**Background:** Retention in HIV care is crucial for improved health outcomes. Malawi has a high HIV prevalence and struggles with retention despite significant progress in controlling the epidemic. Mobile health (mHealth) interventions, such as two-way texting (2wT), have shown promise in improving anti-retroviral therapy (ART) retention. We explore the cost-effectiveness of a 2wT intervention in Lighthouse Trust's Martin Preuss Center (MPC) in Lilongwe, Malawi, that sends automated SMS visit reminders, weekly motivational messages, and supports direct communication between clients and healthcare workers.

**Materials and Methods:** The base case (SOC) included adult clients with mobile phones who initiated ART at MPC between January and

December 2020. SOC clients were supported with appointment reminder calls before a visit and after a missed appointment per standard care. 2wT clients were also adult clients with cell phones who enrolled in the 2wT intervention from June 2021 to April 2022. The 12-month ART outcomes were analyzed for each client. Costs were estimated using expenditure reports, study costs, and time-motion study of staff time spent on 2wT and SOC activities. Costs and retention rates between 2wT and SOC for 468 clients enrolled in each were compared. The costs per client enrolled in SOC and 2wT and retained at 12 months were estimated. Incremental cost-effectiveness ratios (ICERs) were calculated. Scenario analyses were conducted to estimate costs if 2wT expanded.

**Results:** The 2wT group had higher retention (80%) than SOC (67%) at 12 months post-ART initiation. For 468 clients, the total annual costs for 2wT were \$36,670.38 as compared to SOC costs at \$33,458.72, resulting in an ICER of \$24,705. Among scenarios, the ICER was -\$105,315 if 2wT expanded to all new clients (2678 at MPC and -\$723,739 as 2wT expanded to the other four high-burden facilities (2901 clients), suggesting high-cost savings if 2wT was effectively scaled.

**Conclusions:** The 2wT intervention appears cost-effective to improve ART retention among new ART initiates in a high-burden ART clinic. While mHealth interventions have potential limitations, their benefits in improving patient outcomes and cost savings support their integration into HIV care programs.

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## Early Lessons from Setting up a Community Pharmacy Model for pre-exposure prophylaxis (PrEP) delivery among men and women in South Africa

Nyamuzihwa T<sup>1</sup>, Kelechi E<sup>1</sup>, Nyatela A<sup>1</sup>, Makola L<sup>1</sup>, Lalla-Edward S<sup>1</sup>, Edem E<sup>1</sup>, Mkansi M<sup>1</sup>, Tinzi S<sup>1</sup>, Tembo A<sup>1</sup>

<sup>1</sup>Ezintsha, Johannesburg, South Africa

**Background:** South Africa has a well-established community pharmacy sector with approximately



3,580 registered pharmacies located in areas easily accessible to the public, offering extended hours and convenience in a less stigmatized setting; factors which make community pharmacies ideal sites for expanding access to pre-exposure prophylaxis (PrEP). We present learnings from the early stages of implementing a community pharmacy PrEP delivery model.

**Description:** Prior to commencement of recruitment, key activities were undertaken to design an effective PrEP delivery model. These included formative research, market research surveys, stakeholder engagement, setting up clinical monitoring systems, pharmacy readiness audits, staff recruitment and Pharmacy Initiated Management of Anti-retroviral Therapy (PIMART) training.

**Lessons Learnt:** Community pharmacies have the required infrastructure and patient management systems to expand access to PrEP, however, PIMART trained pharmacy personnel cannot prescribe PrEP as the legislation for issuing prescribing permits is still under contention. Although telemedicine support facilitates scripting of PrEP, it adds to the costs associated with PrEP initiation and continuation which amount to ZAR 1100 /\$58 and ZAR866/\$45 per patient respectively, a concern for patient affordability. A further challenge was the logistics systems for transportation of samples for clinical investigations required at PrEP initiation were absent as most pharmacies do not routinely provide these services in their clinics. Finally, we recognised the necessity of PrEP demand generation strategies to encourage PrEP uptake. To successfully deliver PrEP using community pharmacies the following recommendations are proposed; PIMART training and continued advocacy for approval of PIMART legislation, point of care devices for clinical investigations and pharmacy led demand generation strategies aligned to client needs. Additionally, private-public partnerships should be pursued to ensure all clients (insured and non-insured) can access PrEP at community pharmacies.

**Conclusions:** Community pharmacy delivered PrEP is feasible as has been demonstrated in our project. However, sustainability of this model hinges on setting up clinical monitoring systems, the legislation of PIMART and private-public partnerships to subsidise the costs associated with initiation and continuation.

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## HIV Self-Testing Preferences and Willingness to Link to HIV Care Among Highly Mobile Men in a Fishing Community in Buvuma District, Uganda

**Namwama A**<sup>1</sup>, Okello F<sup>1</sup>, Matovu J<sup>1,2</sup>

<sup>1</sup>Busitema University, Mbale, Uganda, <sup>2</sup>Makerere University School of Public Health, Kampala, Uganda

**Background:** As HIV self-testing (HIVST) gets scaled up across settings, there is a need to understand how best to reach hard-to-reach sub-group populations including residents in fishing communities. We assessed HIVST preferences and willingness to link to HIV care among highly mobile men in a fishing community in Buvuma district.

**Materials and Methods:** This was a cross-sectional study conducted among highly mobile men aged 15+years living in Kasaali 'B' fishing community. Respondents were enrolled if they self-reported an HIV-negative or unknown status and had moved outside their community of residence at least once in the last six months. Data were collected on the preferred HIVST kit (oral or blood-based), place and day of picking the kit. In the event that they turned out to be HIV-positive, we assessed men's willingness to link to HIV care. Data were collected in March 2023 and analyzed using Stata version 16.

**Results:** Of the 400 men interviewed; the mean age was 30 years, 69.25% (n=277) had primary level of education while half of the men (50.50%, n=202) had moved outside their usual community of residence at least twice in the past six months. Only less than half (49.50%, n=198) of the men had ever heard of HIVST. When a preamble about HIVST was read to the men, nearly all (98.75%, n=395) were willing to use the kits to self-test for HIV. Seventy-nine percent (n=313) would prefer oral fluid swab kit type as opposed to blood-based kits. Of those who were willing to use the kits, 41% (n=165) preferred to pick them from a peer-leader's home; 53.92% (n=213) preferred to pick the kits during working days. Almost all men (98.23%, n=388) were willing to link to HIV care if they self-tested HIV-positive; preferably at the nearby health facility (71.83%, n=278).



**Conclusions:** Our findings show a high level of willingness to self-test for HIV among men while nearly all men would link to HIV care if they self-tested HIV-positive. These findings show promise for HIVST to improve HIV testing uptake as well as linkage to HIV care among highly mobile men in typical fishing community settings.

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## Scale-up of Decentralized Drug Distribution (DDD) of Antiretroviral (ARV) Drugs in Mozambique: Willingness and Availability of Private Pharmacies

Maranga A<sup>1</sup>, Nishimoto L<sup>2</sup>, Bidashimwa D<sup>2</sup>, Couto A<sup>3</sup>, Filimão D<sup>4</sup>, Gaspar I<sup>3</sup>, Parker C<sup>2</sup>, Mussá M<sup>5</sup>, Libombo I<sup>6</sup>, Mbeve N<sup>6</sup>, Bateganya M<sup>7</sup>, Sacur D<sup>1</sup>, Carpenter D<sup>2</sup>, **Akolo C<sup>2</sup>**

<sup>1</sup>FHI 360 Mozambique, Maputo, Mozambique, <sup>2</sup>FHI 360 USA, Washington DC, United States, <sup>3</sup>Programa Nacional de Controlo das ITS-HIV/SIDA, Maputo, Mozambique, <sup>4</sup>USAID Mozambique, Maputo, Mozambique, <sup>5</sup>Autoridade Nacional Reguladora de Medicamentos (ANARME), Maputo, Mozambique, <sup>6</sup>Central de Medicamentos e Artigos Médicos (CMAM), Maputo, Mozambique, <sup>7</sup>USAID Tanzania, Dar es Salaam, Tanzania

**Background:** The private sector plays an important role in improving access to and continuity of HIV treatment. The Mozambique Ministry of Health, coordinated through the Central Medical Stores (CMAM), and with technical support from the USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project, piloted decentralized drug distribution (DDD) of antiretrovirals (ARV) in 71 private pharmacies (PP) in the 11 provinces. To inform decisions on expansion, a survey was conducted to understand the willingness, resource availability, practices, and capacity development needs of PPs to provide ART services through DDD.

**Materials and Methods:** We conducted an online pharmacy survey as part of a mixed method assessment of the private pharmacy DDD model in Mozambique. The link to the survey was sent to all 1,183 registered and licensed PP across nine provinces between August and September 2023.

We received responses from 267 PPs and performed descriptive analysis.

**Results:** Most (81.4%) of the responses were provided by the pharmacist/pharmacy technicians. In total, 70.9% of the responding pharmacies indicated willingness to dispense ARV as alternative pick-up points, 74.6% had private space for dispensing, and 87.9% the required technical personnel (pharmacist/pharmacy technician) for dispensing. Most of the PPs were open for long hours, with 73.6% open for 11 hours or more during weekdays, and open during weekends and public holidays. Although most indicated having a computer (62%) and access to internet (57%), client records were stored using paper-based systems in most (60.4%) of the pharmacies. Of the respondents, 39.8% indicated not having been trained in HIV care and treatment. However, pharmacy personnel indicated need for further training in basic HIV care and treatment (68.7%), ARV adherence counselling (59.1%), management of ARV side effects (59.1%), and ARV-related documentation (56.6%).

**Conclusion:** Private pharmacies are largely willing and available to participate in ARV distribution and there are potential expansion sites available. However, it is important to provide some additional capacity development in HIV care and treatment as well as support improvement in documentation and management of client information. Expansion plans should also consider the findings of the client satisfaction survey and other programmatic concerns to improve the model.



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## Cost-Effectiveness of Zvandiri, a Community-Based Support Intervention to Reduce Virological Failure in Adolescents with HIV in Zimbabwe: A Decision Analytical Model

Mangenah C<sup>1,2</sup>, Mavhu W<sup>1,2</sup>, Willis N<sup>3</sup>, Mufuka J<sup>1</sup>, Bernays S<sup>4</sup>, Mangezi W<sup>5</sup>, Apollo T<sup>6</sup>, Araya R<sup>7</sup>, Weiss H<sup>8</sup>, Palacios A<sup>9</sup>, Terris-Prestholt F<sup>10</sup>, M Cowan F<sup>1,2</sup>, Maheswaran H<sup>11</sup>

<sup>1</sup>Centre for Sexual Health and HIV Research, Harare, Zimbabwe,

<sup>2</sup>Liverpool School of Tropical Medicine, Department of International Public Health, Liverpool, UK, <sup>3</sup>Africaid, Harare, Zimbabwe, <sup>4</sup>University of Sydney, School of Public Health, Sydney, Australia, <sup>5</sup>University of Zimbabwe College of Health Sciences, Department of Psychiatry, Harare, Zimbabwe, <sup>6</sup>Ministry of Health and Child Care, AIDS and TB Unit, Harare, Zimbabwe, <sup>7</sup>King's College London, Health Services and Population Research Department, London, UK, <sup>8</sup>MRC International Statistics and Epidemiology Group, London School of Hygiene & Tropical Medicine, London, UK, <sup>9</sup>Centre for Health Economics, University of York, York, UK, <sup>10</sup>Department of Global Health & Development, Faculty of Public Health and Policy, London School of Hygiene & Tropical Medicine, London, UK, <sup>11</sup>Imperial College London, London, UK

**Background:** Improving antiretroviral therapy (ART) adherence among adolescents living with HIV (ALHIV) improves outcomes but with resource implications. We conducted a cost-effectiveness analysis extrapolating the long-term costs and benefits of a community-based peer-support intervention (Zvandiri) among adolescents living with HIV (ALHIV) in Zimbabwe beyond the cluster-randomised controlled trial period (reported elsewhere).

**Materials and methods:** A de novo multistate Markov decision-analytic model simulates Zvandiri lifetime costs and benefits on viral suppression, death rates, life-years (LY) and quality-adjusted-life-years (QALYs) gained from the healthcare system perspective (in 2018 US\$). We estimate the incremental cost effectiveness ratio (ICER) per LY and QALY gained. We compare the ICER to proposed cost-effectiveness thresholds of \$500 and \$700 per LY or QALY gained. We explore parameter uncertainty using probabilistic sensitivity analyses.

**Results:** Cohort-microsimulation suggests that after 40 years, under standard of care, 21% of 280 ALHIV will have undetectable viral-load (VL), 12%, low VL (<1000/ml copies/ml), 10% high VL (≥1000 copies/ml) and 57% are estimated dead. With Zvandiri, ART adherence improves, decreasing yearly probability of virologic failure or death. After 40 years, 65% will have undetectable viral load, 23% have low VL, 3% high VL and 9% are estimated dead. Zvandiri results in 1,345 life-years gained at incremental cost of \$500,587, yielding a discounted ICER of \$372 per LYG. Zvandiri also results in 1,246 QALYs at incremental cost of \$123,645, yielding a discounted ICER of \$99 per QALY. The ICER is highly sensitive to programme costs, health-related utilities, and the discount rate.

**Conclusions:** Zvandiri is a cost-effective intervention at reducing virological failure and death in adolescents living with HIV. Our analysis likely underestimates the full benefits of the intervention by not accounting for reductions in HIV transmissions resulting from higher virological suppression observed in full transmission models.

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## Enhancing HIV Case Identification through a National HIV Testing Services (HTS) Continuous Quality Improvement Collaborative in Uganda, October 2022-September 2023

Nakanwagi F<sup>1</sup>, Muhumuza S<sup>1</sup>, Ashaba C<sup>1</sup>, Ssendiwala J<sup>1</sup>, Lutalo I<sup>1</sup>, Namale A<sup>1</sup>, Akello E<sup>1</sup>, Bogere D<sup>2</sup>, Kadama H<sup>3</sup>, Musoke I<sup>1</sup>

<sup>1</sup>Makerere University School Of Public Health\_ Monitoring And Evaluation Technical Support (maksph-mets) Program, Kampala, Uganda, <sup>2</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda, Kampala, Uganda, <sup>3</sup>Ministry of Health, Uganda, Kampala, Uganda, Kampala, Uganda

**Background:** Identifying the last people living with HIV (PLHIV) and preventing HIV transmission is challenging using traditional HIV testing (HTS) approaches. By December 2021, Uganda's HTS approaches had identified 86.6% of the estimated



1,433,337 PLHIV, leaving 192,067 undiagnosed. In 2018, Ministry of Health (MoH) adopted several HTS approaches but the national HTS yield target of 5% hasn't been met, and testing positivity rate declined to 2.3% in 2021. With support from U.S. President's Emergency Plan for AIDS Relief (PEPFAR), MoH implemented an HTS Continuous Quality Improvement (CQI) collaborative in October 2022 aimed at increasing testing yield and linking newly identified PLHIV into care. The collaborative focused on efficiencies in HTS service delivery at all levels through improving screening, HIV testing and linkage into care.

**Description:** The collaborative was implemented at 700 sites contributing 80% of the new enrollments on antiretroviral therapy nationally. CQI interventions included biweekly stakeholders' meetings, orientation of health facility staff in using CQI approaches to improve yield and quarterly coaching and mentorship visits. To monitor site-level performance, biweekly data reviews were conducted to identify gaps in HTS screening at all entry points, HTS eligible identified and tested for HIV and linkage of HIV-positive clients into care. Regional learning sessions were held with participating site teams to facilitate sharing of best practices and lessons learnt.

**Lessons Learnt:** Overall, during October 2022–September 2023, HTS screening in outpatient departments increased from 54% to 86% at a rate of 3.4% per month (CI: 3.0%-3.8%); HIV screening at other entry points increased from 49% to 83% at a rate of 3.6% per month (CI: 2.4%-4.8%); those eligible and tested for HIV increased from 40% to 71% at a rate of 2.7% per month (CI: 1.4%-4.0%); HTS yield increased from 2.3% to 4.3% at a rate of 2% per month (0.5%- 3.2%); linkage of PLHIV into care improved from 93% to 99% at a rate of 1% per month (0.4%-1.8%).

**Conclusions/Next steps:** These findings demonstrate that CQI approaches might improve HTS yield. National scale-up could help Uganda attain the global target of ensuring 95% of PLHIV know their HIV status.

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## High Reach and Adoption of Secondary DREAMS Services among AGYW in Zambia: A Country-wide RE-AIM Assessment of DREAMS Implementation 2016-2022

Baumhart C<sup>1,2</sup>, Lindsay B<sup>1,2</sup>, Mwangi L<sup>3</sup>, Lascko T<sup>1,2</sup>, Muleya C<sup>4</sup>, Mwila A<sup>4</sup>, Claassen C<sup>1,2,5</sup>

<sup>1</sup>Center for International Health Education and Biosecurity, University Of Maryland Baltimore, BALTIMORE, United States, <sup>2</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia, <sup>5</sup>Maryland Global Initiatives Corporation Zambia, , Lusaka, Zambia

In Zambia, the DREAMS initiative was implemented primarily as an HIV prevention intervention among adolescent girls and young women (AGYW). DREAMS has also contributed to the holistic development and wellbeing of AGYW through secondary services, such as socioeconomic support and family planning. These additional DREAMS services extend beyond primary services to provide sustained support and address the multifaceted challenges faced by AGYW. We assessed the reach and adoption of secondary services among AGYW in 14 districts in Zambia.

We conducted a multi-year, country-wide assessment of DREAMS program implementation from 2016 to 2022 in 14 Zambian districts using the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) implementation science framework. Data were collated from all DREAMS implementing partners since DREAMS inception in Zambia in 2016. We used aggregate and line-listed client-level data to quantitatively analyze the reach and adoption of secondary DREAMS services among AGYW across all the programs. Data were analyzed using R-Studio.

Of 1,091,641 AGYW who were enrolled in DREAMS, 565,378 (51.8%, 95% CI:51.7-51.9%) were documented as having received at least one secondary service. Secondary services engagement was lowest in the earliest years of DREAMS implementation and reached 72.1% by FY2021. By





district, uptake of any secondary service ranged from 36.1% in Lusaka to 84.3% in Mongu. Without considering eligibility due to age differences, engagement in secondary services was highest in the 20-24 age group with 79.8% (95% CI:79.7-79.9%) of AGYW engaging in a secondary service, 57.6% (95% CI:57.5-57.8%) of AGYW aged 15-19 engaging, and 21.3% (95% CI:21.2-21.4%) of AGYW aged 10-14 engaging. Socioeconomic support services were the most commonly accessed with 29.6% participation, while biomedical services, including condom distribution, family planning, and HIV testing, followed with 27.2%, 11.2%, and 9.6% participation, respectively. Overall, 2,328 (2.2%) of 104,859 AGYW accessing HIV testing services tested positive for HIV.

The DREAMS programs across Zambia successfully reached over one million AGYW over the years, and 52% of AGYW enrolled in DREAMS received secondary services, especially older AGYW aged 15-24. DREAMS appears to be highly effective at reaching at-risk AGYW with multifaceted services in sub-Saharan African countries such as Zambia.

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## Evaluation of Empirical Quantification for Implementation Partners (EQUIP) Tool on Human Resources for Health for HIV Case Finding, Kwara State, North Central, Nigeria

**Onyejiaka** <sup>1,2,3,4</sup>, **Etsetowaghan A** <sup>1,2,3,4</sup>, **Atuma E** <sup>1,2,3,4</sup>, **saliu I** <sup>1,2,3,4</sup>, **Eluke F** <sup>1,2,3,4</sup>, **Kehinde N** <sup>1,2,3,4</sup>, **Gado P** <sup>1,2,3,4</sup>

<sup>1</sup>Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO), Yenagoa, Nigeria,

<sup>2</sup>Center for clinical care and clinical research Nigeria, Abuja, Nigeria, <sup>3</sup>United States Agency for International Development, Nigeria, Abuja, Nigeria, <sup>4</sup>National HIV/AIDS and STI control program, Abuja, Nigeria

**Background:** Empirical quantification for implementation partners (EQUIP) is an excel based tool that is used to quantify the Human resources for health (HRH) and level of effort required to meet specific targets within a performance period. It is challenging quantifying the required HRH for

HIV case finding at different locations and period. The purpose of the study is to evaluate the impact of EQUIP tool on HRH for case finding, Kwara State, North Central Nigeria.

**Materials and Methods:** We retrospectively reviewed the monthly expenditure records of HRH for case finding, the targets and achievements across seven local government areas (LGAs) randomly selected in Kwara State three months (October-December, 2022) prior to the introduction of EQUIP tool and compared with the monthly expenditure, targets, and achievements of the team three months (January-March 2023) after the introduction of the EQUIP tool to evaluate the effect of the tool on HRH for case finding.

**Results:** From our report, there was a significant reduction of 32% (from 28 staff to 19) in HRH for case finding, and cost savings after using the EQUIP tool for review/quantification the HRH (p-value <0.05). The monthly financial expenditure dropped by 32%. The 12-excess staff were redistributed to other LGAs where they were needed. There was better testing efficiency (3.4%) after the introduction of the tool compared with testing efficiency of 1.0% prior to the tool. The LGAs have exact number of HRH required, each staff achieved the set target.

**Conclusions:** EQUIP was effective in quantifying the required number of HRH and saving cost for HIV case finding across the seven LGAs. The use of the tool resulted in a significant reduction in HRH to only exact number needed, efficient utilization of resources for case finding, cost savings and redistribution of excess staff to other LGAs, without engaging new staff. We recommend the routine use of EQUIP tool, and training of HIV technical/project staff, managers, and employers on the use of the tool. Future research is needed on the use of the tool for non-target based (clerical/administrative) program staff.



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## Profiling Shang Ring Adverse Events Among Zimbabwean boys aged 13-16 years

Chigiji H<sup>1</sup>, Nhando N<sup>1</sup>, Maonga B<sup>1</sup>, Taruberekera N<sup>1</sup>, Mugurungi O<sup>2</sup>, Xaba S<sup>2</sup>, Hatzhold K<sup>3</sup>, Dhodho M<sup>1</sup>

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Services International, Cape Town, South Africa

**Background:** In June 2015, WHO prequalified the Shang Ring device for circumcision of adolescents and adult males age 13 years and older after determining that it meets international standards of quality, safety and efficacy. However, the safety of the boys undergoing VMMC procedure using the Shang Ring device remains critical. We profiled adverse events among the younger boys 13–14-year-olds and the older boys 15–16-year-olds. The evidence generated helps the VMMC national program to address the safety concerns as it plans to roll out Shang Ring to all districts in the country and transition to sustainability.

**Materials and Methods:** We conducted implementation science research from 8 June 2022 to 5 January 2024 in 9 districts. to inform the sustainability phase of the national voluntary medical male circumcision program with adolescent males using the Shang Ring procedure in Zimbabwe was conducted 13–16-year-old boys were offered Shang Ring Participants were followed up on days 7, 14 and 49. Assessments for AEs were done on each review. SurveyToGo was used for data collection and SPSS version 20 for analyses to generate frequencies, cross tabulations and statistical tests.

**Results:** 5 165 boys were recruited into study, 79% (4 076) were aged 13-14 years and 1 089 (21%) were aged 15-16 years. 30 mild, moderate and severe AEs were reported and recorded giving an overall AE rate of 58/10,000. 83% of the AEs occurred between day 0 (day of device placement) and day 14. AE rates by age were 47/10,000 for 13–14-year-olds and 101/10,000 for 15-16-year-olds. The risk of AEs was 2.1 [95% CI 1.03 - 4.5; p=0.036] times more likely in age group 15-16. The most common type of AE is pain (42%) followed by infection (13%) and swelling (10%) for both age groups.

**Conclusions:** Overall, the AE rates for Shang Ring device were low. Older boys were more likely to experience AEs compared to younger boys. Pain is the most common type of AE in both age groups. Addressing the issue of pain during device removal remains critical.

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## Improving Advanced HIV Disease Identification Among Clients Failing Antiretroviral Therapy: An Implementation Partner-Led Initiative in Uganda

Nuwagira A<sup>1</sup>, Kirungi R<sup>1</sup>, Nabitaka V<sup>1</sup>, Kabunga L<sup>1</sup>, Batusa J<sup>1</sup>, Eigege W<sup>2</sup>, Amamilo I<sup>2</sup>, L. Namuwenge P<sup>3</sup>, Kasone V<sup>4</sup>, Kyokushaba J<sup>4</sup>

<sup>1</sup>Clinton Health Access Initiative, Kampala, Uganda, <sup>2</sup>Clinton Health Access Initiative, Boston, USA, <sup>3</sup>Ministry of Health Uganda, Kampala, Uganda, <sup>4</sup>National Health Laboratory and Diagnostic Services Uganda, Kampala, Uganda

**Background:** CD4 testing is the gateway to identifying Advanced HIV Disease (AHD) for both newly diagnosed clients with HIV and those failing treatment (non-suppressed people on antiretroviral therapy). While access to baseline CD4+ testing for newly diagnosed people has improved over the years with the expansion of CD4+ testing to include VISITECT point-of-care testing, CD4+ testing among failing clients has remained unacceptably low.

**Description:** Between October 2022 and September 2023, the Uganda Ministry of Health (MOH) with support from partners implemented quality-improvement initiatives aimed at addressing gaps in the delivery of the AHD package of care implementation among failing clients. Key interventions implemented included healthcare workers (HCWs) training on the identification and treatment of AHD, data management and reporting, commodity inventory management, and formation of facility-level AHD focal teams. In addition to this, sub-national implementing partners integrated CD4+ testing into targeted community HIV services using a device-free CD4+ testing platform. The cascade



was monitored on a bi-weekly basis to measure the impact on key indicators.

**Lessons Learnt:** Access to CD4+ testing among the failing clients increased from 42.8% before the intervention, to 60% by the end of the quality improvement initiative.

**Conclusions:** AHD screening services among failing patients is critical to the reduction of AIDS-related deaths. However, more effort such as integration of AHD screening services into existing community outreach programs, HCW capacitation, improved commodity inventory management, and optimized reporting is needed to optimize CD4+ testing among failing patients.

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## Enhancing HIV Positivity Yield in Southern Mozambique: The Effect of a Ministry of Health Training Module in Targeted Provider-Initiated Testing and Counselling

Saura-Lázaro A<sup>1</sup>, Fernández-Luis S<sup>1,2</sup>, Nhampossa T<sup>2,3</sup>, Fuente-Soro L<sup>1,2</sup>, López-Varela E<sup>1,2</sup>, Bernardo E<sup>2,4</sup>, Augusto O<sup>2,5,6</sup>, Sánchez T<sup>7</sup>, Vaz P<sup>8</sup>, Wei S<sup>9</sup>, Kerndt P<sup>10</sup>, Honwana N<sup>9</sup>, Young P<sup>9</sup>, Amane G<sup>11</sup>, Boene F<sup>11</sup>, Naniche D<sup>1,2</sup>

<sup>1</sup>ISGlobal, Hospital Clínic, Universitat de Barcelona, Barcelona, Spain, <sup>2</sup>Centro de Investigação em Saúde de Manhiça (CISM), Maputo, Mozambique, <sup>3</sup>Instituto Nacional de Saúde (INS), Maputo, Mozambique, <sup>4</sup>Manhiça District Health Services, Manhiça, Mozambique, <sup>5</sup>Faculdade de Medicina, Universidade Eduardo Mondlane, Maputo, Mozambique, <sup>6</sup>Department of Global Health, University of Washington, Seattle, USA, <sup>7</sup>London School of Hygiene and Tropical Medicine, London, UK, <sup>8</sup>Fundação Ariel Glaser Contra o SIDA Pediátrico, Maputo, Mozambique, <sup>9</sup>Division of Global HIV and Tuberculosis at Centers for Disease Control and Prevention (CDC), Maputo, Mozambique, <sup>10</sup>U.S Agency for International Development (USAID), Global Health, Washington, USA, <sup>11</sup>National STI-HIV/AIDS Programme, Ministry of Health, Maputo, Mozambique

**Background:** In Mozambique, targeted provider-initiated HIV testing and counselling (PITC) is recommended where universal PITC is not feasible, but its effectiveness depends on healthcare providers' training. This study aimed to evaluate the effect of a Ministry of Health training

module in targeted PITC on the HIV positivity yield, and identify factors associated with a positive HIV test.

**Material and Methods:** We conducted a single-group pre-post study between November 2018 and November 2019 in the triage and emergency departments of four healthcare facilities in Manhiça District, a resource-constrained, semi-rural area. It consisted of two two-month phases split by a one-week targeted PITC training module ("observation phases"). The HIV positivity yield of targeted PITC was estimated as the proportion of HIV-positive individuals among those recommended for HIV testing by the provider. We compared pre- and post-training yields using two-proportion z-test. Additionally, we extracted aggregated health information system data over the four months preceding and following the observation phases to compare yield in real-world conditions ("routine phases"). We used logistic regression to identify factors associated with a positive HIV test.

**Results:** Among the 7,102 participants in the pre- and post-training observation phases (58.5% and 41.5% respectively), 68% were women, and 96% were recruited at triage. While HIV positivity yield between pre- and post-training observation phases was similar, we observed an increase in yield in the post-training routine phase for women in triage, rising from 4.8% (74/1553) to 7.3% (61/831) (Yield ratio=1.54; 95%CI: 1.11-2.14). Age (25-49 years) (OR=2.43; 95%CI: 1.37-4.33), working in industry/mining (OR=4.94; 95%CI: 2.17-11.23), unawareness of partner's HIV status (OR=2.50; 95%CI: 1.91-3.27), and visiting a healer (OR=1.74; 95%CI: 1.03-2.93) were factors associated with a positive HIV test. Including these factors in the existing targeted PITC algorithm could have increased new HIV diagnoses by 2.6%. Furthermore, testing individuals with  $\geq 1$  HIV risk factor/symptom and a negative HIV test within the past three months revealed an additional 3.5% of undiagnosed PLHIV.

**Conclusions:** Providing refresher training and adapting the current targeted PITC algorithm through further research can help reach undiagnosed PLHIV, treat all, and ultimately eliminate HIV, especially in resource-limited rural areas.



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## Post-hospitalization Community Home Visit Intervention to Decrease Mortality Among Adults with Advanced or Unsuppressed HIV in Urban Zambia: Pilot Evaluation

**Claassen C**<sup>1,2,3,4</sup>, **Bwalya C**<sup>5</sup>, **Mujansi M**<sup>3</sup>, **Mwango L**<sup>6</sup>, **Stoebenau K**<sup>5</sup>, **Baumhart C**<sup>1,2</sup>, **Muchanga G**<sup>3</sup>, **Malama D**<sup>3</sup>, **Mukuka J**<sup>3</sup>, **Daka T**<sup>3</sup>, **Lindsay B**<sup>1,2</sup>, **Mwitumwa M**<sup>4</sup>, **Mbewe N**<sup>7</sup>, **Mutale W**<sup>8</sup>, **Vinikoor M**<sup>4,9</sup>

<sup>1</sup>Center for International Health Education and Biosecurity, University Of Maryland Baltimore, Baltimore, USA, <sup>2</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>3</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>4</sup>University Teaching Hospitals Zambia, Lusaka, Zambia, <sup>5</sup>Department of Behavioral and Community Health, University of Maryland School of Public Health, College Park, USA, <sup>6</sup>Ciheb Zambia, Lusaka, Zambia, <sup>7</sup>Zambia National Public Health Institute, Lusaka, Zambia, <sup>8</sup>The University of Zambia, Lusaka, Zambia, <sup>9</sup>University of Alabama at Birmingham, Birmingham, USA

**Background:** HIV-related mortality remains high in Zambia. Hospitalization often precedes death; post-discharge mortality among people with HIV (PLWH) reaches 20-40%. We evaluated a community health worker (CHW) model to provide post-discharge support with the ultimate goal of mortality reduction.

**Materials and Methods:** We conducted a quasi-experimental feasibility and acceptability study at two tertiary hospitals in Lusaka, Zambia, using the PRISM implementation science framework. Hospitalized PLWH with either CD4 <200 (i.e., advanced HIV) and/or HIV RNA >60 copies/ml, regardless of treatment history, were enrolled and followed for six months post-discharge. Participants received a novel community intervention, based on formative qualitative work, consisting of a discharge summary card, CHW home visits within 7 days of discharge, and repeated every 2-4 weeks thereafter, and screening and referral for depression and unhealthy alcohol use. CHW visits were overseen by a physician-clinical liaison officer team based at the discharging hospital. During visits, CHWs provided psychosocial and medication counseling,

checked vital signs, and made reminders for outpatient follow-up.

**Results:** From 18 August 2023 to 22 January 2024, 100 patients (median age, 39 years; 47% women; median CD4, 118 cells/mm<sup>3</sup>) were enrolled. To date, 86 (86%) received at least one home visit (31 within 1 week of discharge); of these, 36 (42%) had two or more visits; 32 (37%) received a discharge summary card; and 86 (100%) were screened for behavioral health problems. At one month, 86 (86%) were alive, 14 (14%) had died; 20 (20%) were readmitted based on concerns found during CHW home visits. Acceptability of CHW home visits among participants and caregivers was high. When available, 6-month mortality data will be compared to a historical control group from the same hospitals.

**Conclusions:** A novel discharge model of care, involving enhanced discharge instructions, CHW home visits, and screening and referral for behavioral health problems, proved feasible and acceptable in urban Zambia. As post-hospital mortality is so high and minimal/no transition of care programs exist in African settings, CHW visits have potential to reduce post-discharge mortality among PLWH. Focusing on the peri-discharge period can strengthen health systems as countries move into HIV epidemic control.

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## Navigating the Final Mile to Epidemic Control, a Case Study of Strategic Weekend Approach to HIV Testing (SWEAT), North Central Nigeria

**Onyejiaka I**<sup>1,2,3,4</sup>, **Etsetowaghan A**<sup>1,2,3,4</sup>, **Atuma E**<sup>1,2,3,4</sup>, **saliu I**<sup>1,2,3,4</sup>, **Eluke F**<sup>1,2,3,4</sup>, **Kehinde N**<sup>1,2,3,4</sup>, **Gado P**<sup>1,2,3,4</sup>

<sup>1</sup>Johns Hopkins Program for International Education in Gynecology and Obstetrics (jhpiego), Abuja, Nigeria, <sup>2</sup>Center for clinical care and clinical reserch Nigeria, Abuja, Nigeria, <sup>3</sup>United States Agency for International development, Abuja, Nigeria, <sup>4</sup>National HIV/AIDS and STI control program, Abuja, Nigeria

**Background:** There are appreciable efforts towards achieving HIV epidemic control in Nigeria and globally, but we are short of achieving epidemic control. More concerted efforts and



innovative strategies are required to achieve it. Strategic Weekend Approach to HIV Testing (SWEAT) is an innovative, targeted, and efficient community HIV testing and case finding strategy. The purpose of the study is to evaluate the impact of SWEAT in HIV epidemic control, North Central Nigeria.

**Materials and Methods:** We conducted a retrospective review of the HIV testing records from SWEAT conducted by 20 testers over the weekends (Saturdays and Sundays) from December 2022 to January 2023 across 8 randomly selected local government areas (LGAs) and compared the achievements with the community testing conducted on weekdays (Mondays-Fridays) within the same period across the same LGAs by another set of 20 testers to evaluate the impact of SWEAT on achieving HIV epidemic control.

**Results:** From our results, a total of 10,393 people were tested for HIV, 249 (3.0%) tested positive from SWEAT (Saturdays & Sundays) and initiated on ART in comparison to 19,388 people tested, with 208 (1%) identified positives and initiated on ART from community weekday (Mondays-Fridays) testing. The peak case finding efficiency recorded across the same LGAs were 5.1%, 4.6% and 4.3% for SWEAT and 2.0%, 1.5% and 1.3% for community weekday testing.

**Conclusions:** SWEAT is a more targeted and efficient HIV case finding strategy, with improved case finding and linkage on ART. It is an innovative strategy for accelerating case finding and linkage on ART to achieve epidemic control. We recommend the SWEAT strategy. Future research is needed to compare weekend and weekday testing in health facilities, across urban and rural areas, the insight will be useful in strengthening facility HIV services.

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## Improving Turnaround Time for Viral Load Results through Systems Integration

Chizonda M<sup>1</sup>, Mtonga G<sup>1</sup>, Tegha G<sup>1</sup>, Maida A<sup>1</sup>, Kress H<sup>1</sup>, Bondwe P<sup>2</sup>, Bwanali M<sup>2</sup>, Msamila S<sup>2</sup>, Kudiabor K<sup>2</sup>, Maere C<sup>2</sup>, Kalua T<sup>3</sup>, Divala O<sup>3</sup>, Salami D<sup>3</sup>, Mkandawire K<sup>3</sup>, Abimiku A<sup>3</sup>, Kachule L<sup>4</sup>, Golowa Z<sup>4</sup>, Biza E<sup>5</sup>, Msikuwanga T<sup>5</sup>

<sup>1</sup>Centers for Disease Control and Prevention Malawi, Lilongwe, Malawi, <sup>2</sup>Elizabeth Glaser Pediatric AIDS Foundation Malawi, Lilongwe, Malawi, <sup>3</sup>University of Maryland School of Medicine, Lilongwe, Malawi, <sup>4</sup>Riders for Health Malawi, Lilongwe, Malawi, <sup>5</sup>Ministry of Health Malawi, Lilongwe, Malawi

**Background:** Health Information Systems (HIS) contribute significantly towards improving quality of care and client outcomes. The health sector in Malawi has experienced challenges with HIV viral load (VL) testing coverage and the overall turnaround time (TAT), from sample draw to results return to clients. The HIS integration was designed to improve efficiency by reducing the TAT duration between sample draw from client and results return at sample source.

**Materials and Methods:** The integration targeted site level electronic medical records (EMRs), CommCare sample transportation tool and early infant diagnosis and viral load laboratory information management system (EID/VL LIMS) for streamlining testing of viral load samples integrated via the national laboratory information management system (NLIMS) repository. The pilot was conducted from 1st March 2022 to 30th June 2023 across 8 pilot sites in 3 districts. The sites were identified through purposive sampling, and the study reviewed data from November 2022 to October 2023 across all the systems. A barcode was implemented for unique identification and scanning of sample data through the process chain. Results were transmitted electronically to the site level EMR at release from the processing laboratory. The NLIMS dashboard was developed to allow sample tracking and monitoring across the cascade.

**Results:** This integration reduced the data entry burden for data clerks, couriers, and laboratory staff by facilitating electronic transmission of sample data through a unique bar code placed on the sample and scanned through the process flow. The NLIMS dashboard improved sample



monitoring through enabling sample tracking across the cascade. A total of 56,150 samples were tested during the period of the study and overall, the integration expedited transmission of electronic results from the testing molecular laboratory to the originating health facility, reducing the TAT from 77 days in November 2022 to 13 days in October 2023, which is within the Malawi Ministry of Health (MOH) guidelines on TAT of 14 days.

**Conclusions:** Systems integration improved efficiencies in the workflow and reduced overall TAT, leading to better clinical management of clients. The collaborative integration reduced the manual data entry burden and human error by couriers and data clerks across the cascade.

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## Use of Point-Of-Care Electronic Medical Records to Enhance Clinical Decision Support Systems and Improve Facility Data Quality, Reporting, and Use in Fort Portal Region, Mid-Western Uganda

Damba D<sup>1</sup>, Juma M<sup>1</sup>, Kiragga D<sup>1</sup>, Gichuhi H<sup>1</sup>, Fitzmaurice A<sup>2</sup>

<sup>1</sup>Baylor College of Medicine Children's Foundation, Uganda, Kampala, Uganda, <sup>2</sup>US Centers for Disease Control and Prevention, Division of Global HIV & TB, Uganda, Entebbe, Uganda

**Background:** Electronic medical records -point of care (EMR-POC) system plays a critical role in improving data quality, reporting and enhancing data-use for clinical decisions when offering HIV services. However, the roll-out of EMR-POC system is very slow due to individual, infrastructure, leadership and governance challenges. We describe best practices and lessons learned in implementing EMR-POC system in Fort Portal region, Uganda.

**Description:** Baylor Uganda supported 145 health facilities to provide HIV prevention, care and treatment services in Fort Portal Region. In 2022, EMR-POC system was rolled out in 39 high volume

sites at critical HIV service delivery points: triage, clinical rooms, counselling, laboratory, and pharmacy. Interventions included provision of computing equipment, end-user training and supportive supervision. EMR support teams were established and engaged to provide user-support. An inventory was developed to track ICT equipment. Facility staff and district leadership were sensitized on system benefits and equipment /data security. Provided personnel and solar power backup. Weekly system review and feedback meetings to assess progress, data quality and user concerns.

**Lessons Learnt:** Use of District EMR-POC support teams helped to fast-track the roll-out to targeted sites within record time, enhanced system usability and responsiveness through prompt peer-to-peer user support, capacity building, usage monitoring, system reviews and maintenance. End-user training for 273 users, streamlining client flow, and supportive supervision improved staff buy-in, capacity to access and use client-level data through dashboards and reports thereby fastening person-centered clinical decisions. Provision of solar-backups reduced power and service interruptions during clinic hours. Engaging and sensitizing district leadership and facility teams enhanced ownership and vigilance leading 100% safety of all equipment provided. Timely collection of user-feedback through weekly user-interface meetings enhanced prompt support on system and demand creation. Daily system checks and data audits improved timely reporting (100%) and acceptable data accuracy >95% due to early detection and response to data quality gaps.

**Conclusions:** Functionalising EMR-POC system improved data quality, timely reporting and enhanced data use for clinical decisions aimed at improving the HIV care and treatment indicators. Programs need to institutionalize EMR-POC systems and adopt these best practices for a smooth roll-out to more sites.



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## «Bien Vieillir avec le VIH» au Sénégal, une Stratégie de Communication Innovante à l'Échelle Nationale

Ba M<sup>1</sup>, Laborde-balen G<sup>2</sup>, Diop E<sup>2</sup>, Gueye M<sup>3</sup>, Sy S<sup>2</sup>, Diop K<sup>2</sup>, Coumé M<sup>4</sup>, Taverne B<sup>5</sup>, Ciaffi L<sup>5</sup>

<sup>1</sup>Conseil national de lutte contre le sida, Dakar, Senegal, <sup>2</sup>Centre de recherche et de formation à la prise en charge de Fann (CRCF) CHU Fann, Dakar, Senegal, <sup>3</sup>Réseau national d'associations de PVVIH (RNP+), Dakar, Senegal, <sup>4</sup>Service de gériatrie, CHNU de Fann, Dakar, Senegal, <sup>5</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France

**Contexte :** En Afrique, grâce au succès des antirétroviraux, les personnes vieillissent avec le VIH. Depuis 2020 le projet VIHeillir « Bien vieillir avec le VIH au Cameroun et au Sénégal » vise à prévenir et prendre en charge les maladies chroniques chez les personnes âgées de plus de 50 ans, vivant avec le VIH (PAVVIH) selon une approche de santé publique. Un total de 1600 personnes, âgées de 50 à 82 ans, sont suivies. Au Sénégal, VIHeillir a développé une campagne de communication en partenariat avec le conseil national de lutte contre le sida.

**Matériels et Méthodes :** Un groupe d'acteurs a été mis en place, composé d'associations de PVVIH, de personnes diabétiques, hypertendues et personnes âgées ; de soignants ; d'anthropologues ; d'acteurs institutionnels et d'autorités de santé ; et de professionnels de la communication.

Au cours d'ateliers, ils ont élaboré un plan de communication pour :

- définir les publics ciblés (PAVVIH, personnes âgées, soignants, aidants, autorités de santé, communauté)
  - définir des messages de prévention, dépistage du VIH, diabète, HTA, hépatites, cancer du col ; de plaider contre la stigmatisation et en faveur de la prise en charge des aînés.
  - choisir les outils et supports de communication
  - choisir la stratégie de communication
- L'équipe de communication du CNLS a élaboré les outils puis a mis en œuvre la campagne.

**Résultats :** Les outils réalisés comportent :

- Un dépliant avec les informations clés sur le vieillissement en bonne santé et les contacts des associations

- Des affiches comportant des proverbes wolof et des recommandations de santé publique,
- Une boîte à images, avec des dessins mettant en scène des PAVVIH : en famille, en consultation médicale, faisant des activités physiques, durant la prise de médicaments,
- Une capsule vidéo destinée aux réseaux sociaux pour promouvoir le dépistage, l'observance aux traitements, l'hygiène de vie et lutter contre la stigmatisation.

**Conclusions :** A notre connaissance, il s'agit des premiers supports d'information sanitaire concernant les PAVVIH dans les pays francophones d'Afrique. Cette campagne s'intègre dans la stratégie nationale de communication du CNLS, ce qui favorise sa pérennisation.

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## Use of DHIS2 Tracker Individual Line Lists to Facilitate Case Management Approach, Improve HIV Treatment Continuity, and Viral Load Coverage and Suppression in Liberia

Lyimo R<sup>1</sup>, Kamanga G<sup>1</sup>, Varney P<sup>1</sup>, Kerbay C<sup>1</sup>, Stankevitz K<sup>2</sup>, Kiazolu M<sup>1</sup>, Thakur Kumar P<sup>2</sup>, Fosua Clement N<sup>1</sup>, **Akolo C<sup>2</sup>**

<sup>1</sup>FHI 360, EpiC HIV Program, Monrovia, Liberia, <sup>2</sup>FHI 360, EpiC HIV Program, Washington DC, US

**Background:** Effective case management plays a crucial role in optimizing HIV care outcomes, treatment continuity, viral load coverage and suppression. We explored the utilization of DHIS2 Tracker Individual line lists to facilitate a comprehensive case management approach within the PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Liberia.

**Description:** The project introduced intensive case management approach to address treatment interruption which more pronounced before December 2022 tracking was difficult because it was done manually from the records. The project optimized utilization of DHIS2 tracker individual



line lists of recipients of care codes to identify those with treatment interruption and missing viral load tests. Case managers, which included clinical staff and peer navigators followed up recipients of care with gaps using locator information, provided education, support for linkage back to treatment, addressing barriers to medication adherence and, viral load coverage and suppression.

**Lessons Learnt:** The DHIS2-based case management approach yielded significant improvements in HIV treatment continuity. Interruptions in treatment among recipients of care who had been on treatment for less than three months reduced from 1,620 as of December 2022 to zero at the end of December 2023. For those on treatment more than three months on treatment, it reduced from 1,505 to 989 for the same time points. There was also great increase in viral load coverage and viral load suppression between October 2022 to September 2023 from 66% (7,901) to 92% (14,216) from 82% (6,465) to 97% (13,751) respectively.

**Conclusions:** Case management supported by DHIS2 tracker individual line lists demonstrated substantial improvements in HIV treatment continuity, viral load coverage, and viral load suppression. These findings emphasize the value of utilizing data-driven approaches in enhancing HIV care and provide valuable insights for future interventions and strategies aimed at improving client retention and viral load outcomes.

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## Evaluating the Role of Geographic Information System (GIS) Application in Achieving HIV Epidemic Control, a Case Study of Kwara State, North Central, Nigeria

**Onyejiaka** <sup>1,2,3,4</sup>, **Etsetowaghan A** <sup>1,2,3,4</sup>, **Atuma E** <sup>1,2,3,4</sup>, **Saliu I** <sup>1,2,3,4</sup>, **Agbebeku W** <sup>1,2,3,4</sup>, **Gado P** <sup>1,2,3,4</sup>, **Kehinde N** <sup>1,2,3,4</sup>

<sup>1</sup>Johns Hopkins Program for International Education in Gynecology and Obstetrics (jhpiego), Yenagoa, Nigeria, <sup>2</sup>Center for clinical care and clinical research Nigeria, Abuja, Nigeria, <sup>3</sup>Office of HIV/AIDS and TB, United States Agency for

International Development (USAID), Abuja, , Abuja, Nigeria, <sup>4</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Program (NASCP), , Abuja, Nigeria, <sup>5</sup>Office of HIV/AIDS, United States Agency for International Development (USAID), Washington DC, USA, , Washinton DC, United States of America

**Background:** Geographic Information System (GIS) is computer software that can be used to analyze data and, map locations using the information that is tied to that location on the earth's surface. HIV case finding in community settings is suboptimal. There is need to apply innovative strategies for improved case finding. The purpose of the study is to evaluate the role of GIS in achieving HIV epidemic control, Kwara State, North Central Nigeria.

**Materials and Methods:** We conducted a retrospective review of records of 1,500 clients randomly selected who had received HIV testing services between August -November 2023 across ten community hotspots mapped with GIS in North Central Nigeria and compared with previous/historical records from the communities. Data was analyzed using statistical tables/formulas.

**Results:** From our report, out of 1,500 (M 644; F 856), pediatric and adolescent clients aged 1-19 years constitute 40%, while clients 20+ years constituted 60%. A total of 184 clients were positive, with case finding efficiency of 12%. Three hotspots had the case finding efficiency of: 39.4%, 29.3%, and 25%. Out of the 184 positive clients, 12% were aged 1-19 years, while 78% were clients aged 20+ years. A total of 517 eligible clients were initiated on Pre-exposure prophylaxis (PrEP). 4,501 condoms, and 13,465 lubricants were distributed for dual prevention.

**Conclusions:** The use of GIS led to improved access to HIV testing, treatment, and prevention services. It resulted in targeted testing, improved/accelerated case finding and linkage to anti-retroviral treatment, a major milestone in achieving HIV epidemic control. Significant number of clients at high risk for HIV were reached with PrEP and combination prevention, a crucial step in achieving HIV epidemic control. The 12% case finding efficiency recorded with use of GIS is significant (p-value <0.05) when compared with the historical case finding efficiency of 1.2% for the communities. We strongly recommend routine use of GIS, and the training of HIV program staff of its use. Future research is needed to highlight the use of GIS to improve client retention/continuity on





anti-retroviral treatment for optimal viral suppression to achieve epidemic control.

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## Breaking Barriers: Harnessing Artificial Intelligence for Precision in HIV Risk Assessment and Reporting in South Africa

Govathson C<sup>1</sup>, Long L<sup>2</sup>, Greener R<sup>1</sup>, Chetty-Makkan C<sup>1</sup>, Richard Y<sup>3</sup>, Li B<sup>3</sup>, Liang R<sup>3</sup>, Maricich N<sup>3</sup>, Morris S<sup>3</sup>, Rech D<sup>3</sup>, Pascoe S<sup>1</sup>

<sup>1</sup>Health Economics And Epidemiology Research Office, Johannesburg, South Africa, <sup>2</sup>Boston University School of Public Health, Boston, Massachusetts., USA, <sup>3</sup>Audere, Seattle, USA  
Background: Gathering comprehensive sexual histories from clients to determine HIV risk can be hindered by stigma and discrimination, resulting in incomplete or inaccurate information. We co-designed and evaluated, with potential clients, a prototype of a Large Language Model (LLM)-powered app, "Your Choice". This app gathers demographic and behavioural data to estimate HIV risk for clients and provides efficient summaries for the healthcare provider.

Materials and Methods: We used a mixed-method approach to inform the design and key attributes of the "Your Choice" app. Participants were allocated between experiences powered by different underlying LLM models, GPT 3.5 or Claude Instant 1, for hypothetical (i.e., data not used for clinical care) HIV risk screening. Subsequently, clients completed three scales; Acceptability of Intervention Measure (AIM); Intervention Appropriateness Measure (IAM); and System Usability Scale (SUS). Twenty-five participants were purposively selected and interviewed. Qualitative data were thematically analysed.

Results: Enrolled 100 clients between August-November 2023 (58% male, 46% aged 25-34 years, 21% with > one sexual partner; 51 % used Claude Instant 1). Surveys revealed that participants found the app to be an acceptable and appropriate intervention for HIV risk screening. Over 90% of

clients rated the app "strongly agree" on all measures of acceptability and appropriateness and the mean SUS score indicated excellent usability for the GPT 3.5 (82.19; SD=10.75) and Claude Instant 1 (79.75; SD=7.05) respectively. Qualitative analysis showed that the app provided a confidential space for honest discussions, offering empathetic and judgment-free information on sex, sexuality, and sexual health. It changed participants' knowledge about PrEP, Shortcomings included failure to contextualise, incorrect terminology and language and outdated information, impacting viability. Participants who struggled with literacy struggled at times and requested audio/voice interaction.

Conclusions: An AI-powered app with tuned prompts and guardrails, like "Your Choice", shows potential as a tool for private, stigma-free counselling which may encourage at-risk individuals to pursue HIV prevention methods such as PrEP. This can help providers direct care appropriately and efficiently when resources are limited. While promising, there remain significant gaps in the evidence. Further technology investments are needed before integration into HIV clinical care.

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## Acceptability of Online Peer Support Groups as a Strategy to Improve Antiretroviral Therapy Adherence among Young People Living with HIV: A Qualitative Study from Kampala Uganda

Kiirya Y<sup>1</sup>, Kitaka<sup>1</sup>, Kalyango<sup>1</sup>, Rujumba<sup>1</sup>, Amoaka G<sup>2</sup>, Nangendo<sup>1</sup>, Karamagi<sup>1</sup>, Musooke<sup>1</sup>, Katahoire<sup>1</sup>

<sup>1</sup>Makerere University College Of Health Sciences, Kampala, Uganda, <sup>2</sup>University of Ghana, Accra, Ghana

**Background:** Peer support groups are central to antiretroviral therapy (ART) adherence among young people living with HIV (YPLHIV). However, in Uganda and elsewhere in Sub-Saharan Africa, peer support activities occur face-to-face and thus have structural limitations and may not be readily



available when young people need them. Online peer support has the potential to help YPLHIV access regular psychosocial support without significant effort or cost. Acceptability is key to the successful design, implementation, and evaluation of virtual peer support. We assessed the acceptability of WhatsApp-based peer support groups as a strategy to improve ART adherence among Ugandan YPLHIV.

**Materials and Methods:** We conducted a formative qualitative study in three Health Centre IVs in Kampala Uganda, between July and August 2022. We held four focus group discussions with twenty-seven YPLHIV seeking services at the study facilities. We also conducted six key informant interviews with health providers attached to adolescent HIV care clinics. The data was analyzed using thematic analysis guided by the acceptability framework to understand socio-cultural beliefs and perceptions towards utilizing WhatsApp-based peer support groups for HIV care.

**Results:** Overall, peer support groups on WhatsApp were acceptable for use among YPLHIV. The young people regarded them as convenient because they saved time and were more cost-effective compared to the transport costs of in-person meetings. Health providers revealed that virtual peer support groups could reduce the stigma associated with community follow-up for non-adhering young people and empower YPLHIV to overcome stigma. Both the young people and health providers agreed that online peer support would provide accessible emotional support which could improve their psychosocial well-being and enhance adherence to ART. However, participants raised concerns about privacy, the cost of data, and smartphones, especially for younger adolescents.

**Conclusions:** Online peer support groups are acceptable to Ugandan YPLHIV and hold promise in enhancing psychosocial support and improving treatment adherence in this sub-population. There is a need for research to evaluate the feasibility and effectiveness of this peer support model in Uganda. In implementing online support groups, due consideration should be given to the development of open-source software tools with high privacy standards.

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## Boosting Community-Based Screening and Referrals for HIV Testing Using Digital Applications: A First 95 Game Changer for Young People?

Choga K<sup>1</sup>, Charashika P<sup>1</sup>, Takarinda K<sup>1</sup>, Masiye K<sup>1</sup>, Nhiringi I<sup>1</sup>, Gale L<sup>2</sup>, Moore S<sup>2</sup>, Webb K<sup>1</sup>

<sup>1</sup>Organisation of Public Health Interventions and Development, Harare, Zimbabwe, <sup>2</sup>Avert, London, United Kingdom

**Background:** Young people are at increased risk of HIV and other STIs and yet are the least likely to uptake HIV testing services (HTS) at health facilities. The Boost digital application for community health workers (CHWs) includes age-appropriate HIV test screening algorithms and referrals for 10-24-year olds. Our objective was to describe the outcomes of community-based HIV test screenings and impact upon health service uptake among young people.

**Materials and Methods:** We conducted a mixed-method evaluation of guideline concordant HIV test screening outcomes and referrals by CHWs among young people (YP) 10-24yrs using the Boost digital application. Facility HIV testing data were abstracted from routine data to explore changes in testing. Focus group discussions (FGDs) were conducted with CHWs to explore acceptability and feasibility of digital screening and referrals and analyzed thematically.

**Results:** From February to December 2023 a total of 102 587 YP10-24yrs were screened using the Boost App, with 49% (n=50,351) screening 'positive' for need for HIV testing. There was a 16% increase in the number of YP HIV tested at health facilities and a 5.3% increase in HIV self-test kit distribution as compared to the same period prior to use of the Boost App., HIV test yield among 10-24-year-olds was 3% with a total of 2,127 YP newly diagnosed with HIV and initiated on treatment. There were significant differences between age- and sex-disaggregated groups with regards to the screening questions triggering need for HIV testing. CHWs value the use of digital decision aides for providing accurate health information, screening, and referrals for young people.



Conclusions: Digital tools are feasible, acceptable, and effective methods for identifying YP in need of HIV testing. Screening outcomes highlight the importance of differentiated strategies by age band and sex.

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## Event Driven PrEP: A Panacea for High PrEP Continuation Among Men Who Have Sex with Other Men (MSM). Evidence From a Low Resource Setting

Munjoma M<sup>1</sup>, Mavudze J<sup>1</sup>, Choi H<sup>1</sup>, Dhodho M<sup>1</sup>, Bidi L<sup>1</sup>, Nhando N<sup>1</sup>, Moga T<sup>1</sup>, Mutede B<sup>1</sup>, Leuschner S<sup>1</sup>, Taruberekera N<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe

**Background:** Pre-Exposure Prophylaxis (PrEP) is a feasible HIV prevention option in most countries. Zimbabwe reached its national initiation targets every year since inception in 2015. However, PrEP continuation rates have been very low especially among men who have sex with other men (MSM) nationally, at around 30% at 3 months follow up. The WHO approved event-driven PrEP in 2019, and Population Solutions for Health (PSH), Population Services International (PSI) and the Ministry of Health and Childcare conducted a study to measure the impact of event driven PrEP on continuation in comparison to oral PrEP.

**Materials and Methods:** We employed a two-arm, open-label, prospective pilot in two urban districts of Zimbabwe (Harare and Bulawayo), in a population of adult MSM aged 18-54 years. We recruited 789 participants with 396 in the PrEP daily arm and 393 in the event-driven PrEP arm. The groups were comparable by age, education level and employment status. Participants were followed at one-, two- and three-month periods. Further, we conducted qualitative in-depth interviews with purposively selected MSM to assess barriers and motivations as well as benefits of event-driven over oral PrEP.

**Results:** The event-driven PrEP cohort's continuation rate was significantly higher compared to the oral PrEP cohort 78.9% (95% CI

74.5-82.8) at week 4 follow-up, 65.6% (95% CI: 60.7-70.3) at 8 weeks and 56.7% (95% CI: 51.7-61.7) at 12 weeks in the PrEP 2-1-1 arm compared to 39.1 (95% CI:38.0-40.3)) at week 4 follow-up, 38.0% (95% CI: (36.9-39.2)) at 8 weeks and 33.3% (95% CI: 32.2-34.4) at 12 weeks in the oral PrEP arm. Most participants preferred event-driven PrEP as it had no pill fatigue and less side effects from the qualitative interviews. Participants also reported taking drugs as instructed. Only 2 out of the 393 event-driven PrEP participants had sero-converted after 3 months.

**Conclusions:** Event driven PrEP is a solution to low PrEP continuation rates especially among key populations who are less motivated for daily medication uptake without feeling ill. Scale-up ensures continuous protection that should be rolled out especially in low resource settings where pill dispensing can be regulated to save funds.

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## Living with HIV and Breast Cancer Comorbidity: A Systematic Review of the Efficacy and Safety of Chemotherapeutic Approaches among Women in Low- and Middle-Income Countries

Nwachuya C<sup>1,2</sup>, Isah A<sup>1,2</sup>, Okafor U<sup>2,3</sup>, Ezenri G<sup>1,2</sup>, Ugochukwu E<sup>1,2</sup>, Onyehalu J<sup>1,2</sup>, Okafor V<sup>1,2</sup>, Chukwudi C<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Pepala K<sup>2,4</sup>, Ukwe C<sup>1,2</sup>

<sup>1</sup>Department of Clinical Pharmacy and Pharmacy Management, University of Nigeria, Nsukka, Nigeria, <sup>2</sup>Person-Centered HIV Research Team, Faculty of Pharmaceutical Sciences, University of Nigeria, Nsukka, Nigeria, <sup>3</sup>West African Postgraduate College of Pharmacists, Nigeria Chapter, Yaba, Nigeria, <sup>4</sup>MPharma Limited, Lusaka, Zambia

**Background:** The immune system is the primary target of both HIV and anticancer chemotherapy. There could be suboptimal health outcomes in women with HIV and breast cancer (BC) comorbidity, especially in the low- and middle-income countries (LMICs). This study aimed to synthesize evidence on the effectiveness and potential impact of anticancer chemotherapy in women living with HIV (WLHIV).



**Materials and Methods:** A systematic review, following the PRISMA guidelines, was conducted. PubMed, Google Scholar, and Scopus databases were searched with terms such as: “breast cancer,” “HIV/AIDS,” “treatment outcome,” “LMICs,” “breast neoplasm,” and “Chemotherapy”. Full articles published January 2010- September 2023 were retrieved for the review, considering the eligibility criteria. Quality assessment was done using the Newcastle-Ottawa Scale. Thematic analysis, coding, and categorization techniques were performed to discern recurring patterns and themes. The review protocol was registered on PROSPERO.

**Results:** Out of 3,769 screened studies, seventeen cohort studies met the inclusion criteria. Majority of these studies [11(64.7%)] were conducted in South Africa, while the remaining six (35.3%) were carried out in Mozambique, Zambia, Botswana, Brazil, Namibia, and Uganda. Due to the combined impact of HIV and chemotherapy on the immune system, two studies (11.8%) noted a low neutrophil count. This resulted in low survival rates in WLHIV and BC, reported by six studies (35.3%). Conversely, two studies (11.8%) found no significant difference in survival rates. Findings from three studies (17.6%) indicated that chemotherapeutic toxicity (myelotoxicity with grades 3 and 4 lymphopenia) was higher in WLHIV and BC, compared to those with BC alone. A study reported that commencing anti-retroviral therapy on persons undergoing chemotherapy when CD-4 cell count is less than 200 cells/ $\mu$ L resulted in impaired immune function and risk of pneumocystis pneumonia and toxoplasmosis.

**Conclusions:** Majority of the reviewed studies indicated that WLHIV and undergoing chemotherapy for BC experience low survival rates due to poor treatment response and adverse effects. The comorbidity was associated with high mortality, poorer treatment outcomes with antiretroviral therapy and anticancer chemotherapy were reported in WLHIV and BC. It is recommended that personalized treatment approaches be considered in the management of HIV and BC comorbidity, more so in LMICs.

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## Association between Substance Use and PrEP Adherence Among AGYW Enrolled in an HIV Prevention Study (HPTN 082) in Southern Africa

Hlahla K<sup>1</sup>, Choudhury R<sup>2</sup>, Hlahla K<sup>1</sup>, Siziba B<sup>1</sup>, Anderson P<sup>3</sup>, Delany-Moretlwe S<sup>4</sup>, Ndzhukule T<sup>5</sup>, Hosek S<sup>6</sup>

<sup>1</sup>Clinical Trials Research Centre, University of Zimbabwe Faculty of Medicine and Health Sciences, Harare, Zimbabwe, <sup>2</sup>HPTN SDMC\_Statistical Center for HIV/AIDS Research & Prevention (SCHARP), Seattle, USA, <sup>3</sup>University of Colorado Anschutz Medical Campus, Aurora, USA, <sup>4</sup>Wits Reproductive Health and HIV Institute (Wits RHI), Johannesburg, South Africa, <sup>5</sup>Desmond Tutu Health Foundation, Cape Town, South Africa, <sup>6</sup>HIV Prevention Trials Network 082 (HPTN 082) Protocol Team, USA

**Background:** Adolescent girls and young women (AGYW) in sub-Saharan Africa are at substantial risk of HIV acquisition and would benefit from oral pre-exposure prophylaxis (PrEP) for HIV prevention. Substance use (SU), including hazardous drinking (HD), may result in poor adherence, diminishing PrEP effectiveness. The effect of SU on PrEP adherence in AGYW within the African context has not been extensively studied. We sought to determine the prevalence of SU and its association with PrEP adherence in AGYW enrolled in HPTN 082 study.

**Materials and Methods:** HPTN 082 enrolled healthy, HIV-negative, sexually active young women (16-25 years) from Harare, Zimbabwe, Cape Town, and Johannesburg, South Africa between October 2016, and October 2018. Participants were offered oral PrEP and could choose to accept or decline its use. Data on HD was collected using the concise AUDIT-C questionnaire. HD was defined as having an AUDIT-C score  $\geq 3$ . The frequency of use of different illicit substances was collected using the abridged ASSIST questionnaire, with responses scored between 0 (never used a substance) and 4 (daily use of substance). SU was categorized as either low (score= 0), moderate (score=1-10), or high (score $\geq$  10). Tenofovir-diphosphate (TFV-DP) concentrations in dried blood spots at weeks 13, 26, and 52 were used to measure PrEP adherence, with poor adherence being TFV-DP concentration $<$ 700fmol/punch. Repeated measure



multinomial regression modeling was used to determine associations between SU and HD vs PrEP adherence.

**Results:** Of the 451 participants enrolled, 427 (94.7%) accepted PrEP. Overall, the prevalence of HD and SU at baseline was 37% and 24% respectively. HD was highest in Cape Town (53%), while SU was highest in Johannesburg (31%). Injection drug use was similar across sites (1%). Cannabis (7%) and sedatives (6%) were the most used substances. HD and SU decreased with continued study participation. After adjusting for site, HD and moderate SU were associated with increasing odds of poor PrEP adherence (aOR=1.80, 95%CI=1.27-2.58) and (aOR=1.58, 95%CI=1.11-2.25).

**Conclusion:** SU and HD were high in this study and were associated with poor PrEP adherence. There is a need to integrate HD and SU screening in PrEP initiation and adherence programs for adolescents in Africa.

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## Structured Group-Based Community Model Facilitates Oral PrEP Continuation Among Key and Vulnerable Populations in Dar ES Salaam, Tanzania

Manzi B<sup>1</sup>, Ogwang B<sup>1</sup>, Ng'weshemi J<sup>1</sup>, Mbise C<sup>1</sup>, Massawe A<sup>1</sup>, Herman E<sup>1</sup>, Carpenter D<sup>2</sup>, Walker C<sup>2</sup>, Boyee D<sup>1</sup>, Akolo C<sup>2</sup>

<sup>1</sup>FHI 360, Dar Es Salaam, Tanzania, <sup>2</sup>FHI 360, Washington DC, United States

**Background:** Globally, oral pre-exposure prophylaxis (PrEP) programs show challenges with continuation. In Dar es Salaam, EpiC, a community-based program funded by the PEPFAR/USAID, in collaboration with the government of Tanzania supports PrEP use among key and vulnerable populations (KVP), including adolescent girls and young women (AGYW), female sex workers (FSW), and men who have sex with men (MSM). A structured group-based community model

(SGBCM) was introduced to support PrEP refill among KVP. We compared SGBCM outcomes to a non-structured group-based community model (NSGBCM).

**Materials and Methods:** In SGBCM, support groups of 5-7 clients are formed for mutual assistance in PrEP adherence. Monthly group refills are scheduled by the group lead and healthcare worker based on differentiated person-centered care, with reminders and close follow-ups. Partners implementing NSGBCM lacked comprehensive follow-ups, and reminders for refills/rescheduling. We conducted a retrospective analysis of PrEP refills within SGBCM and NSGBCM for clients initiated from October 2022 - June 2023 to understand patterns of PrEP continuation in the first, second, and third-months post-PrEP initiation. The chi-square test was used to determine the statistical significance of the observed difference in PrEP refills.

**Lessons Learnt:** 4,790 clients-initiated PrEP (3,933 under SGBCM, 857 under NSGBCM). Within SGBCM, 62.4% were FSWs, 23.7% MSM, and 13.4% AGYW. For NSGBCM, 54.0% FSWs, 21.5% MSM, and 24.5% AGYW (p<0.001). Within SGBCM, 83% (3,255/3,933) refilled one-month post-initiation, 75% (2,937/3,933) second month, and 65% (2,553/3,933) third month. In the NSGBCM, 28% (243/857) refilled one-month post-initiation, 13% (111/857) second month, and 9% (73/857) third month. Compared to NSGBCM, the odds of SGBCM returning for at least one refill were 12.1 times greater, 19.8 for both second and third refills (p<0.001). This demonstrates strong evidence that refill rates are better within SGBCM compared to NSGBCM (p<0.001 for each visit).

**Conclusions:** Differentiated service delivery such as use of SGBCM model improves PrEP continuation and could be included as an effective strategy in community programs. It fits into client's availability and create a peer-to-peer adherence support environment.



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## PrEP Persistence in South African Female Sex Workers Reporting Inconsistent Condom Use

**Burgess J**<sup>1</sup>, Bothma R<sup>1</sup>, van de Merwe G<sup>1</sup>, Naidoo N<sup>1</sup>, Shiba V<sup>1</sup>, Ndlovu P<sup>1</sup>, Tayag J<sup>2</sup>, Imrie J<sup>1</sup>, Hill N<sup>1</sup>  
<sup>1</sup>Wits Reproductive Health & HIV Institute, Johannesburg, South Africa, <sup>2</sup>United States Agency for International Development (USAID)/ South Africa, Pretoria, South Africa

**Background:** In South Africa, female sex workers (FSW) have an estimated HIV incidence of 5 per 100 person-years. Despite the recognized efficacy of condoms in HIV prevention, recent studies reveal concerning trends of inconsistent condom use among FSW, attributed to various factors including client reluctance to accept condoms. Emerging novel PrEP products, including the Dapivirine Vaginal Ring and long-acting injectable Cabotegravir, offers FSW expanded choices for HIV protection that do not require client negotiation. This study examines associations between demographic, behavioural risk and oral PrEP persistence among FSW.

**Materials and Methods:** This analysis used routine programme data from five Wits RHI FSW clinics and community outreach programmes in South Africa supported by PEPFAR. We entered and analysed data administered on Risk Assessment Forms into REDCap for FSW with a 3-month prescription of oral PrEP between January 2022 and June 2023. PrEP persistence, defined as attending all or more expected clinic visits for a prescription refill between March 2022 and June 2023, was assessed using descriptive statistics and univariate logistic regression in STATASev15, ( $p < 0.1$ ).

**Results:** Among the 558 FSW with a 3-month prescription, 91.58% (511/558) exhibited PrEP persistence. Within this cohort 79.39% (443/558) were ages 25-49, 78.85% (440/558) reported drug or alcohol use, 6.09% (34/558) reported that drugs and/or alcohol interfered with condom use, and 40.32% (225/558) reported sometimes or never using condoms with clients. FSW disclosing previous drug and/or alcohol use exhibited an increased odds of PrEP persistence (OR=2.56, 95% CI: 1.36,4.78). PrEP persistence significantly decreased among FSW who reported inconsistent

condom use with clients (OR=0.58, 95% CI: 0.32-1.08) and cited drugs and/or alcohol interfering with condom usage (OR=0.32; 95% CI: 0.12-0.77). Although stratified age levels were not statistically associated with PrEP persistence, our analysis demonstrated a decrease in PrEP persistence with increasing age.

**Conclusions:** This analysis emphasizes the urgent need for diverse PrEP options for FSW that address client negotiation and inconsistent condom use challenges. Rapid deployment of long-acting PrEP modalities for this priority population is vital. Factors like older women, sexual empowerment, and autonomy can inform counselling techniques, demand creation and communication strategies for long-acting PrEP products from the outset.

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## Pre-Exposure Prophylaxis (PrEP) Utilization and Seroconversion among Key Populations in Lusaka, Zambia 2022- 2023

**Chituwo O**<sup>1</sup>, Kaliki B<sup>1</sup>, Bihini C<sup>1</sup>, Malubwa C<sup>2</sup>, Lo T<sup>1</sup>, Mwila A<sup>1</sup>, Ong K<sup>3</sup>, Musonda B<sup>4</sup>, Sheba S<sup>2</sup>, Ngosa B<sup>2</sup>  
<sup>1</sup>CDC Zambia, Lusaka, Zambia, <sup>2</sup>Centre for Infectious Disease Research in Zambia (CIDRZ), Lusaka, Zambia, <sup>3</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, USA, <sup>4</sup>Ministry of Health, Lusaka, Zambia

**Background:** The 2022 UNAIDS Global AIDS report states that 51% of new HIV infections are among key populations (KPs) and their partners. Pre-exposure Prophylaxis (PrEP) is an essential HIV prevention intervention for KPs, but its effectiveness is dependent on adherence. Poor adherence may lead to HIV seroconversion estimated to be < 3% among users. We describe PrEP utilization and seroconversion rates in Lusaka province at KP community centres.

**Description:** PrEP is offered to KPs who test HIV negative following national guidelines. The PrEP initiation process includes evaluation of HIV risk, HIV testing, acute HIV infection, pregnancy, and STI screening, and counseling for risk reduction and medication adherence. We analyzed PrEP PEPFAR program data between October 2022 and



September 2023 among 8 community centres across Lusaka Province.

**Lessons Learnt:** Among the 9,164 HIV negative KP clients screened and enrolled on PrEP, 43% were female sex workers (FSW), 41% men who have sex with men (MSM), 10% persons who inject drugs (PWID), and 6% transgender (TG). Less than 1% of clients seroconverted (n=70), of whom 63% (n=44) were FSWs, 20% (n=14) MSMs, 11% (n=8) PWIDs, and 6% (n=4) TGs. A rise in seroconversions occurred in June 2023, from an average of 2 per month to 40. Among the 40, 70% (n=28) were FSWs, 80% (n=32) had been on PrEP for 2 months, 80% (n=32) were 30-34 years old, and 73% (n=29) were from two sites, established in the last 6 months. Follow-up investigations and interviews were conducted among providers and clients. Possible causes were identified including missed acute HIV infections, gaps in counseling skills among new staff, irregular PrEP pharmacy pickup, medication non-adherence, and mobile FSWs. Teams were re-trained and additional adherence sessions conducted with client support groups. Follow-up of clients was enhanced. Seroconversions reduced by over half to 19 in the three months following.

**Conclusion:** Continued close monitoring of seroconversions and periodic interviews with KPs seeking information on adherence and challenges faced is important for development of timely interventions to not only improve PrEP adherence but address other gaps. Additionally, supporting new staff on counseling contributes to quality services.

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## Feasibility Study for Establishing Medication-Assisted Treatment Program in Nigeria

**Essomeonu K<sup>1</sup>**, Aliyu G<sup>1</sup>, Anenih J<sup>1</sup>, Ebiti N<sup>2</sup>

<sup>1</sup>National Agency for the Control of AIDS (NACA) Nigeria, Wuse Zone 4, Abuja, Nigeria, <sup>2</sup>Federal Neuro\_Psychiatric Hospital, Kaduna, Nigeria

**Background:** In Nigeria, 90% of high-risk drug users are opioid-dependent and 38% of injecting-drug-users in a recently concluded needle-syringe-

pilot-program, reported needle-sharing practices. There is a glaring-risk of HIV-transmission and other blood-borne-diseases and a critical need to address the escalating public-health-crisis associated with opioid-misuse and its dire consequences. The 2020 IBBSS reveals a persistently high HIV-prevalence of 10.9% among people-who-inject-drugs (PWID), which significantly surpasses 1.4% prevalence rate in the general population. In addressing opioid-use-disorder, Nigeria has developed programs/policies to support evidenced-based-interventions and implementation of comprehensive-package of harm-reduction interventions, of which Medication-Assisted-Treatment (MAT) is one. Thus, this study seeks to explore the feasibility and potential impact of implementing MAT as a crucial harm-reduction strategy to combat the opioid-crisis in Nigeria and alleviate associated health/societal burdens.

**Materials and Methods:** The study took place in Abia, Gombe, and Oyo states of Nigeria. It used a mixed-methods-design that included 12 focus-group-discussions, 32 key-information-interviews and cross-sectional-surveys involving 109 consenting PWIDs above 18years and stakeholders, such as law-enforcement-officers, drug-treatment-experts, community-based service providers, and policymakers. Data obtained were transcribed, re-translated, and analyzed using Atlas-ti-version-9 for content analysis. Quantitative data analysis was done using IBM-SPSS-Statistics for Windows, version-27 and results were presented in simple frequencies.

**Results:** Drug use was prevalent and associated with various criminal-problems. The accessibility to care for individuals with substance-use-disorders is influenced by factors such as transportation, availability of treatment-services, and presence of stigma in communities. Notably, drug-users are often perceived as individuals in need of assistance and potential criminals. The legal/policy-framework in Nigeria, was found to be adequate for implementation of MAT. All drug-users (100%) expressed acceptance, appropriateness, and feasibility of MAT as intervention. However, several key challenges were identified, including issues related to funding, criminalization of drug-use, and management of opioid-medication supply-chains. It was further revealed that drug-users favored community-based-approach for implementation of MAT-services. These findings underscore the need for comprehensive approach that addresses challenges and promotes more



supportive-environment for individuals seeking MAT-services.

**Conclusions:** MAT is an acceptable and feasible treatment-option for individuals struggling with opioid-use-disorder. Addressing the barriers to implementing MAT may lead to improved overall functioning and quality of life of individuals with opioid-use-disorders.

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## Effect of Training and Clinical Mentoring on Prevention, Linkage and Retention in HIV Care Among Key Populations in Zambézia Province, Mozambique

Rafael C, Belo C<sup>1</sup>, Seleme J<sup>2</sup>, Maibaze G<sup>3</sup>, De Schacht C<sup>1</sup>, Tique J<sup>1</sup>, Wester C<sup>4,5</sup>

<sup>1</sup>Friends In Global Health (FGH), Maputo, Mozambique,

<sup>2</sup>Ministry of Health, National Directorate of Public Health,

Maputo, Mozambique, <sup>3</sup>US Centers for Disease Control and Prevention (CDC), Maputo, Mozambique, <sup>4</sup>Institute for Global Health (VIGH), Vanderbilt University Medical Center (VUMC), Nashville, United States, <sup>5</sup>Department of Medicine, Division of Infectious Diseases, Vanderbilt University Medical Center (VUMC), Nashville, United States

**Background:** Key populations (KP), i.e., sex workers, men who have sex with men, transgender people, people who inject drugs, and people in prisons and other closed settings, experience stigma, discrimination, and structural barriers when accessing services for HIV prevention and care. We describe the effect of interventions implemented to strengthen provision of KP-friendly services at 128 health facilities (HF) in Zambézia Province, Mozambique.

**Materials and Methods:** We used a quality improvement conceptual framework to understand barriers to provision of KP-friendly services, design and implement interventions. Lack of appropriate provider training was the main barrier identified. The evaluation occurred over two years, including a pre-intervention period (October 2021-September 2022) and during-intervention period (October 2022-September 2023). Interventions implemented included: 1) training of 85 clinicians and 103 lay staff, some of

whom self-identify as KP, on provision of KP-friendly HIV services; 2) performing 2,245 direct one-on-one mentoring sessions to clinicians and lay staff from 128 HF (average of six sessions per HF) on KP-related skills using standardized tools; and 3) a monitoring strategy including data triangulation among data sources. Aggregated clinical data on pre-exposure prophylaxis (PrEP), antiretroviral therapy (ART) linkage to care and uptake, viral load (VL) coverage, and suppression outcomes were used to evaluate trends.

**Results:** There was an increase in PrEP initiation among KP by 171%, with 5,772 individuals initiating PrEP during-implementation compared to 2,130 pre-implementation. Linkage to ART services increased 22.6% from 62% pre-implementation to 76% during-implementation. The number of individuals currently receiving ART increased by 39% from 5,191 pre-implementation to 7,189 during-implementation. Testing for VL coverage (77%) during-implementation remained the same as results seen in the pre-implementation period, while VL suppression (91%) during-implementation increased compared to pre-implementation (87%).

**Conclusions:** These findings highlight the favorable effect of training and clinical mentoring on key HIV prevention and care outcomes in the HF context in resource-constrained settings. Use of clinical quality improvement methods can be a meaningful tool to identify barriers and develop solutions to improve provision of KP-friendly services.

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## HIV Viral Load Suppression Amongst the Incarcerated Populations in Cameroon

Fualefac A<sup>1,2,3</sup>, Kofon J<sup>4</sup>, Nwobegahay Mbekem J<sup>5,6</sup>, Fru Cho J<sup>1</sup>, Ndip L<sup>1</sup>, Patrick Njukeng A<sup>1,2,3</sup>

<sup>1</sup>Department of Microbiology and Parasitology, Faculty of Science, University of Buea-Cameroon, Buea, Cameroon, <sup>2</sup>Global Health Systems Solutions (GHSS) - Cameroon, Douala, Cameroon, <sup>3</sup>Global Health Systems Laboratory (GHSL) - Cameroon, Limbe, Cameroon, <sup>4</sup>Catholic School of Health Sciences (CSHS-Shisong) -Cameroon, Kumbo, Cameroon, <sup>5</sup>Military Research Center, Yaoundé, Cameroon (CRESAR) - Cameroon, Yaounde, Cameroon, <sup>6</sup>Department of Bacteriology





and Virology, Catholic University of Central Africa Yaoundé, Cameroon, Yaounde, Cameroon

**Background:** Prisoners do form a fundamental part of key populations but with low health coverage. Despite the significant increase in national and international funding to control HIV, health services in prisons remain severely underfunded. The purpose of this study was to assess HIV VL suppression of inmates based on their treatment regimen, prison of incarcerated, and PEPFAR support.

**Materials and Methods:** The study was retrospective, with a cross-sectional arm conducted in four different prisons in Cameroon; prisons A, B, C, and D. We collected blood samples and data from illegible participants. R statistical software version 4.0.5 was used to manage, clean, and analyze data, exported as comma-separated value files in Microsoft Excel. A descriptive analysis of the participant's age was done and Fisher's exact test was used to analyze and compare suppression rates, with P-values of less than 0.05 considered statistically significant.

**Results:** 268 inmates on ARVs participated. The overall viral suppression (VL<1000 copies/mL) rate was 89.9%. The suppression rate in descending order among inmates in the different prisons was 94.25%, 87.69%, 78.95%, and 50% for Prison C, D, A, and B respectively. Viral suppression was strongly associated with the prison in which the inmate was incarcerated with  $p = <0.001$ , the suppression rate was higher in inmates on dolutegravir combination TDF/3TC/DTG, with  $p = 0.027$ . A high suppression rate was observed in prison health facilities supported by PEPFAR compared to those not supported by PEPFAR,  $X(1) = 13.28$ ,  $p = 0.000268$ , with a suppression rate of 92.5% for PEPFAR-supported prison health facilities and 67% for PEPFAR non-supported prison health facilities.

**Conclusion:** Available data on HIV management in correctional facilities are very limited and subject to large methodological differences, highlighting the need for standardized surveys. There is a need to harmonize the clinical management of inmates living with HIV in prisons in Cameroon and Africa at large. Prisons must be seen as a setting for public health promotion to ensure that "no one is left behind", thus achieving HIV pandemic control.

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## Key Population's Preferences in Initiating and Continuing PrEP in Community- or Facility-Based Settings within three Sub-Saharan African Countries

Lillie T<sup>1</sup>, Boyee D<sup>1</sup>, Ranebennur V<sup>1</sup>, Kumar Thakur P<sup>1</sup>, Amedzi A<sup>2</sup>, Nunoo G<sup>2</sup>, Rangoanana M<sup>3</sup>, Lehlola J<sup>3</sup>, Parola G<sup>1</sup>, Sithole B<sup>4</sup>, Matsebula M<sup>4</sup>, Akolo C<sup>1</sup>, Fischer Walker C<sup>1</sup>

<sup>1</sup>FHI 360, Washington, United States, <sup>2</sup>FHI 360, Accra, Ghana, <sup>3</sup>FHI 360, Maseru, Lesotho, <sup>4</sup>FHI 360, Mbabane, Eswatini

**Background:** Client-centered service delivery at both community and facility settings aims to increase access to pre-exposure prophylaxis (PrEP). The PEPFAR- and USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Eswatini, Ghana, and Lesotho implemented PrEP to prevent HIV acquisition among key populations (KPs) [men who have sex with men (MSM), female sex workers (FSWs)], in both settings. We sought to categorize clients' PrEP initiation preferences by population, age, and country.

**Materials and Methods:** We analyzed routine EpiC programmatic data from October 2022 -- June 2023 from three countries to compare PrEP initiation and refills in community vs facility sites. The two settings were reviewed at initiation, and at first, second, and third refill visits. We used Chi-squared to determine if there were differences by site stratified by KP type, age, and country. We calculated the odds of refills in the community as compared to the facility for the three visits.

**Results:** Overall, 83.6% of KP initiated in the community (95% CI: 82.5% - 84.6%) and 16.4% initiated in the facility (95% CI: 15.4% - 17.5%). There was slight variation in proportion among FSW and MSM, with FSW being more likely to initiate in the community than MSM (86% vs 81%,  $p < 0.001$ ). The odds of returning for first refill was 1.5 times ( $p < 0.001$ ), second refill 1.4 times ( $p = 0.005$ ) and third refill 0.9 ( $p = .08$ ) when in the community vs facility, with MSM contributing significantly to the results compared to FSW.

**Conclusions:** KPs from the three countries are more likely to access PrEP services in community



compared to facilities for initiation and refill visits. Yet, a sizeable number of clients access facility-based settings, so offering differentiated service delivery models is essential to improving initiation and usage overtime.

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## Empowering Key Population through community-led Intervention: Lessons and Future Directions of HIV Self-testing Integration for Enhanced Access and Sustainability in Ghana

**Nartey D**<sup>1</sup>, Abdul Rahman Y<sup>1</sup>, Adiibokah E<sup>1</sup>, Tagoe H<sup>1</sup>, Azugnue T<sup>1</sup>, Issifu Z<sup>1</sup>, Akorli N<sup>2</sup>, Nagai H<sup>1</sup>  
<sup>1</sup>JSI, Takoradi, Ghana, <sup>2</sup>Ghana Health Service, Sekondi-Takoradi, Ghana

**Background:** HIV testing is the first step within the cascade for comprehensive service provision encouraging all persons to test and know their HIV status, and access treatment and care to ensure that HIV is no more a public health threat by 2030. However, Key Populations (KPs) in Ghana such as Female Sex Workers (FSWs) and Men who have Sex with Men (MSM) continue to face challenges accessing HIV testing. These barriers include stigma and discrimination, criminalization, fear of confidentiality breach, violence, harassment, mental health, and limited access to healthcare. The inclusion of HIV self-testing is an alternative HIV testing program that affords KPs intervention in improving access to testing.

**Description:** The Care Continuum Project collaboration with Ghana Health Service and Civil Society Organizations (CSOs) led by KPs trained staff across the three PEPFAR regions in October 2022 on HIV self-testing. The training focused on guidelines and integration of HIV self-testing. KP community volunteers incorporated self-testing messaging in HIV prevention, treatment, and care support to peers. We leveraged the existing healthy living platform providing confidential online services through phone counseling. This enhances KP's access to information and follow-up care and support, especially for those opting for

unassisted testing. The platform facilitates reports of reactive cases, connecting them to healthcare professionals for confirmatory tests based on the national testing algorithm.

**Lesson Learnt:** The community-centered approach not only disseminated crucial information but also provided a supportive network, thereby breaking down barriers related to stigma and discrimination. The proportion of FSWs accessing HIV self-testing almost quadrupled from 7% (314/3481) in 2022 to 26% (1666/6342) in 2023. Similarly, uptake of HIV self-testing among MSM also increased from 4% (122/2943) in 2022 to 20% (952/4673) in 2023. The distribution of HIV self-test kits also improved testing of contacts elicited from KPs index clients whose sexual contacts preferred HIV self-test.

**Next Steps:** The integration of HIV self-testing into the Project's strategy effectively addressed the multifaceted barriers faced by KPs in accessing traditional HIV testing services. Tailored interventions for KPs highlight the value of community engagement through planning, implementation, evaluation, and integration HIV self-testing into the healthcare system.

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## Pre-Exposure Prophylaxis Initiation and Adherence in Female Sex Workers at New Africa House Clinic in Harare, 2020-2021

**Masoka T**<sup>1</sup>, Dhakwa D<sup>1</sup>, Mudokwani F<sup>1</sup>, Maponga B<sup>2</sup>, Mavudze J<sup>2</sup>, Munjoma M<sup>2</sup>, Leuschner S<sup>2</sup>, Tachiwenyika E<sup>1</sup>, Mafaune H<sup>1</sup>, Chikaka E<sup>3</sup>, Mugomeri E<sup>3</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>Population Services International, Harare, Zimbabwe, <sup>3</sup>Africa University, Mutare, Zimbabwe

**Background:** Preventing Human Immunodeficiency Virus (HIV) in female sex workers (FSW) is crucial. Pre-Exposure Prophylaxis (PrEP) offers additional safety for populations at substantial risk of acquiring HIV. Secondary data analysis was done to determine factors associated with the female



sex workers decision to initiate and adhere to PrEP medication.

**Materials and Methods:** Between June 2020 and December 2021, New Africa House Clinic recruited 1285 FSW in the electronic medical records system-BAHMNI. Logistic Regression analysis was used to determine the predictor variables associated with the FSW decision to initiate and adhere to PrEP.

**Results:** After adjusting for all other independent variables, the probability that FSW in the age group 20-24 were adherent to PrEP medication was 1.7 times higher compared to age category 18-19 (95% CI: 0.7-4.2) though not statistically significant. The Wald test showed statistically significant association with adherence to PrEP only in the 40-44 years age groups ( $p=0.022$ ). Married FSW were 6.7% less likely to adhere to PrEP medication compared to single FSW (95%CI: 0.4–2.5). For FSW who were divorced, the probability was 15.6% less than the single FSW (95%CI: 0.5–1.3) and for widowed, the probability was 6.7 times more than the single FSW (95%CI: 1.0–46.4). The Wald test also showed statistically significant association with adhering to PrEP only in the two marital statuses, cohabiting ( $p=0.028$ ) and separated ( $p=0.032$ ). Participants referred from an index patient ( $p<0.001$ ) and other partner organizations ( $p=0.034$ ) had a negative association with adherence to PrEP medication. FSW not in a sero-discordant relationship were 9.6 times more likely to adhere to PrEP compared to those in a sero-discordant relationship (95% CI: 1.6-56.1). Those without a history of sexual abuse or gender-based violence were 4.5 times more likely to adhere to PrEP compared to those with the history of sexual abuse or gender-based violence (95% CI: 1.1 - 19.2).

**Conclusions:** PrEP use in FSW was influenced by risk awareness, sexual activity, condom use, and multiple partners. Older FSW and those in sero-discordant relationships show lower adherence. Improvements in the PrEP care continuum can be achieved through targeted community support, peer interventions, and regular group meetings.

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## Poly-Drug and Poor Sexual Health Seeking Behavior Amongst Women Who Use Drugs Living with HIV aged 18-25yrs: A Case Study Across Four (4) High Risk Local Government Areas in Lagos, Nigeria

Eghaghe J<sup>1,2</sup>, Eghaghe O<sup>1,2</sup>, Monyei F<sup>1,2</sup>, Oladepo E<sup>1,2</sup>, Adebayo M<sup>1,2</sup>

<sup>1</sup>Equal Health and Rights Access Advocacy Initiative-EHRAAI, Alimosho, Nigeria, <sup>2</sup>Nigeria Network of People Who Use Drugs - NNPUD, Lagos-Island, Nigeria

**Background:** Poly-drug use is linked to unintended high incidence of HIV and other sexually transmitted infection. Evidence relating to increased drug – related harm amongst Young WWUDs Living With HIV in lieu with descriptive patterns of poly-drug use (methamphetamine /crack cocaine / synthetic cannabis / Alcohol) and associated poor sexual health seeking behavior has been of important significance towards ensuring inclusive harm reduction programming for Young WWUD living with HIV in Nigeria aged 18-25yrs.

**Materials and Methods:** We used and examined data from a cross-sectional study, which we recruited 100 Young WWUDs aged 18 -25 yrs across four (4) Local Government Areas in Lagos State, Nigeria between April 1,2023 to September 30,2023 who are reportedly ardent poly-drug users and living with HIV.

**Results:** From the 100 study participants recruited:

52 participants (52%) reported use of opiates;  
90 participants (90%) reported use of crack cocaine;  
75 participants (75% ) reported use of synthetic cannabis;  
85 participants (85%) reported use of methamphetamine;  
75 participants (75%) reported use of more than one drug cocktail;  
25 participants (25%) reported injecting Drug Use;  
35 participants (35%) disclosed their HIV/ Treatment status to their male sex partners.



However, smoking ( $p < 0.0001$ ), high risk injecting drug use amongst 25 research participants ( $p < 0.0001$ ) and HIV treatment non-adherence ( $p < 0.0001$ ) Poly-drug amongst WWUDs living with HIV use was associated with prevalence of condomless sex with HIV sero-concordant male/female partners (24% to 78%), condomless sex with HIV sero-discordant male/female partners (17% to 69%). Opiates, Methamphetamine and Crack-cocaine overdose was more strongly associated with higher- HIV risk, Injecting equipment sharing and condomless sex than were other commonly used high risk drugs.

**Conclusions:** Poly-drug use amongst Young WWUDs living with HIV and their sexual partners increases incidence of condomless sex and non adherence to HIV prevention & treatment regimen. Inclusive young persons / women - focused harm reduction support services for Young WWUDs with HIV who engage in high risk drug use will be beneficial in the reduction of drug related harm, preventive transmission of HIV and other related STIs.

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## A Community-Based Peer-Facilitated Psychological and Social Support Model to Improve Retention in Care Among Cameroonian Adolescents Perinatally Infected with Human Immunodeficiency Virus

Ateba Ndongo F<sup>1</sup>, Tchassep Nono M<sup>2</sup>, Kana R<sup>3</sup>, Awono Noah J<sup>3</sup>, Hopp E<sup>1</sup>, Ndzie P<sup>4</sup>, Tejiokem M<sup>5</sup>, Msellati P<sup>5</sup>, Ida Penda C<sup>2</sup>, Zoung-Kanyi Bissek A<sup>7</sup>, Koki Ndombo P<sup>1</sup>, Mbassi Hawa H<sup>1</sup>, Faye A<sup>8</sup>, Marc L<sup>9</sup>

<sup>1</sup>Chantal Biya Foundation, Yaounde, Cameroon, Yaounde, Cameroon, <sup>2</sup>University of Douala, Douala, Cameroon, <sup>3</sup>Media Convergence Consulting Office, Yaounde, Cameroon, <sup>4</sup>KidAIDS Cameroun, Yaounde, Cameroon, <sup>5</sup>Centre Pasteur du Cameroun, Yaounde, Cameroon, <sup>6</sup>Institut de Recherche pour le Développement, Abidjan, Ivory Coast, <sup>7</sup>University of Yaounde 1, Yaounde, Cameroon, <sup>8</sup>Hôpital Universitaire Robert Debré, Paris, Cameroon, <sup>9</sup>Institut de Recherche pour le Développement, Paris, France

**Background:** Social support for adolescents living with HIV (ALHIV) remains undocumented and unaddressed in Central Africa. This study aimed at assessing effectiveness of community-based peer-facilitated support on improving retention in care among ALHIV attending care in Chantal Biya Foundation, Yaounde, Cameroon.

**Materials and Methods:** We conducted an analysis of ALHIV included in a randomized controlled trial among ALHIV aged 10-19 years. The intervention arm received routine care and was assigned to an HIV association for sustained support model, including different types of clubs (home visits, support groups, HIV-positive status disclosure sessions, leisure workshops). Structured questionnaires, including validated French versions of the Coopersmith Child Depression Inventory, the Multidimensional Anxiety Scale for Children and the Coopersmith Self Esteem Inventory, were quarterly administered to the study participants. Good retention in care within the first 15 months after the study start was defined as keeping close enough to the month-15 medical appointment to have no more than a 45-day gap between the actual clinic attendance date and the scheduled visit date.

**Results:** In total, 302 adolescents were recruited in the study at a median age of 15.2 years old, including 159 (52.7%) girls; of whom both parents died for 57 (18.9%), only the father was alive for 64 (21.2%), only the mother was alive for 48 (15.9%), both parents were alive for 133 (44.0%). Mental health troubles were prevalent: suicidal ideation (36.4%), severe depression (26.5%), high anxiety (29.1%), and low self-esteem (20.5%). Retention in care within the first 15 months of study was significantly higher in adolescents who attended >6 clubs (79.0%) versus those who attended 1-6 clubs (57.6%) and those who attended no club (63.4%) ( $p < 0.001$ ). It was significantly better in adolescents receiving second line antiretroviral regimens ( $p < 0.001$ ), and living in highly populated (>6 people) households ( $p < 0.001$ ). However, retention in care was significantly poorer in adolescents with increasing ART duration ( $p = 0.004$ ), and with low self-esteem ( $p = 0.030$ ).

**Conclusions:** The community-based peer-facilitated model of psychological and social support interventions significantly improved retention in care among ALHIV. Therefore, capacity building in terms of peer-facilitated psychological and social support for adolescents



should be strengthened in the local community-based organizations.

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## Viral Suppression and Drug Resistance Patterns among MSM in Cameroon: Evidence supporting elimination of HIV in Key Populations

Tadenfok C<sup>1</sup>, Fokam J<sup>2,3,4</sup>, Ngoufack E<sup>2,3</sup>, Olongo A<sup>5</sup>, Fako G<sup>6</sup>, Feukeng A<sup>1</sup>, Angong G<sup>2</sup>, Durant A<sup>2</sup>, Takou D<sup>2,3</sup>, Ateba J<sup>7</sup>, Kamgain T<sup>7</sup>, Ndzie B<sup>7</sup>, Badona F<sup>8</sup>, Biogono E<sup>8</sup>, Elong E<sup>2</sup>, Anouar D<sup>9</sup>, Chenwi C<sup>2,3,10</sup>, Anjeh R<sup>11</sup>, Hamsatou H<sup>11</sup>, Bissek A<sup>11</sup>, Abah Abah A<sup>12</sup>, Vouking M<sup>13</sup>, Njindam I<sup>14</sup>, Ndembi N<sup>15</sup>, Perno C<sup>16</sup>, Nkenfou C<sup>2,17</sup>

<sup>1</sup>Catholic University Of Central Africa, Yaounde, Cameroon,

<sup>2</sup>Chantal Biya International Reference Centre for research on HIV/AIDS prevention and management, Yaounde, Cameroon,

<sup>3</sup>National HIV Drug Resistance Prevention and Surveillance Working Group, Ministry of Public Health, Yaounde, Cameroon,

<sup>4</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon,

<sup>5</sup>Faculty of Theology, Protestant University, Brussels, Belgium,

<sup>6</sup>Health Promotion Initiative, Yaounde, Cameroon,

<sup>7</sup>Humanity First Cameroon Plus, Yaounde, Cameroon,

<sup>8</sup>Laboratoire Dream Nkolondom, Yaounde, Cameroon,

<sup>9</sup>United Nations Programme on HIV/AIDS (UNAIDS), Yaounde, Cameroon,

<sup>10</sup>Faculty of Medicine and surgery, University of Rome Tor Vergata, Rome, Italy,

<sup>11</sup>Central Technical Group, National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon,

<sup>12</sup>Department of Disease, Epidemics and Pandemic Control, Ministry of Public Health, Yaounde, Cameroon,

<sup>13</sup>Center for the Development of Best Practices in Health, Central Hospital, Yaounde, Cameroon,

<sup>14</sup>Johns Hopkins Cameroon Program, Yaounde, Cameroon,

<sup>15</sup>Africa Centres for Diseases Control and Prevention (Africa CDC), Addis Abeba, Ethiopia,

<sup>16</sup>Bambino Gesu' Children's Hospital, Rome, Italy,

<sup>17</sup>Department of Biological Science University of Yaounde I, Yaounde, Cameroon

**Background:** Key populations (KP) stand higher risks of acquiring HIV-infection than any other targets; with men having sex with men (MSM) being the most vulnerable sub-population. Thus, ensuring an effective treatment response among MSM in low and middle-income countries (LMICs) would contribute substantially in achieving HIV global elimination goals. We thus aimed at evaluating the virological response and acquired HIV drug resistance (HIVDR) patterns among MSM in Cameroon.

**Materials and Methods:** A facility-based study was conducted from August-2022 to February-2023 among ART-experienced MSM receiving at Humanity First Plus (Community Based Organization; CBO) in Yaoundé-Cameroon. Viral load (VL) was measured using Abbott m2000rt, and VL<50 copies/mL was considered as undetectable while all VL<1000 copies/mL was considered as suppressed viremia. Cases of confirmed unsuppressed viremia were enrolled for HIV genotypic resistance testing using the Sanger-sequencing. HIV drug resistance (HIVDR) was interpreted using the Stanford HIVdb v9.4, and molecular phylogeny was used for HIV subtyping.

**Results:** Of the 95 ART-experienced MSM at the CBO during the study period, 82 (86.3%) provided informed consent for participation. Their median [IQR] age was 27 [21-37] years and 75/82 (91%) reported having multiple sexual partners. Regarding ART history, median [IQR] duration on ART was 4 [2-5] years and most prescribed ART regimens were TDF+3TC+DTG (95%; 78/82); TDF+3TC+EFV (2.4%; 2/82) and ATV/r+3TC+TDF (2.4%; 2/82). Virological response revealed an overall rate of 97.6% (80/82) viral suppression, indicating a high level of HIV prevention among MSM receiving ART. A rate of 70.7% (58/82) MSM achieved an undetectable viremia (VL<50 copies/mL), indicating an optimal prevention of HIVDR emergence. Following enhanced adherence council sessions, only 2 cases remained unsuppressed (64,109 and 104,440 copies/mL), and HIV-1 sequencing revealed one case harboring drug resistance mutations (G190GE, L210W), indicating an overall rate of 1.2% (1/82) HIVDR at the facility-level. Phylogenetic analysis indicated the presence of the HIV-1 subtypes A1 and CRF02\_AG.

**Conclusions:** Among ART-experienced MSM in Yaoundé, receiving predominantly DTG-containing regimens, viral suppression rate is above the 95% target, indicating prevention of HIV transmission among this KP. Furthermore, the low rate of HIVDR underscores the high effectiveness of current ART regimens used among KP in similar LMICs.



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## “Bluetothing”: Knowledge, Attitudes and Behaviour on Unsafe Drug Injection Behaviour and Its Risks to HIV Transmission Among Adolescents and Young People in Zimbabwe

Choi H<sup>1</sup>, Mujoma M<sup>1</sup>, Kunaka N<sup>1</sup>, Nhando N<sup>1</sup>, Chatora K<sup>1</sup>, Mavudze J<sup>1</sup>, Moga T<sup>1</sup>, Mutede B<sup>1</sup>, Tarubekera N<sup>1</sup>

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe

Drug and substance abuse (DSA) is one of the most pressing public health issues in young Zimbabwe populations, and 57% of youths were reported to engage in substance use in 2019. Within various DSA patterns, injection accounts for the second riskiest behaviour for HIV acquisition globally. As DSA becomes more prevalent in high HIV-burden communities like Zimbabwe, it is important to understand contexts around injection drug use and HIV transmission among adolescents and young people (AYP).

We employed a mixed-method study in two metropolitan provinces in Zimbabwe from February to March 2023. We administered a questionnaire to randomly selected AYP and 24 in-depth interviews with purposively selected community- and national-level key stakeholders to assess their knowledge, attitude, and behaviours on adolescent DSA and subsequent HIV risks. We collected quantitative data with KoBo Toolbox and analysed using SPSS Statistics, and we utilised an inductive approach and thematic coding for qualitative analysis.

We recruited 770 AYP (410 male, 358 female, and two transgender) for the survey. 50.5% of males and 36.6% of females responded that they had engaged in DSA within the past three months. 3.8% of them had previously used injection as method, and all of them indicated the experience of sharing unsterilised injection equipment with others. Only 26.2% and 10.1% of AYP who use drugs had knowledge of HIV transmission risk through sharing and using non-sterilised injection equipment, respectively, whereas 97.6% were aware of the risk of unprotected sex. From IDIs, we

identified a rise of a new drug injection behaviour called ‘bluetothing’ among AYP, a direct person-to-person injection of blood drawn from an individual who is already intoxicated, mainly due to a lack of financial resources to purchase safe injection supplies and substances.

Findings show an intricate dynamic between DSA and potential HIV transmission through a new unsafe drug injection behaviour in Zimbabwe. Lack of resources and attention towards ‘bluetothing’ facilitates AYP’s easier access to substance use and increases their chances of HIV acquisition. As we move to the status neutral approach, it is necessary to develop targeted solutions for unsafe injection behaviours to prevent transmission among AYP.

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## Willingness to Take and Ever Use of Pre-exposure Prophylaxis Among Men Who Have Sex with Men in Ghana

Apreku A<sup>1</sup>, Guure C<sup>2</sup>, Dery S<sup>2</sup>, Alhassan Y<sup>1,3</sup>, Holdbrook D<sup>1</sup>, Addo S<sup>4</sup>, Torpey K<sup>1</sup>

<sup>1</sup>Department of Population, Family and Reproductive Health, School of Public Health, University of Ghana, Accra, Ghana, <sup>2</sup>Department of Biostatistics, School of Public Health, University of Ghana, Accra, Ghana, <sup>3</sup>Total Family Health Organisation, Accra, Ghana, <sup>4</sup>National AIDS/STI Control Programme, Ghana Health Service, Accra, Ghana

**Background:** HIV prevalence among men who have sex with men (MSM) is 18.1% as compared to 1.6% in the general population. Pre-exposure prophylaxis (PrEP) is a drug taken by people who are HIV-negative and at high risk of acquiring HIV. Since implementation in Ghana, little is known about the national prevalence of PrEP among MSM. The objective of this study is to assess the willingness and ever use of PrEP among MSM in Ghana and its contributing factors.

**Materials and Methods:** We conducted a bio-behavioral survey among MSM aged 18 years and above in Ghana from August 2022 to July 2023 using respondent-driven sampling (RDS). RDS Analyst was used to compute weight based on participants network and Stata version 18 was used for data analysis. Analysis was done on MSM who tested negative for HIV and were sexually active. “Have you ever taken PrEP” and, “Would



you take PrEP to prevent HIV” was used to assess uptake and willingness. We estimated the prevalence of willingness and ever taken and weighted multivariable logistic regression was used to assess associated factors.

**Results:** Out of 2,627 MSM with complete data on ever-taken PrEP, 17.8% reported having ever taken PrEP. Out of 1,094 MSM with complete data on willingness to take PrEP, 90.3% reported their willingness to take PrEP. The median age of the respondent was 24(IQR=21-27). MSM who had completed Tertiary had 3 times higher odds of ever taking PrEP.(aOR: 3.14, 95% CI: 1.26-7.81), 25% higher among those who have come in contact with peer educators (aOR: 3.08, CI: 1.52-6.2) and 90% lower likelihood among those who have never tested for HIV(aOR:0.10, 95% CI: 0.06-0.16). MSM aged 25-34 were less likely to use PrEP, (aOR: 0.18, 95% CI:0.05-0.57) as well as those who were married (aOR: 0.15, 95% CI: 0.05-0.41) and high alcohol intake (aOR: 0.40, 95% CI: 0.16-0.98).

**Conclusions:** In Ghana, willingness to use PrEP to prevent HIV is high but uptake is low. Our results highlight the need for interventions to improve the overall uptake of PrEP among MSM in Ghana.

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## HIV Testing Uptake Among Adolescent Girls and Young Women Who Misuse Drugs or Alcohol in Selected Districts of Zimbabwe, 2023

**Sibanda T**<sup>1</sup>, Mafaune H<sup>1</sup>, Yogo K<sup>1</sup>, Masoka T<sup>1</sup>, Nyamwanza B<sup>3</sup>, Dhakwa D<sup>1</sup>, Yekeye R<sup>3</sup>, Mugariri E<sup>1</sup>, Madzima B<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Tachiyenyika E<sup>1</sup>, Mudzengerere F<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>3</sup>National AIDS Council, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** HIV remains a public health concern globally with adolescent girls and young women (AGYW) in sub-Saharan Africa at substantial risk. In 2023, AGYW contributed two thirds of global infections. Key drivers for risk of HIV among AGYW

include gender inequalities, poverty, power disparity between men and women, and drug and alcohol misuse. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program to reduce HIV incidence among AGYW across 9 high HIV burden districts. We assessed HIV testing uptake among AGYW who misuse drugs and alcohol in ZHI-supported districts.

**Materials and Methods:** We conducted a descriptive study to determine HIV testing service uptake and how drug and alcohol misuse affected this among AGYW enrolled in the DREAMS program. Data were collected from AGYW enrolled in DREAMS program for the period October 2021 to December 2022 and analysed using STATA version 16 generating frequencies, proportions, and measures of association. Binary logistic regression was used to compute Chi-square tests and odds ratios for the comparison. Study received ethics approval from Medical Research Council of Zimbabwe (MRCZ/A/2933).

**Results:** Of the 2,143 AGYW aged 10-19 interviewed, 2.9% (62/2,143) misused drugs or alcohol, and of these, 3.2% (21/663) were in urban areas whilst 2.8% (41/1,480) were from rural areas. Majority of AGYW who misused alcohol or drugs were single (98%). Of the AGYW who misused alcohol or drugs, 17.7% (11/62) knew their HIV status. AGYW who were in urban areas and misuse alcohol, or drugs were more likely to know their HIV status than in rural areas [OR =3.06 (95% CI =1.48: 6.36)]. Moreover, AGYW who were sexually active and misused drugs were more likely to know their HIV status [COR=3.03; 95% CI (1.18; 7.82)]. The DREAMS program encourages AGYW to know their HIV status through training and peer motivation during social asset building clubs.

**Conclusions:** HIV testing uptake among AGYW who misuse alcohol or drugs remains low and factors associated with HIV testing uptake included staying in urban areas and being sexually active. We recommend customised interventions for AGYW who misuse alcohol or drugs to improve HIV testing outcomes.



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## Qualitative Identification of Differentiated Care Model Preferences to Support HIV Care Linkage and Continuation Post-release From Incarceration in South Africa

Ntombela N<sup>1,2</sup>, Mabuto T<sup>1</sup>, Woznica D<sup>3</sup>, Owczarzak J<sup>3</sup>, Charalambous S<sup>1,2</sup>, Hoffmann C<sup>1,3</sup>

<sup>1</sup>The Aurum Institute, Park Town, South Africa, <sup>2</sup>University of Witwatersrand, Johannesburg, South Africa, <sup>3</sup>Johns Hopkins University, Baltimore, America

**Background:** Globally, and in South Africa specifically, HIV care linkage and continuation post-release from incarceration is a challenge. In South Africa, disengagement from HIV care during a releases' first 6 months on community re-entry has been estimated at approximately 56%, and only 34% of people with previous criminal justice involvement report to health care facilities within 90 days post-release. Despite substantial progress many countries in sub-Saharan Africa have made towards achieving global HIV treatment targets, retaining clients on antiretroviral therapy (ART) after criminal justice involvement remains a key barrier in efforts to end the HIV epidemic.

**Materials and Methods:** Towards developing targeted, patient-centered HIV care to improve retention on treatment post-release, we used semi-structured interviews to explore preferences for differentiated care modalities. We followed up releases from three South African correctional centers to understand their HIV care seeking pathways on community re-entry. Transcripts were coded to reflect key analytic concepts related to linkage to care, including ART access and adherence, employment status, and substance use post incarceration.

**Results:** Between March and November 2017, we interviewed 32 men and women aged 22-48 years with previous incarceration ranging 6 months-14 years. Emergent preferences were based on the need for tangible and mental resources for HIV treatment support. Participants described a desire to receive support from peers to discuss shared experiences (illness and incarceration), ways to manage their treatment (food access), and criminal record status (employment seeking).

Participants recognized the importance of clinic-based care and treatment; however, they highlighted fear relating to clinic attendance, which could be assuaged by pharmacy pick-ups. Identified benefits of pharmacy pick-up were anonymity, proximity to business areas for job seeking and extended operating hours. Home delivery was least preferred, with participants citing community-level stigma and involuntary disclosure.

**Conclusions:** Participants identified preferences for modes of delivery for HIV treatment on community re-entry. These were built on existing resources in their social networks, emphasizing a desire for peer-to-peer support interventions while those in current employment preferred pharmacy pick-up. Further work is needed to develop peer-to-peer support groups and pharmacy pick-up interventions for people with previous criminal justice involvement for HIV care delivery.

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## Results and Cost of Baseline Serum Creatinine Testing Among Key and Vulnerable Populations: Analysis of Routine Oral PrEP Program Data in Tanzania

Herman E<sup>1</sup>, Ogwang B<sup>1</sup>, Ng'weshemi J<sup>1</sup>, Sage B<sup>1</sup>, Abel J<sup>1</sup>, Massawe G<sup>1</sup>, Jonh A<sup>1</sup>, Boyee D<sup>1</sup>, Akolo C<sup>2</sup>, Carpenter D<sup>2</sup>

<sup>1</sup>FHI360, Dar Es Salaam, Tanzania, <sup>2</sup>FHI360, Washtong DC, USA

**Background:** WHO recommended Pre-exposure Prophylaxis (PrEP) as preventive measure against HIV for individuals who are at substantial risk of acquiring HIV. PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project collaborates with the Ministry of Health to scale-up HIV prevention services, including oral PrEP among key and vulnerable populations (KVP). Tanzanian National guidelines mandate serum creatinine clearance (CC) before PrEP initiation. We present results of baseline CC among KVP initiated on PrEP and associated cost implications.





**Materials and Methods:** Prior PrEP initiation healthcare provider takes blood sample for serum creatinine testing and offers one month of PrEP. Samples are taken to health facilities with result turnaround time of 2 weeks. Individual client data, including estimated CC were recorded in PrEP client card and entered in DHIS2 database. We analyzed CC results from routine program data between October 2022 and September 2023, disaggregated by age and sex. We calculate average unit cost for creatinine testing, excluding costs for sample collection, human resources, and transportation.

**Lessons Learnt:** 22,572 individuals initiated oral PrEP, of whom 95% were 15-39 years. Among those initiated, 93.3% (21067/22572) were tested for serum creatinine, 99.3% (20,911/21067) had CC of above 60ml/min and 156 (0.7%) had CC below 60ml/min. There is no statistical significant difference by age for those with CC below 60ml/min; 0.8% (111/13452) among <30-year-olds, 0.6% (41/6349) among 30-39 year-olds and 0.4% (4/996) among 40+ years (p=0.217). The proportion of women with CC <60ml/min was higher than men (0.8 vs 0.3, p= 0.004). 10% of those with CC <60ml/min had history of medical conditions, including diabetes, hypertension, and kidney disease and none of those with CC above 60ml/min reported any medical condition. The estimated total cost was USD 77,706 with an actual serum creatinine test averaged USD 5.8 (interquartile range ~3.9 – 7.5 USD) per individual.

**Conclusions:** Majority of client-initiated PrEP had normal baseline CC. To improve access, countries should consider adapting WHO recommendation that removes requirement for mandatory baseline CC for PrEP initiation. Given few individuals with abnormal results, there is an opportunity to save costs, facilitate efficient resource allocation, and promote efforts to improve PrEP continuation and monitoring.

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## Private-Public Partnership Supporting Sexually Exploited Minors and Young Women Selling Sex to Launch Microenterprises: Lessons Learned from Enhanced Economic Strengthening Implementation Within DREAMS in Zimbabwe

**Ncube J<sup>1</sup>**, Moyo P<sup>1</sup>, Nyakuwa S<sup>1</sup>, Murungu J<sup>1</sup>, Mahaka I<sup>1</sup>, Mashapa R<sup>2</sup>, Sibanda L<sup>2</sup>, Gonese G<sup>2</sup>, Makunike B<sup>2</sup>, Sola T<sup>3</sup>, Ncube G<sup>3</sup>, Mharadze T<sup>4</sup>, Malaba R<sup>4</sup>, Korn A<sup>5</sup>, Thompson K<sup>5</sup>, Wiktor S<sup>5</sup>  
<sup>1</sup>Pangea Zimbabwe Aids Trust, Bulawayo, Zimbabwe, <sup>2</sup>Zimbabwe Technical Assistance, Training & Education Center for Health, Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>4</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Harare, Zimbabwe, <sup>5</sup>International Training and Education Center for Health, Washington DC, United States

**Background:** The Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program aims to reduce new HIV infections among sexually exploited minors (SEM) and young women selling sex (YWSS) aged 15 to 24 years. YWSS/SEM received need-based-integrated technical skills trainings to alleviate poverty which exposes YWSS/SEM to HIV as they transact sex for income.

**Description:** In July 2021 a vulnerability assessment tool was used to identify YWSS/SEM eligible for enhanced economic strengthening (EES) based on economic vulnerability and willingness to participate in long term EES projects. Ministries of women affairs, youth, agriculture, and social development were approached to conduct two days skills trainings for YWSS/SEM on projects that were deemed viable through community engagement. Trained YWSS/SEM received \$100 each as a starter-up pack to start, improve or enhanced their businesses. Supported skills in this program included making liquid-laundry soap and petroleum jelly, poultry breeding, crop production, bookkeeping, hairdressing, and catering. To ensure project sustainability support and mentorship visits were conducted by DREAMS and related ministry



officials. YWSS/SEM participating in EES projects were linked to markets through synergies between public and private partnerships.

**Lessons Learnt:** This multi-sectorial approach resulted in relevant training, mentoring, and support that enabled YWSS/SEM to launch business. Private-public synergies enabled resource mobilization to supplement DREAMS efforts. Need-based-integrated technical skills transfer economically empowered YWSS/SEM leading to an increase in disposable income and reduced reliance on transactional sex. Continued support, mentorship and look and learn visits for YWSS/SEM impacted hands-on knowledge and eagerness to continue with businesses. YWSS/SEM showcased handmade products at international fairs, opening doors for long-term business opportunities. Starter-up packs enabled YWSS/SEM to build and own businesses. Economically supported YWSS/SEM verbalized reduced dependency on transactional sex as time was spent on business management, significantly reducing chances for new HIV infections.

**Next steps:** DREAMS and other district stakeholders will continue supporting YWSS/SEM to showcase products at local and regional business market fairs. YWSS/SEM will be encouraged to engage in Internal-Savings-And-Lending-Scheme for access to sustainable financing, to boost their business. Business diversification will help expand YWSS/SEM product market. YWSS/SEM to mentor and problem-solve with other entrepreneurs.

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## The Centrality of Key Populations Leadership in “Going the Last Mile for HIV Control”, Lessons from Zimbabwe

**Ndondo H<sup>1</sup>**, Mutede B, Tarubekera N, Mavudze J, Madzima B, Yekeye R, Ncube G, Mugurungi O, Sibindi M, Dhlamini R

<sup>1</sup>National AIDS Council, Zimbabwe, Harare, Zimbabwe

**Background:** Despite the remarkable progress in the HIV response in Zimbabwe, HIV programmes

for key populations (KP) are characterised by incomplete HIV service packages, inadequate precision and differentiation for provision of targeted and tailored interventions, and insufficient scale to achieve public health impact. KP communities contend with pervasive experiences of criminalization, stigma and discrimination that pose significant barriers to access to HIV services.

**Description:** In partnership with the Zimbabwe Ministry of Health and Child-Care and National AIDS Council, Populations Services International with support from PEPFAR through USAID implemented a five year “Going the Last Mile for HIV Control” programme reaching 166, 293 KPs in six districts namely Harare, Chitungwiza, Bulawayo, Masvingo, Mutare and Gweru. The program reached 76, 512 (95%) of MSM, 84, 845 (107%) sex workers and 4, 936 (142%) transgender persons with differentiated HIV combination prevention services; 15, 565 (117%) of KPs were linked to anti-retro viral treatment and (172%) HIV negative KPs were initiated on pre-exposure prophylaxis. More than 120 KP identifying individuals provided a range of expertise from field-based community navigation for case-finding, providing person-centred HIV service delivery, technical support, leadership and coordination. The Last Mile network supported convenings of KP communities to interrogate progress in the HIV response, determine community priorities and strategize to embolden the role and voice of communities.

**Lessons Learnt:** The leadership of KPs in ending AIDS is imperative. KP communities play a central role in the successful implementation of resilient HIV prevention and treatment programmes, withstanding multiple shocks including the COVID19 pandemic, climate catastrophies and macro-economic challenges. KPs are critical in articulating human centred insights upon which robust HIV programs are tailored to target and respond to the heterogenous needs of communities. Partnerships with KP-led CBOs foster stewardship of communities, elevating the leadership of KP implementing partners, and champions to mobilize resources, provide home-grown solutions and sustain progress.

**Conclusions:** Empowered communities are central to the sustainability of the HIV response, the success of the “Last Mile” is testimony of the indispensable role of KP communities in optimizing the HIV response and bringing an end to AIDS.



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## Are We Doing Enough to Understand Other Drivers of Low Oral PrEP Continuation Rates? Learnings From Oral PrEP Programming in Zimbabwe

Mavudze J<sup>1</sup>, Taruberekera N<sup>1</sup>, Mutede B<sup>1</sup>, Ncube G<sup>2</sup>, Leuschner S<sup>3</sup>, Muchara A<sup>4</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe, <sup>2</sup>Ministry Of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Services International, Harare, Zimbabwe, <sup>4</sup>USAID, Harare, Zimbabwe

**Background:** Since the introduction of oral Pre-exposure Prophylaxis (PrEP) in 2012, approximately 4 million people initiated by 2023 globally. Despite encouraging progress in oral PrEP initiations, PrEP continuation rates have been consistently low; 28% at 6 months and 19% at 12 months according to programme data from Cameroon, and Zimbabwe has similarly low rates. Currently, PrEP continuation rates do not consider intended duration. This background motivated us to explore if intended duration on PrEP has implications on continuation rates.

**Materials and Methods:** The study analyzed HIV program data from October 2021 to June 2023 from six clinics in five urban areas in Zimbabwe. The program was supported by the PEPFAR (President's Emergency Plan for AIDS Relief) through Population Services International and Population Solutions for Health. STATA was used for data analyses.

**Results:** Over this period, 38,239 individuals were initiated on PrEP. Among them, 31% intended to use PrEP for 1 month, 7% for 2 months, 40% for 3 months, and 22% for 4 months or more. About 57.2% (95% CI: 56.4-58.0) of men who have sex with other men, 51% of transgender persons (95% CI: 47.3-53.7), 63%, (95% CI: 62.5-64.4) of female sex workers and 87.7%, (95% CI: 86.9-88.4) of AGYW intended to be on PrEP for 3 months or less. Using intended duration on PrEP, we noted that 74% (95% CI: 73.1-74.2) continued at month 1, 66% (95% CI: 65.1-66.3) at month 3, and 40% (95% CI: 39.2-41.7) at month 6. Continuation rates without factoring intended duration were 47% (95% CI: 46.6-47.6) at month 1, 39% (95% CI: 46.6-

47.6) at month 3, and 21% (95% CI: 20.4-21.2) at month 6.

**Conclusions:** The majority of individuals initiating PrEP in this study intended to use it for shorter periods, leading to low continuation rates beyond 3 months. The study emphasizes the importance of considering intended duration when calculating PrEP continuation rates. Understanding the reasons behind shorter intended durations is crucial for optimizing the effectiveness of oral PrEP.

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## Effect of Cyclone Freddy on HIV Treatment Services in Zambézia Province, Mozambique

Tique J<sup>1</sup>, Ntasis E<sup>1</sup>, De Schacht C<sup>1</sup>, Graves E<sup>2</sup>, Matsimbe J<sup>3</sup>, Verissimo C<sup>4</sup>, Pathmanathan I<sup>5</sup>, Benech I<sup>5</sup>, Dique L<sup>5</sup>, Wester C<sup>2,6</sup>

<sup>1</sup>Friends in Global Health (FGH), Maputo, Mozambique, <sup>2</sup>Vanderbilt University Medical Center, Vanderbilt Institute for Global Health, Nashville, United States, <sup>3</sup>Friends in Global Health (FGH), Quelimane, Mozambique, <sup>4</sup>Ministry of Health, Provincial Health Directorate of Zambézia, Quelimane, Mozambique, <sup>5</sup>Centers for Disease Control and Prevention, Division of Global HIV & TB, Maputo, Mozambique, <sup>6</sup>Vanderbilt University Medical Center, Department of Medicine, Division of Infectious Diseases, Nashville, United States

**Background:** Between January 2021 and March 2023, nine cyclones made landfall in Mozambique. Cyclone Freddy made its 2nd landfall on March 11th, 2023, impacting 1.1 million persons. In Zambézia Province 22,116 people sought refuge in accommodation centers and approximately 2,000 houses were destroyed or damaged. We describe response efforts to mitigate the effect of Cyclone Freddy on HIV service continuity for 378,350 people living with HIV (PLHIV) on antiretroviral therapy (ART) in Zambézia Province.

**Materials and Methods:** Mitigation interventions initiated two days after landfall and extended to September 2023, including: i) performing assessments evaluating service disruption and infrastructure damage, categorizing districts as directly-affected (directly hit), flood-affected (not directly hit but experienced post-cyclone flooding), and unaffected (not directly hit or flooded), ii) executing 63,744 community ART distributions; iii)



conducting 128 reintegration campaigns whereby clinical teams provided HIV-related services to 5,971 PLHIV in directly-affected and flood-affected districts; iv) repairing 37 damaged health facility roofs, and v) re-establishing electronic medical record systems interrupted due to power cuts, and infrastructure damage. We analyzed aggregated clinical data from October 2022 to September 2023 to assess trends in interruptions in treatment (IIT) among PLHIV on ART comparing the directly-affected, flood-affected and unaffected districts. IIT is defined as the number of PLHIV on ART with no clinical contact or antiretroviral drug pick-up >28 days since their last expected clinical contact or drug pick-up.

**Results:** In April 2023, 8.6% and 10.6% of all PLHIV on ART in directly- and flood-affected districts respectively, experienced IIT, compared to 4.6% in unaffected districts. Flood-affected districts returned to their pre-cyclone IIT levels (average 2.3% between October 2022 and January 2023) faster (within 3 months) compared to cyclone-affected districts (within 6 months). By September 2023, 3.1% and 2.6% of PLHIV on ART in directly- and flood-affected districts, respectively, experienced IIT, similar to 3.0% in unaffected districts.

**Conclusions:** Findings highlight the immediate increase in IIT among PLHIV on ART residing in cyclone-affected areas. Given the frequency of cyclones affecting Mozambique, these findings underscore the need for programming adaptation in response to climate-related emergencies, and for emergency response preparedness to ensure continuity of HIV services.

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## Scaling up Access to HIV Treatment Services Among Children and Adolescents Enrolled in a PEPFAR Program in Nigeria: Lessons and Experiences from State Health Insurance Schemes

Idaboh T<sup>1</sup>, Odukoya O<sup>2</sup>, Katbi M<sup>1,3</sup>, Idemudia A<sup>1,4</sup>, Asaolu O<sup>1,4</sup>, Obiora-Okafor C<sup>1,4</sup>, Egena P<sup>1,5</sup>, Pius J<sup>1,6</sup>, Goldstein R<sup>1,6</sup>

<sup>1</sup>USAID, Abuja, Nigeria, <sup>2</sup>Lagos University Teaching Hospital, Lagos, Nigeria, <sup>3</sup>USAID - HIV/AIDS & TB, Prevention and Community Programs, Abuja, Nigeria, <sup>4</sup>USAID -HIV/AIDS & TB - Strategic Information Unit, Abuja, Nigeria, <sup>5</sup>USAID - HIV/AIDS & TB -Health Care Financing & Private Sector, Abuja, Nigeria, <sup>6</sup>USAID - HIV/AIDS & TB Office - Senior Management Team, Abuja, Nigeria

**Background:** Nigeria has poor viralsuppression-rates among children and adolescents (0-19 years) living with HIV (CALHIV). The problem is due to inadequate-access to treatment and affordable healthcare. Evidence shows access to health-insurance improves viral-suppression-rates and health-outcomes among adults living with HIV, however the extent to which current health-insurance mechanisms affect children and adolescents remains unknown. This study examines access to health-insurance and viral-suppression-rates among CALHIV enrolled in Nigeria over a four-year period.

**Description:** A USAID-funded Orphans and Vulnerable Children Program in Nigeria, through the Integrated-Child-Health and Social-Services Award Project which commenced in December 2019, collaborated with State Contributory Health Management Agencies to enroll children/adolescents and their caregivers in State Health Insurance Schemes in five states namely Adamawa, Bauchi, Bayelsa, Edo and Lagos States. Beneficiaries were selected for enrollment into Health-Insurance-Schemes using a standardized program assessment tool. In addition to HIV treatment services, the scheme provided access to general medical services at the health facilities including immunization, nutrition, TB services, which would have been otherwise covered by out-of-pocket expenses. We analyzed viral-suppression-rates of CALHIV enrolled in health-



insurance in five participating states, as well as viral-suppression-rates of CALHIV in five other program states without health-insurance over the four-year period.

**Lessons Learnt:** A total of 8,661 (4,449 Females & 4,212 Males) children and adolescents (0-19 years) were enrolled in State Health Insurance Schemes in five States. Of the total enrolled, 5,299 (61%) had a positive-HIV-status. HIV viral-suppression-rates from the five states increased from 64% to 96% over the four-year period. Viral-suppression-rates of 6,922 CALHIV (3,614 Females & 3,308 Males) enrolled in five other program states without health-insurance increased from 63% to an average of 90%. The difference in viral-suppression-rates of CALHIV in participating states and in CALHIV in non-participating states was found to be statistically significant ( $p < 0.05$ )

**Conclusions:** The implementation of health-insurance schemes resulted in increased health access for children and adolescents, which led to improved viral-suppression-rates across participating states, with nearly half achieving rates exceeding 95%, highlighting the potential efficacy of incorporating access to health insurance in policies to enhance HIV-treatment-outcomes in Nigeria among children and adolescents in Nigeria.

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## The CIPHR Project (Community Insights in Phylogenetic HIV Research); a Key Population-led Knowledge Exchange Program on HIV Molecular Science

**Irungu P<sup>1</sup>**, Adhiambo J, Albert H, Githaiga S, Kasiba R, Sylvia O, Walimbwa J, Shaw S, Lazarus L, Chollette F, McKinnon L, Lorway R

<sup>1</sup>*Health Options For Young Men On Hiv/aids/stis, Nairobi, Kenya*

**Background:** The field of HIV molecular epidemiology has gained considerable popularity, However, HIV sequences are often analyzed without the

involvement of communities most affected by HIV. Guidelines and procedures to engage affected communities are noticeably absent from the HIV molecular epidemiology literature. Our program aims at building connections between how scientific knowledge is shared with communities through co-designing a pilot HIV molecular surveillance and improving the affected communities' understanding of biomedical research on them.

**Description:** The CIPHR project engaged a working group, including community health activists representing community-based organizations led by gay, bisexual, and other men who have sex with men, and female sex workers in Kenya, to meaningfully and collaboratively develop the methods for a community-led molecular HIV pilot project. Through a series of in-person and virtual discussions beginning in June 2022, the CIPHR working group and basic and social scientists, which includes experts working in the field of molecular HIV research:

- 1) learned about and interrogated phylogenetic research terminologies, methods, and past research findings;
- 2) co-explored the possibilities and limitations of HIV molecular epidemiology for key population programs; and
- 3) co-developed a protocol for a pilot community-based HIV molecular study.

**Lessons Learnt:** Placing communities at the center of scientific research and personalizing the research process has enabled us to move from an unknown scientific concept (phylogenetics) to a deep community understanding of HIV molecular surveillance. Bringing scientists and communities together to break down the terminology and build scientific literacy, while interrogating how and whether community-based programs can integrate phylogenetic data into their organizational planning and outreach shows great promise in ensuring that communities can reclaim spaces in the scientific space in the spirit of 'nothing about us without us'. Traditional methods of communicating scientific information do not adequately serve communities, there's a need to purposefully involve communities in developing awareness materials for their communities.

**Conclusions:** Following the implementation of the pilot that combines molecular network data with community knowledge, we'll critically assess emergent ethical issues, advantages, and disadvantages of HIV molecular research to



develop a policy framework to guide its benefit in the global HIV response.

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## Post (PEP) to Pre-Exposure Prophylaxis (PrEP) Transition Among Clients Accessing HIV Prevention Services in South Africa

Ramatsoma H<sup>1</sup>, Martin C<sup>1</sup>, Koloane N<sup>1</sup>, Arries S<sup>1</sup>, Pleaner M<sup>1</sup>, Mullick S<sup>1</sup>

<sup>1</sup>Wits RHI, University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa

**Background:** HIV post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) are both effective components of HIV prevention and are provided for in the World Health Organization and South African national guidelines. However, PEP has been underutilised as an HIV prevention method in primary care settings and understanding of PEP to PrEP transition patterns for those requiring ongoing HIV prevention is limited. This study describes patterns of PEP to PrEP transition among clients accessing routine, integrated, primary care sexual and reproductive health and HIV prevention services in South Africa.

**Materials and Methods:** We analysed routinely collected clinical data, within a South African PrEP implementation study, from 107 clients aged 15-40 years who were provided PEP, between June and November 2023. Using simple frequency tables, we describe the demographic characteristics of clients provided PEP, their self-reported reasons for requiring PEP, the proportion of those who came back for a follow-up visit post-PEP, the number of days between PEP provision and follow-up visit, and whether PrEP was initiated at the follow-up visit.

**Results:** Of the 7,060 clients who accessed services during the study period, 107 were provided PEP after being screened for eligibility (1.5%). Of those given PEP, 62.6% were female (n=67) and the majority were aged 18-24 years (n=81; 75.7%). The majority noted unprotected sex (n=83; 77.6%) as a reason for requesting PEP, followed by condom breakage (n=18; 16.8%), exposure to someone's

blood (n=4; 3.7%), and gender-based violence (n=2; 1.9%). Twenty-nine (27.1%) individuals returned for a post-PEP follow-up visit; 65.5% of whom returned within six weeks. Despite the delayed and low post-PEP follow-up visit rate, the majority of those who returned post-PEP transitioned to PrEP (n=21; 72.4%).

**Conclusions:** Although the overall uptake of PEP was low, and despite the low rate of post-PEP follow-up, this study found a high rate of PEP-to-PrEP transitioning – highlighting the acceptability of PEP-to-PrEP among clients. Further efforts are needed to improve awareness and access to PEP through screening for PEP eligibility for all clients seeking HIV prevention services. Reducing post-PEP loss to follow-up may offer an opportunity to introduce and improve PEP-to-PrEP transition for eligible clients.

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## Epidemiologically Informed HIV Pre-exposure Prophylaxis Targets for Uganda Using PrEP-It and the UNAIDS Population Size Estimate Tool

Kadama H<sup>7</sup>, Tutegereize L<sup>2</sup>, Agwau Akello C<sup>2</sup>, Luwunzu M<sup>3</sup>, Mubangizi J<sup>4</sup>, Colletar Awor A<sup>5</sup>, Melillo S<sup>6</sup>, Kasozi D<sup>6</sup>, Kripke K<sup>1</sup>, Kirungi W<sup>3</sup>

<sup>1</sup>Avenir Health, Takoma Park, United States, <sup>2</sup>FHI 360, Kampala, Uganda, <sup>3</sup>Uganda Ministry of Health, Strategic Information Department, Kampala, Uganda, <sup>4</sup>UNAIDS, Kampala, Uganda, <sup>5</sup>U.S. Centers for Disease Control and Prevention, , Uganda, <sup>6</sup>U.S. Agency for International Development, Kampala, Uganda, <sup>7</sup>Uganda Ministry of Health, AIDS Control Program, Kampala, Uganda

**Background:** Uganda adopted oral pre-exposure prophylaxis (PrEP) in 2016. Over 550,000 clients had initiated PrEP by the end of December 2023. PrEP-it—the PrEP Implementation planning, monitoring, and evaluation Tool—helps countries set PrEP targets and estimate costs and commodity needs. In 2023, Uganda used PrEP-it and the UNAIDS Population Size Estimate (PSE) tool to set national targets for oral PrEP, the dapivirine vaginal ring, and injectable long-acting cabotegravir. Since PrEP should be offered to people at substantial risk of acquiring HIV, PrEP-it users must enter the populations indicated for



PrEP in their country and customize inputs for each population. The Uganda team had size estimates for the key populations and serodifferent couples but wanted to estimate the size of other populations at substantial risk of HIV within the populations of adolescent girls and young women (AGYW), pregnant and lactating people, and adult men.

**Materials and Methods:** The PSE tool provides estimates of HIV incidence, prevalence, and subpopulation size by sex, age, behavioral category, and district. The Uganda team used it to 1) identify districts where AGYW and general population adult women and men have elevated HIV incidence and 2) estimate the size and relative risk of the indicated populations in the specified districts. We also extracted 205,000 de-identified longitudinal records for clients who initiated PrEP from April 2021 through March 2022 from the national PrEP Tracker database and used a random sample of 1,000 of them in the PrEP-it continuation calculator to estimate continuation and reinitiation rates by population. We incorporated all of these parameters into Uganda's national PrEP-it file for target-setting.

**Results:** Uganda was the first country to leverage the PSE tool to customize their population inputs and impact factors for PrEP-it. The country team produced its first national PrEP targets for three PrEP products in December 2023, making good use of epidemiological and program data.

**Conclusions:** Uganda will incorporate finalized PrEP targets into its upcoming Health Sector HIV/AIDS Strategic Plan 2025–2030. The PSE estimates for 30 countries in Sub-Saharan Africa will be incorporated into PrEP-it in 2024 to automate this process for future country exercises.

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## Multiple Sexual Partners Increase Vulnerability of Adolescent Girls and Young Women Aged 15 to 24 Years to Other HIV Infection Risks; Evidence from Four Provinces of Zimbabwe, 2023

**Mugariri E<sup>1</sup>**, Mudzengerere F<sup>1</sup>, Dhakwa D<sup>2</sup>, Yogo K<sup>2</sup>, Mudhokwani F<sup>2</sup>, Bhatasara T<sup>3</sup>, Tapfuma T<sup>2</sup>, Madzima B<sup>4</sup>, Tachiwenyika E<sup>1</sup>, Yekeye R<sup>4</sup>, Nyamwanza B<sup>4</sup>, Mutseta M<sup>5</sup>, Masoka T<sup>1</sup>, Mafaune H<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions SIE, Harare, Zimbabwe,

<sup>2</sup>Zimbabwe Health Interventions Programs, Harare, Zimbabwe,

<sup>3</sup>USAID, Harare, Zimbabwe, <sup>4</sup>NAC, Harare, Zimbabwe, <sup>5</sup>MOHCC, Harare, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program which seeks to reduce HIV incidence among adolescent girls and young women (AGYW) in 9 districts of Zimbabwe. The program uses a screening tool to assess the eligibility of AGYW for the program before they are enrolled and provided with required services. It was not clear if having multiple sexual partners (MSP) as a primary vulnerability increased the chances and emergence of secondary HIV infection vulnerabilities among AGYW. We assessed the association of having MSP among AGYW with other key vulnerabilities.

**Materials and Methods:** We conducted a descriptive cross-sectional study where routine program data for all AGYW enrolled in the DREAMS program in Mashonaland Central, Midlands, Bulawayo, and Matabeleland South provinces for the period October 2022 to September 2023 were extracted from the DREAMS database. Prevalence analysis was conducted using SPSS version 23 and MS Excel generating proportions and measures of association between having multiple sexual partners and other HIV infection vulnerabilities. The assessment was covered by Medical Research Council of Zimbabwe approved non-research determination protocol (MRCZ/E/254).



**Results:** Data for 33,220 AGYW screened and enrolled in DREAMS were analysed of which 65% (21,593/33,220) were aged 15 to 19 years whilst 35% were aged 20-24 years. About 17% (5,496/33,220) reported having MSP. AGYW with MSP were more likely to have STI symptoms than those without [COR=4.64, 95% CI (4.17-5.18)], more likely to report history of pregnancy [COR=1.17 95% CI (1.051-1.30)], more likely to abuse alcohol [COR=3.69, 95%CI (3.38-4.05)], more likely to engage in transactional sex [COR=15.49,95%CI(14.34-16.74) and more likely to suffer from sexual violence [COR=1.98, 95%CI (1.66-2.38)]. MSP was significantly associated with STI symptoms, Alcohol abuse, history of pregnancy, transactional sex, and sexual violence.

**Conclusions:** Having multiple sexual partners increases the chances of AGYW having STI symptoms, experiencing sexual violence, pregnancy, engaging in transactional sex and alcohol which increase their HIV infection risk. We recommend that the DREAMS program identify and address the root causes of MSP as that has the potential to address other HIV infection risks.

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## Evaluate and Elevate: Leveraging the CASPR Outcomes Assessment Tool (COAT) to Enhance Advocacy Impact

Mharire P<sup>1</sup>, Tetteh G<sup>2</sup>, Ncube B<sup>1</sup>, Sutton R<sup>2</sup>  
<sup>1</sup>Pangaea Zimbabwe, Harare, Zimbabwe, <sup>2</sup>AVAC, New York, USA

Advancing community-centered HIV prevention research relies on strong, evidence-based advocacy by coalitions and civil society representing community demands. However, it can be challenging to identify which strategies are successful amongst many stakeholders in a complex research and policy environment. This calls for an effective approach to assess intended and unintended outcomes, and sustainability, and

establish corrective actions to strengthen future advocacy work.

The CASPR Outcomes Assessment Tool (COAT) is a unique tool designed to help advocates quantitatively assess results, analyze the impact of their work, and use that evidence for decision-making and planning the next steps. Advocates start by identifying outcomes, then connect them to key activities/strategies, and evaluate evidence of their contributions to the result. They assign a quantitative rating to 3 dimensions: Influence, Recognition, and Durability, and provide qualitative evidence for the rating. An impact score for each outcome is calculated from 0 (low impact) to 12 (high impact). In the Summary Action Plan, advocates devise follow-up actions for outcomes with low impact, strengthening results and adjusting tactics. The completed COAT report showcases attained outcomes, outlines adjustment plans for underperforming outcomes, and the collective value and influence on the HIV Prevention research agenda.

The COAT effectively assesses advocacy outcomes within CASPR, a consortium of eleven African partners focusing on HIV Prevention Advocacy Research. Unlike traditional methods, CASPR partners use the COAT to brainstorm results, evaluate impact over time, and continuously learn about effective strategies. These impactful results are shared with the Coalition, aiding partners in refining their approaches. The COAT has documented successful advocacy, including the effectiveness of research literacy efforts to strengthen community and stakeholder engagement during clinical trials.

The COAT enables advocates to concentrate on outcomes rather than solely engaging in activities. It is a valuable tool to gauge the impact of advocacy activities on HIV prevention research and access. It guides them in creating a clear roadmap of successful strategies and areas for improvement. The COAT allows advocates to refine their approach, enhance their impact, and ultimately drive meaningful change in their respective spheres of influence.





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## Distribution and Antifungal Resistance Profile of *Candida* spp. Isolated from Patients Living with HIV at the Yaoundé Central Hospital

Gueguim C<sup>1</sup>, Kamdem A<sup>2</sup>, Kouanfack C<sup>3</sup>, Sone Etame L<sup>2</sup>

<sup>1</sup>University Of Yaoundé 1, Yaoundé, Cameroun, <sup>2</sup>Department of Biology, Higher Institute of Medical Technology, Nkolondom, Yaounde, Cameroon, <sup>3</sup>Department of Public Health, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon

**Background:** Candidiasis are the most frequent fungal infection, especially in immunocompromised people such as patients living with the human immunodeficiency virus (PLHIV). Data on the fungal prevalence and antifungal resistance rate particularly in PLHIV in Cameroon are scarce. This study aimed to determine the distribution and the antifungal resistance profile of *Candida* spp. isolated from clinical samples of PLHIV visiting the laboratory service of the Yaoundé Central Hospital.

**Materials and Methods:** A cross-sectional study was carried out on the PLHIV visiting the Central Hospital of Yaoundé laboratory service. Samples were collected according to the signs and symptoms recorded by the patient and inoculated onto Sabouraud + Chloramphenicol agar medium for 24 hours incubation at 35°C ± 2°C. Typical *Candida* colonies were subjected to a germ tube test to identify *Candida albicans* and the other species were identified biochemically using API *Candida* (BioMérieux). The antifungal susceptibility testing was carried out by the disk diffusion method and seven antifungal discs (Bioanalysis) were tested.

**Results:** Overall, 106 unique samples were obtained from participants. Positivity rate of *Candida* spp. was 37.7%. *Candida* isolates were mostly recovered from sputum (n=15/40) followed by the oral swabs (n=10/40) and the vaginal swabs (n=08/40). Out of the 40 isolates, *Candida albicans* was the predominant species 57.5% followed by *Candida krusei* 15%, *Candida glabrata* and *Candida guilliermondii* 10% each and *Candida famata* 7.5%. The antifungal drug resistance profile of *Candida* spp. revealed the highest resistance rates to

Amphotericin B (95.0%), Fluconazole (57.5%) and Nystatin (42.5%). Conversely, Clotrimazole, Miconazole and Econazole were the most effective against *Candida* spp.

**Conclusions:** The high frequency of *Candida* spp. isolation, resistant to several commonly used antifungals among PLHIV in a hospital setting is a direct call for stakeholders, policymakers and clinicians about antifungal therapy awareness in this vulnerable population.

Keywords: PLHIV, *Candida*, Antifungal drug resistance.

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## Identification of Multi-repeat Sequences using Genome Mining Approaches for Developing Highly Sensitive Molecular Diagnostic Assay for the Detection of Curable Sexually Transmitted Infections in HIV Burden Countries

Likhovole C<sup>1</sup>, Kamath S<sup>2</sup>, Kanoi B<sup>1</sup>, Kimani R<sup>1</sup>, Maina M<sup>1</sup>, Waweru H<sup>1</sup>, Kamita M<sup>1</sup>, Ndirangu I<sup>1</sup>, Abkallo H<sup>4</sup>, Oduor B<sup>4</sup>, Pamme N<sup>5</sup>, Dupaty J<sup>3</sup>, Klapperich C<sup>3</sup>, Raju Lolabattu S<sup>2</sup>, Gitaka J<sup>1</sup>

<sup>1</sup>Mount Kenya University, Kenya, <sup>2</sup>Jigsaw Bio Solutions, India, <sup>3</sup>Boston University, USA, <sup>4</sup>International Livestock Research Institute, Kenya, <sup>5</sup>Stockholm University, Sweden

**Background:** Curable sexually transmitted infections (STIs) such as *Neisseria gonorrhoeae* (N. gonorrhoeae) *Chlamydia trachomatis* (C. trachomatis) and *Treponema pallidum* (T. pallidum) and *Trichomonas vaginalis* (T. vaginalis) are major causes of poor pregnancy outcome. The World Health Organization (WHO) recommends STI screening as a component of comprehensive care for people with HIV in recognizing the impact of STI management on HIV incidence. Most STIs are asymptomatic in pregnant women and a syndrome-based approach of testing leads to missed diagnosis.



**Materials and Methods:** Here, we have identified new diagnostic target biomarker regions for *N. gonorrhoeae*, *C. trachomatis*, *T. pallidum* and *T. vaginalis* using an algorithm for genome mining of identical multi repeat sequences (IMRS). These were then developed as DNA amplification primers to design better diagnostic assays. To test the primer pair, genomic DNA was 10-fold serially diluted (100pg/μL to 1×10<sup>-3</sup>pg/μL) and used as DNA template for PCR reactions. The gold standard PCR using 16S rRNA for *N. gonorrhoeae*, *C. trachomatis*, *T. pallidum* primers and 18S rRNA for *T. vaginalis* were also run as a comparative test, and both assay products resolved on 1% agarose gel.

**Results:** The *N. gonorrhoeae* and *C. trachomatis* IMRS-PCR assay had an analytical sensitivity of 6 fg/μL and 9.5 fg/μL, respectively representing better sensitivity compared to the 16S rRNA PCR assay with analytical sensitivity of 4.3096 pg/μL. The assays were also validated with clinical samples. Combining the iso-thermal IMRS with a low-cost Lateral Flow Assay, we were able to detect *N. gonorrhoeae* and *C. trachomatis* amplicons at a starting concentration of 100 pg/μL and 10 pg/μL, respectively. Lower limit of detection analysis confirmed that the *T. pallidum* and *T. vaginalis* -IMRS primers both offered higher test sensitivity of 0.03 fg/μL starting PCR template concentration. Using the *T. pallidum* and *T. vaginalis* -IMRS primers, we were able to observe isothermal amplification of genomic DNA at concentration of 0.01 pg/μL and 100 pg/μL, respectively.

**Conclusions:** Our data demonstrate the successful development of cost effective and sensitive lateral flow and isothermal assays for detecting curable sexually transmitted infections with potential use in field settings mostly in HIV burden countries.

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## Optimisation of an In-House HIV-1 Genotyping Protocol in Cameroon Shows High Effectiveness among Low Viremic Samples

Fokam J<sup>1,2,3</sup>, **Tambe Ayuk D**<sup>1,2,4,5</sup>, Ngoufack Jagni Semengue E<sup>1</sup>, Teto G<sup>1</sup>, Takou D<sup>1</sup>, Angong Beloumou G<sup>1</sup>, Nka Durand A<sup>1</sup>, Djeyep Djupsa S<sup>1</sup>, Chenwi Ambe C<sup>1,6</sup>, Molimbou E<sup>1,6</sup>, Ka'e Christelle A<sup>1</sup>, Gouissi Anguechia D<sup>1,2</sup>, Moko Fotso L<sup>1,2</sup>, Kegni Gueko A<sup>1,6</sup>, Etame N<sup>1</sup>, Nayang Mundo R<sup>1</sup>, Togna Pabo W<sup>1</sup>, Tommo Tchouaket M<sup>1</sup>, Ndjolo A<sup>1,2</sup>, Fokunang C<sup>2</sup>, Fon Mbacham W<sup>2,4,5</sup>

<sup>1</sup>Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management, Yaounde, Cameroon, <sup>2</sup> Faculty of Medicine and Biomedical Sciences; University of Yaounde, Cameroon, <sup>3</sup> Faculty of Health Sciences, University of Buea, Cameroon, <sup>4</sup> Laboratory of Public Health Research and Biotechnologies, University of Yaounde, Cameroon, <sup>5</sup> Fobang Institutes of Innovations In Science And Technology (FINISTECH), Yaounde, Cameroon, <sup>6</sup> University of TOR VEGATA, Rome, Italy

**Background:** HIV-1 genotyping is pivotal for HIV drug resistance (HIVDR) management and guiding for treatment strategies especially in low-and-middle-income-countries (LMICs) like Cameroon. However, sequencing success rate (SSR) is continuously decreasing due to high HIV-1 genetic diversity favored by permanent viral evolution. We sought to optimize amplification and sequencing performances of our current-in-house genotyping protocol in Cameroon.

**Materials and Methods:** An experimental study was conducted from July-November 2023. HIV-1 pol sequences (protease-PR and reverse transcriptase-RT) generated at the Chantal Biya International Reference Centre (CIRCB) from 2006-2023 and Cameroonian sequences retrieved from the Los Alamos database (LANL) were all assembled. Both batches were aligned using Bioeditv5.0.26 and new primers were designed based on most conserved regions; primers-quality was certified online using Integrated DNA technologies and Oligo-nucleotide properties calculator. Performance of the new primers was evaluated in comparison to the current in-house primers, in terms of amplification rate, SSR, subtype-coverage and sequence-length following the WHO operational framework for HIVDR.



**Results:** Overall, 952 sequences (629 from CIRCB and 323 from LANL) were used and 15 new primers were designed and validated. Thirty-six samples were randomly selected to evaluate the performance of these new primers. From available data, median [IQR] viral load (VL) was 12,719 [280-82,695] copies/ml with 66.7% (18/27) having VL $\geq$ 1000copies/ml (median: 49,416 [13740-177547]) and 33.3% (9/27) having VL $<$ 1000copies/ml (median: 286[266-306] copies/ml). Amplification performance was 75%(27/36) versus 69.4%(25/36) for the current-in-house and the new protocol respectively ( $p=0.598$ ); with 0%(0/9) versus 66.7%(6/9) at VL $<$ 1000copies/ml respectively ( $p=0.03$ ). Sequencing performance was 100% with both primer-sets. Furthermore, from the 19 samples successfully processed with both protocols, sequence-length was acceptable ( $>1030$ nucleotides), with 100% subtypes concordance and HIVDR mutation concordance of 96.7% and 96.1% for PR and RT respectively.

**Conclusions:** Overall, we observed similar performances with the current-in-house and the newly developed protocol for HIV-1 genotyping. However, the newly developed protocol has showcased its remarkable sensitivity at VL $<$ 1000copies/ml and can therefore serve as a valuable tool for resistance monitoring at low level viremia locally and in other LMICs with similar features.

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## Self-Testing Is an Effective Approach to Detect HIV Infection Among HIV First-Time Testers: Evidence from the Star Initiative in Cameroon

Yagai B<sup>1</sup>, Jeremiah E<sup>2</sup>, Audrey Raissa D<sup>1</sup>, Nka A<sup>2</sup>, Fatima M<sup>3</sup>, Souleymanou A<sup>4</sup>, Liman Y<sup>1</sup>, Roger O<sup>1</sup>, Michele S<sup>5</sup>, Claire E<sup>5</sup>, Gutenberg T<sup>5</sup>, Edwige O<sup>4</sup>, Ernest Désiré M<sup>1</sup>, Antoine S<sup>4</sup>, Rogers A<sup>1</sup>, Joseph F<sup>2</sup>, Marie Jose E<sup>4</sup>, Clotaire B<sup>4</sup>, Cherif H<sup>1</sup>

<sup>1</sup>Central Technical Group, National AIDS Control Committee, YAOUNDE, Cameroon, <sup>2</sup>Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management, (CIRCB), YAOUNDE, Cameroon, <sup>3</sup>Division of Health Operational Research, Ministry of Public Health, YAOUNDE, Cameroon, <sup>4</sup>University of Yaounde 1, YAOUNDE, Cameroon, <sup>5</sup>Association

*Camerounaise pour le Marketing Social (ACMS), YAOUNDE, Cameroon*

**Background:** The 2023 UNAIDS report indicates that only 86% of people living with HIV/AIDS (PLWHA) know their status; thus, new testing strategies are required to cover the gap. We characterized the profile of HIV first-time testers (FTs) and determined the HIV seropositivity rate using oral HIV self-testing.

**Materials and Methods:** A cross-sectional study was conducted in three regions of Cameroon from April 2021 to August 2022. Oral HIV self-testing kits were distributed using primary and secondary distribution types. The distribution models used were: (i) antenatal care/maternal and child health clinic/postnatal clinic (ANC/MCH/PNC), (ii) partners of PLWHA; (iii) workplace; (iv) community; (v) other health facility-based testing (HTS).

**Results:** A total of 6032 FTs were enrolled; 69.9% were males. Self-testing kits were mainly distributed using primary distribution type (78.1%). Majority of FTs were in the community distribution model (69.6%). About 82% of them were  $<30$  years ( $<20$  years: 26.5%, 20-29 years: 55.7%). Concerning the self-testing result, 97.1%, 2.3%, and 0.6% were respectively non-reactive, reactive, and indeterminate/invalid. Compared to those aged  $<30$  years, reactivity rate was higher among those  $\geq 30$  years (1.2% versus 7.0%,  $p<0.001$ ). According to distribution models, reactive test was highest among partners of PLWHA (21.4%), followed by HTS (5.1%),  $p<0.001$ . Of all the reactive tests ( $n=137$ ), 70.1% came for HIV confirmation following the national algorithm; 54% ( $n=74$ ) of them were confirmed HIV positive. The overall HIV seropositivity rate following national algorithm was 1.2%. In the multivariate model, compared to primary distribution type, secondary distribution type positively predicted HIV seropositivity (aOR [95% CI]: 20.387 [2.473-168.033]). Also, compared to ANC/MCH/PNC model, seropositivity was positively predicted by partners of PLWHA model (aOR [95% CI]: 15.635 [8.557-28.568]) and workplace model (8.838 [1.206-64.774]).

**Conclusion:** About 7/10 and 8/10 HIV FTs were respectively males and individuals  $<30$  years. HIV seropositivity among FTs was positively predicted by secondary distribution type; and partners of PLWHA and workplace distribution models. Oral HIV-self testing might be an effective approach to detect HIV infection among FTs.



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## Pretreatment HIV-1 Drug Resistance and Molecular Transmission Cluster Networks among Newly Diagnosed People in Eastern Ethiopia

Gemechu A<sup>1,2</sup>, Mihret A<sup>2</sup>, Aseffa A<sup>2</sup>, Howe R<sup>2</sup>, Seyoum B<sup>2</sup>, Mulu A<sup>2</sup>

<sup>1</sup>Haramaya University, Harar, Ethiopia, <sup>2</sup>Armauer Hansen Research Institute (AHRI), Addis Ababa, Ethiopia

**Background:** Pretreatment drug resistance (PDR) threatening the achievement of the 3rd 95% UNAIDS target. In Ethiopia, PDR data were limited owing to lack of routine HIV-1 genotyping resistance tests. This study was conducted to determine PDR and characterize the molecular transmission clustering among newly diagnosed people with HIV in eastern Ethiopia between October 2020 and December 2021.

**Materials and Methods:** HIV-1 partial pol gene (PR and RT) was amplified with PCR using an in-house assay. The amplicons were sequenced using the Sanger dideoxy method and drug resistance mutation (DRM) profiles were examined and interpreted according to the calibrated population resistance and Stanford HIV drug resistance database. MicrobeTrace was used to detect molecular transmission clusters.

**Results:** Among newly diagnosed and drug-naïve individuals included in this study, 69 sequences were obtained, among which three HIV-1 subtypes were detected and 97.1% had HIV-1 subtype C. Drug resistance mutations (DRMs) were detected in 24.7% (17/69) of the sequences. The prevalence of PDR to any antiretroviral drugs was 14.5% and 21.7% according to the CPR tool and the Stanford HIV drug resistance database had at least one DRM, respectively. The highest level of PDR mutation was seen in NNRTIs (13.0%), followed by NRTIs (7.2%) and PIs (2.9%). Patients bedridden at enrollment were more likely to harbor PDR mutations (AOR: 5.4; 1.53-30.7) than patients with working functional status. At a maximum pairwise threshold of 4.5%, HIV-1 pol gene sequences generated four molecular transmission clusters, forming a 53.6% clustering rate. High proportions of PDR mutations in reverse transcriptase regions in transmission networks (18.9%) were noted.

**Conclusions:** High PDR levels, predominantly NNRTIs, are observed. Special attention should be given to bedridden functional status during their clinical follow-up. The identified transmission clusters are assumed to be long-lived, suggesting that the majority of newly diagnosed individuals with HIV are not identified within a known recent transmission cluster. However, the observed high rate of PDR among the transmission clusters warrants further surveillance studies to evaluate the long-term effects of a prolonged accumulation of resistance and their transmission on the current ART regimens, and to design appropriate interventions to halt the HIV epidemic.

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## Evaluation of Two Bioinformatics Algorithms for the Analysis of Mutations Associated With HIV-1 Resistance to Antiretrovirals

Etame N<sup>1,2</sup>, Fokam J<sup>1,2,3,4</sup>, Ngoufack E<sup>1</sup>, Chenwi C<sup>1,5</sup>, Parkin N<sup>6</sup>, Scheepers C<sup>7</sup>, Inzaule S<sup>8</sup>, Takou D<sup>1</sup>, Molimbou E<sup>1,5</sup>, Nka A<sup>1</sup>, Ka'e A<sup>1</sup>, Beloumou Angong G<sup>1</sup>, Djupsa Ndeyep S<sup>1</sup>, Gouissi Anguechia H<sup>1,2</sup>, Kengni Nguoko A<sup>1,5</sup>, Nayang Mundo R<sup>1</sup>, Moko Fotso L<sup>1,2</sup>, Tambe D<sup>1,2</sup>, Tueguem P<sup>1</sup>, Tommo Tchouaket M<sup>1</sup>, Sosso S<sup>1</sup>, Colizzi V<sup>9,10</sup>, Perno C<sup>11</sup>, Ndembu N<sup>12</sup>, Mbopi-Keou F<sup>2</sup>, Ndjolo A<sup>1,2</sup>

<sup>1</sup>Chantal Biya International Reference Center, Yaounde, Cameroon, <sup>2</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaounde, Cameroon, <sup>3</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>4</sup>National HIV Drug Resistance Working Group, Ministry of Public Health, Yaounde, Cameroon, <sup>5</sup>Ph.D. Courses in Microbiology, Immunology, Infectious Diseases and Transplants (MIMIT), University of Rome "Tor Vergata", Rome, Italy, <sup>6</sup>Data First Consulting, Sebastopol, USA, <sup>7</sup>R&D Team Lead - Hyrax Biosciences, Cape Town, South Africa, <sup>8</sup>Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, <sup>9</sup>Department of Experimental Medicine, Faculty of Medicine and Surgery, University of Rome "Tor Vergata", Rome, Italy, <sup>10</sup>Faculty of Sciences and Technologies, Evangelic University of Cameroon, Bandjoun, Cameroon, <sup>11</sup>Bambino Gesù' Children's Hospital, Rome, Italy, <sup>12</sup>Africa Centres for Disease Control and Prevention (Africa CDC), Addis Ababa, Ethiopia

**Background:** Efficient monitoring of HIV drug resistance depends on the use of standardized bioinformatics tools that are reliable and best suited for the identification of drug resistance



mutations (DRMs) by healthcare staff. In this frame, we aimed to compare the concordance of the HIV-1 genotypic profiles obtained from sequences analyzed using two editing algorithms.

**Materials and Methods:** A comparative study was conducted on plasma samples from HIV-1-infected individuals received at the virology laboratory of the Chantal BIYA International Reference Centre (CIRCB) from April through August 2023 for genotypic resistance testing. Raw HIV-1 sequence data were analyzed simultaneously using RECall™ (semi-manual) versus Exatype™ (automated) algorithms. Statistical analyses were performed on Excel-2016; with  $p < 0.05$  considered statistically significant.

**Results:** A total of 221 HIV-1 sequences were included from patients with mean age of  $32 \pm 15$  years, 52.5% female and 100% on antiretroviral therapy. According to the quality validation conditions, 70.1% (155/221) of the sequences were validated by RECall™ compared with 60.2% (133/221) by Exatype™,  $p < 0.0001$ . Specifically, positive and negative concordances between the two algorithms were 85.8% (155/221) and 75% (66/221) respectively, with  $\kappa = 0.78$ . Among sequences edited by the two algorithms, the concordance in terms of identification of viral subtypes was 100% (133/133): CRF02\_AG (81/81), A1 (29/29), G (5/5), F2 (5/5) and others (D, CRF18\_cpx, CRF13\_cpx, CRF01\_AE, CRF37\_cpx: 13/13). Regarding the detection of DRMs, the two algorithms gave a concordance of 99.0%, 98.0%, 98.6% and 100.0% for DRMs to protease inhibitors, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors and integrase inhibitors, respectively. The semi-manual algorithm (RECall™) had a higher validation rate (70.1%) for sequence analysis with an average turn-around-time ( $5.5 \pm 1.7$  min) meanwhile the automated algorithm (Exatype™) was faster with only  $2.5 \pm 1.1$  min. Thus, the efficiency (validation rate/turn-around-time) of RECall™ versus Exatype™ was 12.7 (70.1/5.5) versus 24.1 (60.2/2.5).

**Conclusions:** Analysis of DRMs and HIV-1 clades using automated (Exatype™) and semi-manual (RECall™) bioinformatics tools shows a good agreement, supporting the interoperability of these tools in routine clinical practice. However, based on its higher efficiency, the use of the automated algorithm is preferable, while the semi-manual algorithm serves as an alternative in case of failure/inaccessibility to the preferred approach.

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## Improving and Maintaining Optimum Viral Load Coverage with Total Quality Leadership and Accountability at St Francis Mission Hospital of Eastern Province of Zambia

**Mphande D**<sup>1</sup>

<sup>1</sup>MOH/EPHO, Katete, Zambia

**Background:** The third 95 of UNAIDS goals calls for intensification of Viral load testing among people enrolled into ART as key determinant to evaluate ART effectiveness and epidemic control. In Eastern province with 85% Viral Load Coverage (VLC), most ART facilities persistently experience suboptimum VLC performance below 90%. We share lessons learned from St Francis mission hospital (SFH) sustaining VLC above 90% and viral suppression above 95% in the past three years while applying Total Quality Leadership and Accountability approach (TQLA).

**Description:** St Francis Mission hospital, with 490 bed capacity and 4604 enrolled clients. Fhi360 applies data centered and adaptive leadership approach, in offering technical assistance with CDC/PEPFAR funding. The hospital adopted the following TQLA strategies to optimize Viral Load Coverage (VLC) performance: Functional ART team, VL committee with division of labor and accountability at pre and post analytical level. Motorbike rider with log sheet and schedule. Standard result Turn Around Time of 2 weeks. Virtual weekly local data review. DISA-Link System to electronically share blood sample/result information with PCR laboratory at about 100km.

**Lessons Learnt:** We analyzed program data considering SFH' VLC performance compared to the provincial one and noted the following annual improvement by September 2021 (94%/78%), September 2022 (94%/88%) and September 2023 (95%/89%). SFH viral load suppression was recorded at 94% (4600/4675) in 2021; 99% (4451/3500) in 2022 and 99% (4424/4455) in 2023.

**Conclusions:** • VLC above 90% is achievable if TQLA approach is implemented with fidelity



considering high frequency facility granular data review, teamwork with strong leadership, micro level target coupled with Human resource accountability and active community involvement.

- SFH team to provide mentorship on VLC to underperforming facilities in the province.
- Place Viral load machine at SFH and Point of Care equipment in other facilities.

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## Access to HIV Viral Load Testing Services in Underserved Security Prone Setting of Taraba State in Nigeria

**Yakubu T**<sup>1</sup>, Ihesiaba C<sup>1</sup>, Aneke C<sup>1</sup>, Olude O<sup>1</sup>, Chiegil J<sup>2</sup>, Okwor E<sup>2</sup>, Immanuel C<sup>1</sup>, Omo-Emmanuel U<sup>3</sup>, Olatunbosun K<sup>3</sup>, Atuma E<sup>3</sup>, Akinjeji A<sup>1</sup>, Fayorsey R<sup>4</sup>  
<sup>1</sup>ICAP Global Health, Abuja, Nigeria, <sup>2</sup>JHPIEGO, Abuja, Nigeria, <sup>3</sup>USAID, Abuja, Nigeria, <sup>4</sup>ICAP Global Health, New York, USA

**Background:** The current treatment goal for HIV recipients of care (RoCs) is to achieve viral load (VL) suppression at an undetectable level. Access to VL services is pivotal for monitoring this outcome. However, access to VL services was limited in Taraba State due to the rising spade of generalized insecurity, difficult remote mountainous terrains, and border settlements, irregular systems for VL services characterized by inadequate human resources for health (HRH) with inadequate capacity, and poor laboratory infrastructures. Here we described the outcome of the innovative strategies we implemented to provide access to VL services amidst insecurity.

**Materials and Methods:** We conducted a retrospective descriptive study of VL services provided to RoCs on treatment in 29 health facilities from October 1, 2021, to March 31, 2023. We engaged stakeholders in the health sector, security operatives, vigilantes, representatives of vulnerable communities, and support groups in co-designing strategies. We formed the VL commandos, who provided VL services in a manner that was culturally, linguistically, and socially relevant to eligible RoCs in security-prone communities. We augmented and built the capacity of HRH, upgraded existing infrastructure,

strengthened specimen referral, and provided adequate laboratory commodities. We abstracted data from the VL register and EMR and conducted descriptive and independent sample t-test analyses for viral load coverage (VLC), viral load suppression (VLS), and turnaround time (TAT) at  $p < 0.05$  using SPSS.

**Results:** VL services increased significantly from 11.2% (3,394/30,399) in October 2021 to 93.2% (36,748/39,414) in March 2023 ( $p < 0.05$ ). There was a significant improvement in VLC from 11.2% (3,394/30,399) to 93.2% (36,748/39,414) and VLS from 81% (2,857/3,394) to 97% (35,338/36,478) ( $p < 0.05$ ) within this period. Undetectable viremia (VL < 50 copies/ml) improved from 64% to 82%, and uptake of post-enhanced adherence counseling VL increased from 0% to 81% ( $p < 0.05$ ). There was also a significant reduction in TAT from 90 days to < 10 days ( $p < 0.05$ ).

**Conclusions:** Our collaboration with the applicable stakeholders in health, security outfits, and support groups contributed to a significant improvement in the uptake of VL services despite the rising spade of insecurity in Taraba State. Working with existing security structures made it possible to provide services in security-prone communities.

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## Implementation of Continuous quality improvement to reduce Viral Load and Early Infant Diagnosis Turnaround Time in Nigeria.

**Nwofe J**<sup>1</sup>, Ojo E<sup>1</sup>, Chima P<sup>1</sup>, Ani A<sup>1</sup>, Offie D<sup>1</sup>, Basil C<sup>1</sup>, Ogunlade O<sup>1</sup>, Owolagba F<sup>1</sup>, Ofuche E<sup>1</sup>, Samuels J<sup>1</sup>, Audu I<sup>2</sup>, Nalda N<sup>2</sup>, Okoye M<sup>2</sup>, Aniekwe C<sup>3</sup>, Shrivastava R<sup>3</sup>

<sup>1</sup>Apin Public Health Initiatives, Plot 1551 Apo Resettlement Zone E Abuja FCT, Nigeria, <sup>2</sup>US Centers for Disease Control and Prevention Nigeria, Abuja, Nigeria, <sup>3</sup>US Centers for Disease Control and Prevention USA, Georgia, USA

**Background:** WHO has recognized virological markers (Viral Load Result) as a gold standard for monitoring treatment response in persons living with HIV. However, there is always a delay in



having the results timely for client management. In 2019, the turnaround time (TAT) for HIV Viral load (VL) and Early Infant Diagnosis (EID) testing in Nigeria averaged 39 days as compared to the National goal of  $\leq 10$  days. This study aimed at using continuous quality improvement to reduce the turnaround time of VL and EID in selected Health facilities supported by APIN with PEPFAR funding through the CDC.

**Materials and Methods:** We used a continuous quality improvement (CQI) approach focusing on strengthening the Laboratory Interface and processes across the VL/EID cascade. Baseline data were collected monthly between January and April 2021. We conducted training, Go and see process mapping, and implementation periods between May and August 2021. Endline data were collected from September 2021 to March 2022. The fishbone analysis and the 5 Whys were used to identify root causes for prolonged turnaround time. Contextually appropriate change ideas were identified using a driver diagram and prioritized using an impact-effort matrix. Identified change ideas were tested using the Plan-Do-Study-Act (PDSA) cycles from the Model for Improvement. VL and EID TAT were tracked throughout implementation using run charts.

**Results:** At baseline, 15,226 VL data was retrieved, and 4870 (32%) have complete data. 2289 (47%) met the target of  $<10$  days. 511 EID results were retrieved, 306(60%) have complete data 119(39%) met the target of  $<10$  days. At end-line, 65,723 VL result was retrieved, 64,409(98%) had complete data. 41,866(65%) met the target of  $<10$  days. 8746 EID data were retrieved 7959(91%) had complete data. 3741(47%) met the target of  $<10$  days. Root causes for long TAT included frequent breakdown of equipment, frequent stockout of reagents.

**Conclusion:** A CQI approach improved VL and EID TAT, through the implementation of contextualized change ideas across the laboratory interface and processes. However, the changes cannot be sustained because the facility has no control of some of the factors required for TAT such as equipment breakdown and stockout of reagents.

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## Assessing 24-Month Treatment Outcomes of Multi-Month Dispensing of Antiretroviral Medications Among Children Living With HIV: A Retrospective Study in Southern Nigeria

**Nwanja E**<sup>1</sup>, Onwah O<sup>1</sup>, Toyo O<sup>1</sup>, Akpan U<sup>1</sup>, James A<sup>6</sup>, Unimuke M<sup>1</sup>, Nwangeneh C<sup>2</sup>, Oyawola B<sup>3</sup>, Okolo C<sup>1</sup>, Igboelina O<sup>3</sup>, Ogundehin D<sup>3</sup>, James E<sup>3</sup>, Obiora-Okafo C<sup>3</sup>, Idemudia A<sup>3</sup>, Nwadike C<sup>3</sup>, Kakanfo K<sup>3</sup>, Pius B<sup>3</sup>, Onimode B<sup>3</sup>, Asaolu O<sup>3</sup>, Bashorun A<sup>4</sup>, Gambo A<sup>5</sup>, Pius J<sup>3</sup>, Oyelaran O<sup>3</sup>, Goldstein R<sup>3</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Eyo A<sup>1</sup>  
<sup>1</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, <sup>2</sup>FHI360, Abuja, Nigeria, <sup>3</sup>United States Agency for International Development (USAID), Abuja, Nigeria, <sup>4</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, Nigeria, <sup>5</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria, <sup>6</sup>Achieving Health Nigeria Initiative, Abuja, Nigeria

**Background:** WHO recommends multi-month dispensing (MMD) of antiretrovirals among children living with HIV (CLHIV), however, there is limited data on outcomes of MMD among CLHIV in Sub-Saharan Africa. This study assessed 24-month treatment outcomes of MMD among CLHIV in Southern Nigeria.

**Materials and Methods:** This retrospective cohort analysis used data from electronic medical records of CLHIV (5-14 years old) receiving ART as of October 2020 and followed up for 24 months at 153 health facilities supported by PEPFAR/USAID-funded ECEWS ACE-5 project in Akwa Ibom and Cross River States. CLHIV were categorised by age at treatment commencement into 5-9 and 10-14 years; and by ARV dispensing frequency during the period into MMD3 (consistently received 3-months refills), MMD6 (consistently received 6-months refills), mixed-MMD (alternated between 3- and 6-months refills), and no-MMD (received  $<3$ -months refills at least once). We compared 24-month outcomes for retention (not late for a refill for up to 28 days) and undetectable ( $< 50$  copies/ml) viral load (VL) among MMD categories using logistic regression.



**Results:** The study included 1,652 (Males:844, Females:808) CLHIV who received MMD, 51.5% (851) were aged 5-9 years. MMD distribution was 33.6% (n=555) mixed-MMD, 29.5% (n=487) no-MMD, 19.3% (n=319) MMD6, and 17.6% (n=291) MMD3. Overall retention was 95.2% (1572/1652) and 90.3% (1492/1652) at 12 and 24 months respectively, and undetectable VL was 89.1% (1178/1322) among those who had VL tests done at 24 months (1322/1652). CLHIV on mixed-MMD (OR:1.95, 95%CI:1.29–2.95,  $p<0.01$ ) and MMD6 (OR:3.56, 95%CI:1.93–6.58,  $p<0.01$ ) were more likely to be retained in care than no-MMD, and those on MMD6 were more likely to have undetectable VL (OR:2.05, 95%CI:1.19–3.53,  $p=0.01$ ) than other categories.

**Conclusions:** CLHIV had optimal treatment outcomes after 24 months of multi-month ARV dispensing. Programs can consider the systematic scale-up of MMD among CLHIV and evaluate longer-term outcomes.

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## Factors Associated with Virologic Non-suppression Among Children and Adolescents Living with HIV in Kenya

**Mburugu** P<sup>1</sup>, Onzere G<sup>2</sup>, Taligoola L<sup>2</sup>, Otieno B<sup>2</sup>, Oyucho F<sup>2</sup>, Aduda J<sup>1</sup>, Athiany H<sup>1</sup>, Muthoka K<sup>2</sup>  
<sup>1</sup>Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya, <sup>2</sup>Palladium Kenya, Nairobi, Kenya

**Background:** Virologic suppression (VLS) remains a challenge among children and adolescents living with HIV (CALHIV) despite early and widespread use of antiretroviral therapy. This study sought to determine factors associated with virologic non-suppression among CALHIV in Kenya.

**Materials and Methods:** This was a retrospective cohort study with sociodemographic and clinical characteristics of CALHIV aged 1-15 years of age started on ART between January and December 2019 and active on care and treatment by December 2022 were abstracted from the national data warehouse and analysed. Virologic non-suppression was defined as HIV RNA greater or

equal to 200 copies/ml after 3 months of treatment according to Kenya HIV prevention and treatment guidelines of 2022. Descriptive statistics were used to characterize the study population while repeated measures regression analysis was used to determine factors associated with virologic non-suppression.

**Results:** Data of 7,099 CALHIV was analyzed. Among them, 3,675 (52%) were female, median interquartile range (IQR) age at start of ART was 7 (3-12) years and median (IQR) age duration on ART was 3(2-3.3) years. Majority 6,158 (87%) were on a dolutegravir based regimen at time of the last viral load. Overall 1547 (22%) had virologic non-suppression at last viral load. Adjusting for other covariates male sex (Adjusted Odds Ratio (AOR) = 1.21; 95% Confidence Interval (CI) 1.09, 1.35;  $p<0.001$ ), duration on ART of less < 1 year (AOR = 2.99; 95% CI= [2.63, 3.40];  $p<0.001$ ), duration on ART of 1 to < 2 years, (AOR = 1.70; 95% CI= [1.54, 1.88];  $p<0.001$ ), wasting (AOR = 1.22; 95% CI= [1.06, 1.41];  $p<0.005$ ), advanced HIV disease, (AOR = 1.41; 95% CI= [1.10 1.80];  $p<0.006$ ), sub optimal adherence (AOR = 2.74; 95% CI= [1.73, 4.35];  $p<0.001$ ) and non DTG based regimen (AOR = 2.79; 95% CI= [2.37, 3.29];  $p<0.001$ ) were significantly associated with virologic non-suppression.

**Conclusions:** Approximately one in five of CALHIV were virally non-suppressed. Male sex, duration on ART, wasting, advanced HIV disease, non-dolutegravir based regimen were significantly associated with virologic non-suppression. Intensive monitoring of viral load and specified care and treatment interventions may improve virologic suppression among CALHIV in Kenya.





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## La Suppression Virale chez les Femmes Enceintes et Allaitantes est Prédicative de l'Élimination de la Transmission Verticale du VIH : Étude de cohorte au Centre Hospitalier d'Essos du Cameroun

**Tetang Ndiang S<sup>1</sup>**, Nga Motaze A<sup>1</sup>, Ka'e A<sup>2</sup>, Yagai B<sup>3</sup>, Essogo E<sup>1</sup>, Ekwoje Mejane Fokam R<sup>4</sup>, Mamang M<sup>1</sup>, Tamokeu Belinga M<sup>1</sup>, Eyenga C<sup>1</sup>, 2 M<sup>2,5</sup>, Ndomgue T<sup>4,6</sup>, Takou D<sup>1</sup>, Sosso S<sup>1</sup>, Djomo A<sup>3</sup>, Same K<sup>7</sup>, Nkenfou C<sup>1</sup>, Hamsatou H<sup>3</sup>, Ajeh R<sup>3</sup>, Halle Ekane G<sup>8</sup>, Bissek A<sup>5</sup>, Colizzi V<sup>2</sup>, Perno C<sup>2,10</sup>, Fokam J<sup>2,9</sup>

<sup>1</sup>Centre Hospitalier D'essos(che), Yaoundé, Cameroon, <sup>2</sup>Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management, Yaoundé, Cameroon, <sup>3</sup>Central Technical Group, National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon, <sup>4</sup>School of Health Sciences, Catholic University of Central Africa, Yaounde, Cameroon, <sup>5</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon, <sup>6</sup>Training School of Medical Laboratory Technicians, Ministry of Public Health, Yaoundé, Cameroon, <sup>7</sup>UNAIDS country office, Yaounde, Cameroon, <sup>8</sup>Directorate of Family Health, Ministry of Public Health, Yaounde, Cameroon, <sup>9</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>10</sup>Bambino Gesu Pediatric Hospital, Rome, Italy

**Contexte :** La prévention de la transmission verticale du VIH (PTV) repose sur le contrôle optimal de la réplication virale chez les femmes enceintes/allaitantes vivant avec le VIH (FEAVIH). Notre objectif était d'évaluer la réponse virologique chez FEAVIH et le taux de transmission verticale (TV) du VIH au Centre Hospitalier d'Essos de Yaoundé (CHE).

**Matériels et Méthodes :** Une étude observationnelle a été menée chez les femmes enceintes vivant avec VIH enrôlées au CHE de Janvier 2021 à Décembre 2021, et suivies jusqu'au dépistage-VIH de l'enfant par PCR sur papier-buvard. Les données des couples mères-enfants ont été enregistrées ; le taux de suppression virale-SV (<1000 copies/mL) des mères et le taux de TV ont été évalués, avec  $p < 0.05$  considérée statistiquement significatif.

**Résultats :** Au total, 95 couples mères-enfants ont été enrôlés (âge-moyen des mères :  $36 \pm 5$ ans). La

couverture globale en charge virale (CV) était de 84.21% (80/95), avec une durée moyenne de traitement antirétroviral (TARV) de  $8 \pm 4$  ans. Suivant le TARV, 73.2% étaient sous dolutegravir/tenofovir/lamivudine, 17.1% sous tenofovir/lamivudine/efavirenz et 5.0% sous tenofovir/lamivudine/atazanavir/r. La réalisation de la charge virale durant la grossesse était de : (a) 3 tests de CV chez 11/80 (13.8%), 2 CV chez 43/80 (53.8%), et une seule CV chez 26/80 (27.9%) et (b) d'un test de CV durant l'allaitement chez 78/80 (97.5%). Globalement, le taux de SV était de 98.7% (79/80), avec 91.7% (67/73) durant la grossesse contre 97.5%(76/78) durant l'allaitement;  $p < 0.261$ . Selon le TARV, le taux d'indélectabilité était de 68.4% sous protocole à base de dolutegravir, 100% pour l'Atazanavir/r et 100% pour l'Efavirenz ( $p = 0.371$ ). Globalement, le taux de TME-VIH était de 1.25%(1/80), dans un contexte d'observance maternelle variable durant la grossesse et l'allaitement sous dolutegravir/tenofovir/lamivudine.

**Conclusions :** A l'ère de la transition au dolutegravir, la couverture en CV reste sous-optimale chez les FEAVIH. Toutefois, la SV globale est très élevée (>95%), entraînant un faible taux de TV-VIH (<2%). Ainsi, l'élimination universelle de la TV exige une optimisation de la couverture en CV et un renforcement constant de l'observance chez les FEAVIH tout au long de la cascade de la PTV dans les pays à ressources limitées.

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## HIV-Exposed Uninfected Infants Have an Altered Gut Microbiota in the First Month of Life Which Associates with Systemic Inflammation

Byrne A<sup>1</sup>, Feng C<sup>1</sup>, Diener C<sup>2</sup>, Gibbons S<sup>2</sup>, Koch M<sup>3</sup>, Pollara J<sup>4</sup>, Jaspan H<sup>1</sup>, **Nyangahu D<sup>1</sup>**

<sup>1</sup>Seattle Children's Research Institute, Seattle, USA, <sup>2</sup>Institute for Systems Biology, Seattle, USA, <sup>3</sup>Fred Hutchinson Cancer Center, Seattle, USA, <sup>4</sup>Duke University, Durham, USA

**Background:** HIV-exposed uninfected infants (iHEU) exhibit high infectious morbidity and are at higher risk of mortality compared to HIV unexposed controls (iHU). Moreover, iHEU have



altered immune profiles which include heightened systemic inflammation. The mechanism of these phenomena is unknown. Here, we investigated (1) whether mothers living with HIV (MLHIV) or their infants have altered total antibody and subclass concentrations in plasma and stool respectively, (2) whether IgA-microbiota coating is altered in iHEU stool and (3) whether iHEU have altered early life bacteriome or virome and whether these gut microbiota associate with systemic inflammation.

**Materials and Methods:** Total immunoglobulin concentrations in breastmilk were determined by ELISA in mothers with or without HIV at week 4 postpartum. DNA extracted from whole stool or IgA bound and unbound microbial fractions in stool was subjected to shotgun metagenomic sequencing. Sequence reads were used to profile both the bacteriome and virome. To assess systemic inflammation, we measured inflammatory markers in plasma.

**Results:** Total IgG1 and IgG3 concentrations were significantly elevated in the breast milk of MLHIV compared to mothers not living with HIV (MNLHIV) (median conc 39.5 and 28.9 $\mu$ g/mL,  $p=0.017$  and 2.7 and 1.2 $\mu$ g/mL,  $p=0.001$  respectively), but there were no differences in immunoglobulin concentrations in infant stool. Bacterial microbiota analysis revealed profound differences between iHEU and iHU. Viruses from the genera Biseptimavirus (adj  $p=0.040$ ) and Peduovirus (adj  $p=0.019$ ) were significantly enriched in iHEU. Although there were significant alterations in resident gut microbiota in iHEU, there was no difference in IgA microbiota coating. Inflammatory biomarkers, including C-reactive protein and complement factor H related 5, were significantly elevated in the plasma of iHEU compared to iHU (adj  $p=0.021$  and 0.001 respectively). CRP was positively correlated with the relative abundance of *Blautia pseudococcoides*.

**Conclusions:** Our data shows that MLHIV have altered concentrations of antibody subclasses in breast milk compared to MNLHIV. Importantly, iHEU display an altered gut bacteriome and virome early in life and the bacterial component of the microbiome associates with systemic inflammation.

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## Optimizing HIV Case Identification Among Children Through Ethical Index-Testing in Ghana

Nyano A<sup>1</sup>, Adiibokah E<sup>1</sup>, Tagoe H<sup>1</sup>, Nartey D<sup>1</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>

<sup>1</sup>JSI Research and Training Institute, Inc, Takoradi, Ghana

**Background:** Health systems across many countries especially in sub-Saharan African region are weak and fail to provide adequate HIV services. The index testing approach to HIV case identification provides the opportunity to involve both healthcare providers in health facilities and community actors to offer HIV testing services to people whose partner(s) are diagnosed HIV positive through index testing. The USAID Care Continuum Project in partnership with the Ghana Health Service trained healthcare providers including Community Health Nurses (CHNs) and Civil Society Organizations (CSOs) field staff to trace index clients' contacts and offer HIV testing services. This abstract assesses uptake of index testing by HIV positives- parents and positivity rate among their children 15 years and below using facility and community actors.

**Materials and Methods:** Client service data drawn from 120 health facilities across Western, Western North and Ahafo regions in Ghana for a twelve-month period (October 2021 to September 2022). Index-testing data for the period were analyzed with a descriptive statistical analytical framework with key indicators being the number of clients aged 15 and below whose contacts were elicited through index biological parents, tested for HIV (using the national HIV testing algorithm), new positives and known positives.

**Results:** A total of 467 HIV positive clients were offered index-testing with 383 clients accepting the index-testing and providing the contact of their sexual partner(s) and biological children 15 years and below. The results indicate that a total of 2,781 clients aged 15 years and below were elicited and 2,084 were tested for HIV successfully. Among the 388 children client that tested HIV positive through index-testing, 318 (82%) were new positives with known HIV positive clients



making-up the remaining 18% and new positivity rate of 15.3%.

**Conclusions:** The high positivity rate among children identified through index testing demonstrate the importance of the index testing approach for pediatric HIV case identification. The authors argue that involving CHNs and CSO field staff in contact tracing for index clients' partners and biological children is an effective way to optimize case identification in children.

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## Why Waiver of Caregiver Permission Matters in Health Research with Adolescents: Lessons from a Study with Adolescents Living with HIV in Western Kenya

Kibugi J<sup>1</sup>, Agot K<sup>1</sup>, Kandima J<sup>1</sup>, Badia J<sup>1</sup>, Jiang W<sup>2</sup>, Kohler P<sup>2</sup>, John-Stewart G<sup>2</sup>, Inwani I<sup>2</sup>, Shah S<sup>2</sup>  
<sup>1</sup>Impact research and Development Organization, Kisumu, Kenya, <sup>2</sup>University of Washington, USA

**Background:** Adolescent participation in research is critical. However, studies are often conducted among adults before they are extended to adolescents. While it may be beneficial to first assess safety and efficacy of new investigational products in adults, excluding adolescents delays potential benefits from the interventions. Adolescents not of legal age of consent require caregiver permission. We compared characteristics of adolescents and young adults living with HIV (YLH), before versus after we obtained waiver of caregiver permission.

**Materials and Methods:** This analysis was nested in the observational phase of the Data Informed Stepped Care (DiSC) study among ALHIV aged 10-24 years and receiving care at 9 health facilities in Kisumu and Homabay Counties, western Kenya. The parent study aimed to develop a prediction tool for use by healthcare providers to optimize management of YLH. YLH aged 10-17 years required caregiver permission to participate unless they were emancipated by pregnancy or living situation. Due to challenges enrolling YLH aged 15-

17 years who often came to the clinic unaccompanied by a caregiver, we applied for and obtained waiver of the requirement for caregiver permission for adolescents aged 15-17 years.

**Results:** In the period prior to consent waiver, 899 YLH were screened, 593 (66.0%) of whom were enrolled. Following consent waiver approval, 1,243 YLH were screened, of whom 791 (63.6%) were enrolled. Before the waiver, 33% of participants were aged 10-14 years, 16% were aged 15-17 years, and 51% were aged 18-24 years; after the waiver, the distribution shifted significantly with 27% aged 10-14 years, 39% aged 15-17 years, and 35% aged 18-24 years ( $p < 0.001$ ). Eighty-four (42.9%) of YLH aged 15-17 years screened out during pre-waiver period because they came unaccompanied by caregivers, compared to 48 (13.9%) who screened out post-waiver ( $p < 0.001$ ). Similarly, there was a 23% increase in enrollment of participants aged 15-17 years between pre- and post-waiver periods ( $p < 0.001$ ).

**Conclusions:** The permission resulted in significantly increased enrollment of YLH age 15-17 years. Our data suggests that researchers and ethics committees should incorporate standard consideration of waiver of caregiver permission for low-risk studies to increase access for this group to needed research and interventions.

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## Declining Condom Use with Non-Marital Partners in the Era of Antiretroviral Therapy and HIV Pre-Exposure Prophylaxis in a Rural Ugandan Population-based Cohort

Kairania R<sup>1</sup>

<sup>1</sup>Rakai Health Sciences Program, Kalisizo, Uganda

**Background:** Condom use remains critical for triple prevention of new HIV infections, sexually transmitted infections (STIs) and unwanted pregnancies. However, few studies have evaluated the use of condoms in high-risk sexual encounters after the introduction of universal antiretroviral



therapy (ART) and Pre-exposure Prophylaxis (PrEP). Here, we describe rates of consistent condom use with non-marital partners among HIV-negative individuals aged 15-49 eligible not using PrEP in a population-based HIV cohort in Rakai, Uganda.

**Materials and Methods:** This study draws data from the Rakai Community Cohort Study (RCCS), a longitudinal population-based cohort in 30 communities including agrarian, semi-urban trading and Lake Victoria fishing communities in south-central Uganda. We assessed trends in consistent condom use with non-marital partners and used generalized estimation equations to determine associated factors among HIV-negative individuals, between April 2003 and March 2022. Consistent condom use was defined as always using condoms with non-marital partners.

**Results:** Of 198,200 total participants, 38,209 (19.3%) had at least one non-marital sexual partner in the past 12 months; with 16,940 (44.3%) reporting more than one non-marital sex partner (60.2% among males and 20.4% among females). Consistent condom use dropped from 41.1% before ART availability to 35.2% during criteria-based ART, continued to decline to 32.45% during universal ART, and ultimately reached 25% during PrEP implementation. This decline remained statistically significant after adjusting for sex, age, marital status, education level, and religion (Adjusted PRR=0.62, 95% CI: 0.58-0.67). With the availability of PrEP, consistent condom use in individuals eligible not using PrEP declined among males from 29.6% in 2019 to 26.4%, and among females, it declined from 23.1% to 17.2%. This decline remained statistically significant even after adjusting for other factors, with a 24% overall decrease in 2022 compared to 2019 (Adjusted PRR=0.76, 95% CI: 0.62-0.92).

**Conclusions:** Reporting more than one non-marital partner among individuals with no or irregular condom use is common with consistent condom use declining over time, particularly among females. New strategies to enhance consistent condom use among individuals with non-marital partners eligible not using PrEP are needed.

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## Understanding the Benefit of HIV Risk Self-Screening Among Pharmacy Clients in Kenya

**Kwach B**<sup>1</sup>, Zhang S<sup>2</sup>, Harkey K<sup>3</sup>, Asewe M<sup>1</sup>, Rota G<sup>1</sup>, Otiemo P<sup>1</sup>, Odoyo J<sup>1</sup>, Ongwen P<sup>4</sup>, Were D<sup>4</sup>, Roche S<sup>3</sup>, Ngure K<sup>5</sup>, Omollo V<sup>1</sup>, Bukusi E<sup>1,2</sup>, Ortblad K<sup>3</sup>  
<sup>1</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>2</sup>University of Washington, Department of Global Health, Seattle, United States, <sup>3</sup>Public Health Sciences Division, Fred Hutchinson Cancer Center, Seattle, United States, <sup>4</sup>Jhpiego, Nairobi, Kenya, <sup>5</sup>Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

**Background:** In many high HIV prevalence settings, risk screening tools are used to help identify individuals who could potentially benefit from HIV prevention interventions, such as daily oral pre-exposure prophylaxis. The commonly used screening tool in Kenya—HIV Risk Assessment Screening Tool (RAST)—asks personal and sensitive questions that may be prone to social desirability bias due to respondents' fear of discrimination for engaging in stigmatized behaviors. We sought to assess whether screening outcomes differed when the RAST was self-administered by clients versus administered by an HTS counselor.

**Materials and Methods:** This secondary analysis uses data from a study conducted at 20 private pharmacies in Kisumu County. Study participants, >18 years pharmacy clients, completed the RAST twice: first on their own and then again with an HTS counselor. We calculated descriptive statistics for 8 RAST items, each of which asked the participant whether s/he experienced a particular HIV risk scenario. We assessed agreement between the self-screening and counsellor-screening outcomes at the individual level.

**Results:** From March to June 2022, 1500 pharmacy clients were enrolled in the study and completed self- and counselor-screening; 64% (n=954) were female, and the median age was 26 years (IQR 22-31). Agreement between self- and counselor-screening outcomes was high (>93% for all 8 items). The agreement between these screening approaches for reports of transactional sex was 92%(n=1381), for diagnosis of an STI was 94%(n=1417), and for sexual assault was 97%(n=1448). Additionally, agreement on ever-shared needles was 98%(n=1470), PEP use more



than twice 96%(n=1440), forced to have sex within the last six months was 98%(n=1470), condomless sex with a person living with HIV 94%(n=1410), and contact with other's fluid within the last three days was 93%(n=1395).

**Conclusions:** HIV risk screening outcomes did not differ by administrator (self vs. HTS counselor) in this study, thus suggesting that allowing pharmacy clients to self-screen for HIV risk would not lead to less accurate HIV risk assessments. Future research is needed to assess the uptake of self-screening for HIV risk, its impact on client satisfaction, and PrEP delivery efficiency (e.g., burden on provider time) at private pharmacies and other delivery venues.

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## Health Related Quality of Life of People Ageing with HIV in a Low Resource Setting: the Newlands Clinic cohort, Harare Zimbabwe

Taderera C<sup>1</sup>, Lowe S<sup>1,2</sup>, Gregson C<sup>3,4</sup>

<sup>1</sup>Newlands Clinic, Harare, Zimbabwe, <sup>2</sup>University of Zimbabwe Medical School, Harare, Zimbabwe, <sup>3</sup>The Health Research Unit Zimbabwe, Biomedical Research and Training Institute, Harare, Zimbabwe, <sup>4</sup>Global Health and Ageing Research Unit, University of Bristol, Bristol, United Kingdom

**Introduction:** Antiretroviral therapy (ART) has increased life expectancy for people living with HIV (PLHIV). However, associated multimorbidity and geriatric syndromes can limit health-related quality of life (HRQoL). We assessed HRQoL in older people routinely attending an HIV-geriatric clinic in Zimbabwe.

**Materials and Methods:** In this cross-sectional study, clients ≥65 years who attended the Newlands HIV-geriatric clinic from Oct-2022 to Dec-2023 had HRQoL evaluated using the EuroQoL-5 dimensions questionnaire (EQ-5D-5L). This assesses mobility, selfcare, usual activities, pain, anxiety/depression and includes a visual analogue scale (EQ-VAS). Each dimension has 5 levels, from 1 (no problems) to 5 (extreme problems), EQ-VAS ranges from 0 (worst imaginable health) to 100 (best imaginable health). Analyses used logistic regression. Low HRQoL was defined as a

dimension sum<12, impaired physical function as short physical performance battery ≤9, depression as PHQ-9 ≥5, anxiety as GAD-7 ≥5, malnutrition as mini nutritional assessment score ≤11.

**Results:** Of 148 attendees, most were female 102(69%), median age 69 (IQR 67-72) years. Viral suppression was common at 93% (<50 copies/ml). Median (IQR) EQ-VAS was 77.5 (60-90) for women and 80 (70-90) men. Only 10 (6.6%) -50% being female reported no problems in any dimension, whilst 15 (10%) – 80% being female reported problems in all dimensions. No one reported extreme problems in all dimensions. Most reported no problems with selfcare (82%). Those reporting any problem in each of the dimensions are as follows: mobility 84 (57%), self-care 27 (18%), usual activities 72 (49%), pain/discomfort 118 (80%) and anxiety/depression 108 (73%). Moderate to severe problems in each dimension were as follows: mobility 67 (45%), self-care 17 (11%), usual activities 42 (28%), pain/discomfort 71 (48%) and anxiety/depression 69 (47%). Low HRQoL was associated with impaired physical function (OR 4.42[95%CI 1.86-10.5],p=0.001), depression (OR 5.85[95%CI 1.77-19.2],p=0.004), anxiety (OR 6.20[95% CI 2.51-15.3],p<0.001) and malnutrition (OR 4.76[95%CI 2.14-10.6],p<0.001). Comorbidities and medications were independent of HRQoL.

**Conclusions:** Most of the older PLHIV reported a deficit in at least one HRQoL dimension, with >50% reporting problems in four of five dimensions. Comprehensive HIV care should incorporate assessment and management of these dimensions to support healthy ageing.



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## Factors Associated with Condom-Less Sex Among Sexually Active Adolescent Girls and Young Women (AGYW) in Zimbabwe: A Respondent-Driven Sampling Survey

Langella R<sup>1</sup>, Lampe F<sup>2</sup>, Chidhanguro K<sup>3</sup>, Murenjekwa W<sup>3,4</sup>, Ncube G<sup>4</sup>, Copas A<sup>5</sup>, Cowan F<sup>3,6</sup>, Dirawo J<sup>3</sup>, Matsikire E<sup>3</sup>, Mpofu A<sup>7</sup>, Mugurungi O<sup>4</sup>, Taramusi I<sup>8</sup>, Phillips A<sup>2</sup>, Sibanda E<sup>3,6</sup>, Cambiano V<sup>2</sup>  
<sup>1</sup>University College London, London, United Kingdom, <sup>2</sup>Institute for Global Health, University College London, London, UK, <sup>3</sup>CeSHHAR Zimbabwe, Harare, Zimbabwe, <sup>4</sup>AIDS and TB Unit, Ministry of Health and Childcare, Zimbabwe, <sup>5</sup>Institute for Global Health and the MRC Clinical Trials Unit, London, UK, <sup>6</sup>Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK, <sup>7</sup>National AIDS Council, Harare, Zimbabwe, <sup>8</sup>UNAIDS UCO Zimbabwe, Harare, Zimbabwe

**Background:** Understanding the factors associated with condomless-sex is important in identifying population subgroups who remain most at risk of acquiring HIV. We seek to identify and characterize the population of sexually active adolescent girls and young women (SA-AGYW) in Zimbabwe who display inconsistent condom use.

**Materials and Methods:** A cross-sectional respondent-driven sampling survey of SA-AGYW aged 15-24 years was conducted in May-July 2023 in six urban and peri-urban districts in Zimbabwe. Participants self-completed audio computer-assisted questionnaires on sexual behaviour and other factors. Un-adjusted and age and socio-demographic adjusted (age, education, being an orphan, poverty and religion) associations of factors with any condomless-sex and with condom-sex sex with multiple partners were assessed using logistic regression models. Of 900 participants, in the last 3 months, 68% have had condom-less sex (614/900) and 17.57% (156/900) with multiple partners.

**Results:** In the model adjusted for socio-demographic factors, age was linearly correlated with an increased risk of having condomless-sex (adjOR per year older:1.13, 95% CI:1.06-1.20). Being of Apostolic faith (adjOR vs. no religion:2.05,

95% CI:1.23-3.41), cohabitating with their partner/husband (adjOR vs no partner:3.36, 95%, CI:2.06-5.48), being a sex worker (adjOR:1.65, 95% CI:1.02-2.66) and monthly heavy drinking (adjOR:1.79, 95% CI:1.18-2.72) were strongly associated with increased likelihood of having condomless-sex.

When considering condomless-sex with multiple partners and adjusting for the socio-demographic factors: being a sex worker (adjOR:3.88, 95% CI:2.51-6.00), weekly heavy drinking (adjOR:5.69,95% CI:2.94-11.00), substance use (adjOR:2.89, 95% CI:1.20-5.22), living in poverty (adjOR:2.32,95% CI:1.58-3.40), have experienced sexual abuse (adjOR:2.08, 95% CI:1.35-3.20), talking about sex exclusively to similar-aged female friend/relatives rather than exclusively to mothers (age-adjusted OR:3.60, 95% CI:1.25-10.32), intending to get pregnant (adjOR:1.71,95%CI:1.08-2.70) and poor mental health (adjOR: 2.26, 95% CI:1.48-3.45) and don't cohabit with their partners (adjOR vs cohabit:2.26,95%CI:1.51-3.37) had an increased likelihood of having condomless-sex with multiple partners. Those who have achieved O-levels (adjOR:0.62, 95% CI:0.42-0.90) were less likely to have condomless-sex with multiple partners.

**Conclusions:** Among AGYW in Zimbabwe, condomless-sex was prevalent, with a specific group experiencing higher risk. Despite the widespread availability of condoms consistent use remains limited particularly in some subgroups – indicating the need for further educational strategies.



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## Vivre avec le VIH à Plus de 70 Ans: Entre Gratitude et Défis Quotidiens

Essi M<sup>1</sup>, Aba'a Djampene D<sup>1</sup>, Abossolo Essi J<sup>1</sup>, Ciaffi L<sup>2</sup>

<sup>1</sup> Laboratoire de Recherche sur les Hépatites et le Communication en Santé (LRHCS/FMSB-UYI), Yaoundé, Cameroon, <sup>2</sup>TransVIHMI UMI 233 IRD U1175 INSERM Université de Montpellier, Yaoundé, Cameroun

**Contexte :** Avec l'accessibilité universelle aux ARV, l'infection à VIH est devenue une maladie chronique, et le profil des personnes séropositives a suivi la courbe mondiale de vieillissement. Aussi l'intérêt de notre étude a-t-il porté sur la trajectoire de soins des PvVIH de plus de 70 ans (PAvVIH) au Cameroun.

**Matériels et Méthodes :** Il s'est agi d'une étude anthropologique désigné Projet "Grand-âge", financé par Sidaction. La population était constituée de 41 personnes âgées de 70 ans et plus (13 ruraux et 28 citadins), De juin à octobre 2022, des entretiens approfondis ont été conduits à l'Hôpital Militaire de Yaoundé et à l'Hôpital de District de Bafia. Deux (2) discussions de groupe focalisées ont aussi été mené en aout 2023 auprès treize (13) PAVVIH (10 femmes et 3 hommes) a l'HD de Bafia. Apres une transcription systématique des entretiens, le corpus a été codé par démarche empirique, puis inductive. L'analyse s'est établie par cohérence de l'analyse sémantique.

**Résultats :** La recherche établit les points suivants : (i) les PAVVIH avaient une bonne qualité de vie générale ; (ii) la découverte de la séropositivité avait été traumatique, marquant une fracture dans la trajectoire de vie et le partage du statut était très hétérogène ; (iii) ils/elles avaient une bonne observance au traitement et étaient reconnaissant de sa gratuité ; (iv) leur niveau de littératie en matière de VIH était faible, se limitant aux déterminants de l'observance ; (v) le syndrome de fragilité du vieillissement n'était pas du tout adressé ; et (vi) Ils/elles pensaient que la mort était ancrée dans leur parcours de lutte contre une maladie, mais exprimaient tous le sentiment d'être chanceux.

**Conclusions :** L'étude conclut à un parcours mitigé de soins des PvVIH de 70 ans et plus au Cameroun.



Si l'on peut se réjouir de la réussite du "vivre avec le VIH", le faible accès aux soins gériatriques constitue un défi pour les politiques sanitaires du pays, en direction de toute la population camerounaise.

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## Exploring the Dynamics of the Relationships between Pregnancy and Sexual Risk Behaviors among Adolescent Girls and Young Women in South Africa

Baruwa O<sup>1</sup>

<sup>1</sup>University Of Cape Town, Cape Town, South Africa

**Objective:** To examine the relationship between pregnancy and sexual risk behaviors, including early sexual debut, multiple sexual partners, age-disparate relationships, and no condom use at the last sex.

**Materials and Methods:** This study used the 2016 nationally representative Demographic and Health Survey (DHS) of South Africa (n= 1935 15-24 years). The survey employed a two-stage cluster sampling technique based on South Africa's 2011 census areas for sample selection. The outcome variables of interest were: early sexual debut, age-disparate relationship, multiple sexual partnerships, no condom use at last sex, and lastly, cumulative sexual risks were defined as having at least two of the following: early sexual debut, age-disparate relationship, multiple sexual partners, and no condom use at last sex. Data analyses were conducted using logistic and multinomial logistic regression. Statistical significance was determined at a P-value less than 0.05, with the confidence interval set at 95%.

**Results:** Findings revealed that ever pregnant were less likely to report early sexual debut (OR=0.38, 95%CI=0.31-0.46). However, ever-pregnant AGYW were more likely to engage in age-disparate relationships (OR=1.58, 95%CI=1.27-1.97). Ever-pregnant AGYW were also more likely to engage in accumulated sexual risk behaviors (OR=2.32, 95%CI=1.87-2.87). Further, married or cohabiting

AGYW between the ages of 15-24 years were more likely to engage in accumulated sexual risk compared to never-married AGYW (OR=2.32, 95%CI=1.87-2.87). However, 20-24 years AGYW were less likely to engage in accumulated sexual risk compared to 15-19 years AGYW (OR=0.41, 95%CI=0.30-0.57).

**Conclusions:** This research contributes to a deeper understanding of the intersectionality of reproductive health challenges faced by young women in South Africa. The findings underscore the need for targeted interventions that address the specific needs and risks of ever-pregnant AGYW and ensure that comprehensive support mechanisms are in place to reduce the potential impact of risky sexual behaviors.

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## Impact of Sustained Psychosocial Support on Sexual Behavior, Viral Load Suppression and Intimate Partner Violence Among Youth Living With HIV: MUJHU Young Generation Alive (YGA) Psychosocial Support Group

Etima J<sup>1</sup>, Becker G<sup>2</sup>, Namanya P<sup>1</sup>, Kiganda C<sup>1</sup>, Nabukenya J<sup>1</sup>, Wendt L<sup>3</sup>, Rukundo G<sup>1</sup>, Yoyeta I<sup>1</sup>, Motevalli M<sup>4</sup>, Mooberry M<sup>2</sup>, Voss N<sup>2</sup>, Brooks J<sup>5</sup>

<sup>1</sup>Makerere University-johns Hopkins University Research Collaboration, Kampala, Uganda, <sup>2</sup>Carver College of Medicine, University of Iowa, Iowa City, USA, <sup>3</sup>Institute for Clinical and Translational Science, University of Iowa, Iowa City, USA, <sup>4</sup>Department of Pathology, Johns Hopkins University, Baltimore, USA, <sup>5</sup>Department of Pathology, University of Iowa, Iowa City, United States

**Background:** Youth living with HIV face complex challenges as they explore their sexual identity and form relationships, along with challenges with HIV status disclosure and understanding the importance of effective treatment options while on ART. Psychosocial Support groups provide a valuable resource for those managing the physical, mental, and emotional toll of living with HIV. The aim of this study was to understand the impact of sustained Psychosocial support on sexual behavior

and viral load suppression among youth living with HIV.

**Materials and Methods:** We conducted a cross-sectional survey among 294 perinatally HIV infected youth, aged 18-25 years, who attend a monthly YGA psychosocial support (PSS) group Kampala-Uganda. Participants completed a 25-item computer-based survey using REDCap assessing viral load status, pregnancy and HIV/co-infection prevention, sexual history, relationship status, and HIV status disclosure. The PSS support group uses a Peer Adolescent/youth implemented structured curriculum with thematic areas addressing the unique needs of youth living with HIV including building self-esteem, adherence to ART, disclosure, Sexual behavior & relationships, Intimate Partner Violence, stigma and discrimination, and Viral load suppression.

**Results:** Overall, 75% of the youth were using condoms to prevent transmission of HIV/STIs, 43% were abstaining from sexual intercourse for at least three months and 68% of the participants use family planning methods to prevent pregnancy with majority 43% using the male condom. 86% knew their partner's HIV status and 62% had disclosed their HIV status to their partners. 79% were virally suppressed and of the 294 respondents, 40% preferred HIV negative partners. 70% of participants reported no incidents of physical, sexual, or emotional intimate partner violence.

**Conclusions:** Sustained Psychosocial Support, with structured thematic sessions tailored to address the unique needs of youth living with HIV reduce sexual risk behavior, promote; disclosure of HIV status and consistent condom use, increase viral load suppression, reduce Intimate Partner Violence and ultimately reduce HIV transmission risk.





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## Breaking the Chains: Unravelling Youth Drug Abuse and Socioeconomic Catalysts in Zimbabwe

Mavudze J<sup>1</sup>, Taruberekera N<sup>1</sup>, Chatora K<sup>1</sup>, Dhodho M<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe

**Background:** Drug and substance abuse (DSA) is now a pandemic. In 2016, approximately 271 million people aged 15-64 years used drugs globally. In Zimbabwe, approximately 45% youths engaged in drug abuse in 2018 and 57% in 2019 according to Zimbabwe Civil Liberties and Drug Network (ZCLDN). Given the increased HIV acquisition risk among drug and substance users, this trend is concerning as it can erode HIV epidemic control gains. We conducted a study to determine drivers of drug and substance use among young adults (15-40 years).

**Materials and Methods:** A cross sectional quantitative study was conducted in Harare and Bulawayo and 770 youths were interviewed. Descriptive analysis and logistic regression modelling were used in STATA 17, to measure factors associated with DSA. Independent variables were parental status, household headship, income source and the outcome variable were DSA.

**Results:** Of the 770 youths, 43% had ever used drugs; of these 69% (233) had used drugs in the past three months. Main drivers of drug abuse were; access to money to buy drugs (62%), stress (25%) and peer pressure (25%). Double orphaned youths were 1.5 times (95% CI 1.02;2.18, p=0.038) more likely to use drugs compared to those with both parents alive. Youths heading households were 2.5 (95% CI 1.6;3.94, p<0.001) times more likely to use drugs compared to adult headed households. Youths accessing income through irregular sources (begging, 'blessers', guardians/relatives/friends as pocket money and/or odd jobs) were 1.4 times (95% CI 1.04;1.85 p=0.024) more likely to use drugs compared to those with regular (formal and informal employment) income source.

**Conclusions:** The study concludes that double orphanage, youths heading households, and irregular income sources are key drivers of DSA among young adults. It suggests that community-level interventions, including strengthening parenting skills, establishing social safety nets for vulnerable youths, and empowering youths with economic and life skills, can help prevent DSA. Empowering parents and guardians to play a more active role in preventing DSA could contribute to reducing new HIV infections in communities. These findings underscore the importance of addressing socioeconomic factors and providing support systems to prevent drug abuse among young adults.

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## Effectiveness of Audio ADs in Influencing Uptake of HIVST, Linkage to Treatment and Prevention in Kenya

Nzuki I<sup>1</sup>

<sup>1</sup>Population Services Kenya, Nairobi, Kenya

**Background:** In Kenya, HIV, HIVST and reproductive health programs have been using mass media to inform and educate the public about diseases, products and services, promote behavior change and healthy sexual practices. This effort has led to discrepancy between individuals reached and the desired target. Users who fit the audience profile. With a mobile phone ownership rate of 80%; 30% of the adults owning smart phones and 50% owning basic phones, we presumed that audio ADs now play a role in creating awareness of self-manageable conditions and available solutions for self-care health needs. Advertisers can target their specified audience based on content that trickles their fancy while measuring post-advertising data that is integral in evaluating the campaign.

**Materials and Methods:** Population Services Kenya in partnership with Safaricom PLC and Ad tones limited run an audio ad (replacing the call connection with the Ad) tailored to reach males and females of ages 18-55 years with HIV self-testing campaign and messaging for a period of 8 weeks. The campaign encouraged the audience to



know their HIV status by purchasing HIVST kits from the nearby physical pharmacies or order via online pharmacies. Safaricom PLC & Ad tones limited rewarded users who opted in and interacted with the campaign, users were able to redeem airtime or data bundles for listening to the audio ad developed.

**Results:** The campaign reached 50,585 unique listeners, delivering 87,086 plays above 6 sec (billed) and 21,310 plays below 6 sec (Free plays). The average play time was 15.92 seconds with follow-up SMS text disseminated to 21,980 listeners. The number of unique users that clicked on the WhatsApp chatbot number, developed to support effective use of HIVST, linkage to treatment and prevention and services access, was 1,859 registering a CTR of 8.5%. The campaign contributed to 14.2% increase of HIVST kit sales among the project supported pharmacies.

**Conclusions:** Audio advertising is a game changing strategy to reach a more targeted and specific demographic characteristics such as age, group, gender, calling location, device type, customer segments, 2g/3g/5g indicators hence a good platform for interventions to increase uptake of HIVST and HIV prevention among populations.

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## Ante-Mortem Level of Acceptance of Full or Minimally Invasive Autopsy Among People Living with HIV And/or Their Caregivers in Selected Hospitals in Northern Uganda

Kibone W<sup>1</sup>, Bongomin F<sup>1,2</sup>, Nantale R<sup>3</sup>, Lukande R<sup>5</sup>, Muzoora C<sup>4</sup>, Hamer D<sup>6</sup>

<sup>1</sup>Gulu University, Black/african-american, Uganda, <sup>2</sup>University of Manchester, Manchester, United Kingdom, <sup>3</sup>Busitema University, Busitema, Uganda, <sup>4</sup>Mbarara University of Science and Technology, Mbarara, Uganda, <sup>5</sup>Makerere University, Kampala, Uganda, <sup>6</sup>Boston University School of Public Health, Boston, United States of America

**Background:** Autopsy is a valuable diagnostic tool globally and has been extensively utilized not only in identifying causes of death but also for

confirming ante-mortem diagnoses of opportunistic infections among people living with HIV (PLHIV). We aimed to assess the ante-mortem level of acceptance of full or minimally invasive autopsy among patients who have advanced HIV disease and/or their caregivers in selected hospitals in northern Uganda.

**Materials and Methods:** We conducted a cross-sectional study at Gulu Referral Hospital, Lacor Hospital, Kitgum Hospital, and Anaka centre in Northern Uganda. We enrolled adult PLHIV admitted or attending outpatient antiretroviral clinics and their caregivers. Data on socio-demographic information, knowledge and awareness of autopsy, cultural and religious beliefs, and reasons for acceptance or refusal of autopsy were collected through interviewer-administered structured questionnaires. Multivariable logistic regression was performed using STATA 17 to determine the associations between acceptance of autopsy and various exposures.

**Results:** A total of 310 participants with a mean age of 43.8±12.1 years were included in the study. Majority were female (62.3%, n=193), and had prior knowledge of autopsy (77.4%, n=240). Overall, 132 (42.6%) participants expressed willingness to undergo autopsy, with majority (48%, n=38) being caregivers. More than one third (37.4%, n=116) were open to full autopsy, and 5.2% (n=16) minimally invasive autopsy. Factors independently associated with acceptance of autopsy were hospitalized PLHIV (AOR: 4.6; 95% CI: 2.04-10.36, p<0.001), having prior knowledge of autopsy (AOR: 5.1; 95% CI: 1.2-22.02, p=0.029), and having a primary education level (AOR: 0.71; 95% CI: 0.52-0.96, p=0.027).

**Conclusions:** We observed a relatively low acceptance of autopsy among PLHIV and caregivers. Further research is necessary to enhance awareness and address the educational disparities and myths and misconceptions that impact the autopsy acceptance in Uganda.



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## Water Insecurity Is Associated with Intimate Partner Violence Among Women Living with HIV in a High HIV Prevalence Region of Western Kenya

Odak J<sup>1</sup>, Young S<sup>2</sup>, Bukusi E<sup>3</sup>, Cohen C<sup>4</sup>, Frongillo E<sup>5</sup>, Sheira L<sup>6</sup>, Weke E<sup>3</sup>, Wekesa P<sup>3</sup>, Weiser S<sup>6</sup>

<sup>1</sup>School of Public Health & Community Development, Maseno University/UCSF, KISUMU, Kenya, <sup>2</sup>Department of Anthropology & Institute for Policy Research, Northwestern University, Evanston, United States, <sup>3</sup>Centre for Microbiology Research, Kenya Medical Research Institute, Nairobi, Kenya, <sup>4</sup>Department of Obstetrics, Gynecology & Reproductive Sciences, University of California San Francisco, San Francisco, United States, <sup>5</sup>Arnold School of Public Health, University of South Carolina, Columbia, United States, <sup>6</sup>Department of Medicine, University of California San Francisco, San Francisco, United States

**Background:** Intimate partner violence (IPV) can contribute to poor HIV outcomes among people living with HIV in resource-poor settings. However, there are scant data on how water insecurity among women living with HIV (WLWH) may contribute to the experience of IPV in western Kenya. We assessed the prevalence of IPV and whether household water insecurity was associated with higher occurrence of IPV among WLWH in western Kenya.

**Materials and Methods:** We studied WLWH who enrolled in the Shamba Maisha cluster RCT of a multisectoral agricultural and finance intervention in western Kenya designed to reduce food insecurity and improve HIV health outcomes. Participants were >18 years of age, on ART for >6-months, moderately to severely food insecure, with access to agricultural land and surface water for irrigation. We collected baseline data on household water insecurity using a preliminary scale developed and validated for this region. We evaluated the association between household water insecurity and ever experiencing any or type of IPV (lifetime IPV) and recent IPV (previous 12 months) using bivariate and multivariable regression models, adjusting for age, marital status, household head, household size, education level, wealth index and food insecurity.

**Results:** We analyzed data for 395 WLWH, 62.3% of whom reported ever IPV and 20.1% reported recent IPV. In adjusted analyses, household water insecurity was associated with higher odds of ever

IPV (AOR = 2.0; 95% CI: 1.32, 3.62; p=0.012) and recent IPV (AOR = 2.2; 95% CI: 1.02, 4.89; p=0.046). When examining associations between water insecurity and physical, sexual, and emotional IPV, water insecurity remained associated with recent (AOR = 3.3; 95% CI: 1.06 - 3.84; P=0.039) and ever (AOR = 2.0; 95% CI: 1.04 - 3.84; p=0.038) emotional IPV.

**Conclusions:** Ever and recent experiences of IPV were common among WLWH in western Kenya and were associated with household water insecurity. The association of water insecurity with IPV among WLWH has potential downstream and detrimental consequences for HIV health outcomes. This association calls for further longitudinal and intervention trials to determine whether water insecurity and IPV are causally related and the pathways facilitating these associations to guide program development and implementation.

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## Self-Reported HIV Testing Among Sexually Active Adolescent Girls and Young Women in Gabon: Evidence from a Nationwide Survey

Ghasi N<sup>1</sup>, Ogbuabor D<sup>1</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria

**Background:** HIV testing is an essential first step in HIV prevention, care, and treatment. Nonetheless, women, especially adolescent girls and young women (AGYW) have a reduced propensity to test, increasing their risk of HIV infection. Evidence of the influence of social determinants and HIV-related characteristics on self-reported HIV testing among AGYW is lacking in Gabon. The study, therefore, assessed the prevalence and determinants of self-reported HIV testing among sexually active AGYW in Gabon.

**Methods and Materials:** We analyzed secondary data from the Gabon Demographic and Health Survey, 2018. Our sample included sexually active adolescent girls and young women (n = 2450) aged 15-24. We adjusted the data for multi-stage sampling, stratification, and clustering. The outcome variable is self-reported HIV testing (ever



having tested for HIV). Our analysis included three sets of independent variables: individual, household, and HIV-related factors. The HIV-related characteristics included comprehensive HIV knowledge, knowledge of mother-to-child transmission, HIV stigma, and sexually risky behaviour. We evaluated the association between self-reported HIV testing and the independent variables using Pearson's chi-squared test. We included significant variables from the bivariate analyses into our complex sample logistic regression model to determine the predictors of self-reported HIV testing among AGYW. The statistical significance for the analyses was p-value < 0.05.

**Results:** The prevalence of self-reported HIV testing among sexually active AGYW was 43.2%. Young women in the 20–24-year age group (AOR:1.95 95%CI: 1.54-2.46, p<0.001), media exposure (OR:1.71, 95%CI:1.15-2.54, p = 0.009), and primiparity (OR:4.29, 95%CI:2.84-6.48, p<0.001) increased the likelihood of self-reported HIV testing among sexually active AGYW in Gabon. Although comprehensive HIV knowledge, knowledge of mother-to-child transmission, HIV stigma and sexual risky behaviour were significantly associated with self-reported testing on bivariate analysis, these HIV-related factors were not significant in the regression model.

**Conclusions:** Self-reported HIV testing among sexually active AGYW is low in Gabon. Adolescent girls (15-19 years), AGYW without media exposure, and nulliparous AGYW have a high unmet need for HIV testing. Interventions such as school and community outreach, awareness campaigns on HIV testing, and home-based testing through HIV self-testing should prioritize these categories of AGYW.

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## Using Rapid Service Coverage and Routine Program Data to Understand Access To/Use of Condoms and STI Diagnosis Among Men Who Have Sex with Men and Female Sex Workers in Eswatini

Matsebula M<sup>1</sup>, Dlamini N<sup>1</sup>, Sithole B<sup>1</sup>, Dlamini V<sup>1</sup>, Simelane W<sup>1</sup>, Vilakati B<sup>1</sup>, Akolo C<sup>2</sup>, Parola G<sup>2</sup>, Ranebennur V<sup>2</sup>, Matse S<sup>3</sup>, Lukhele K<sup>3</sup>

<sup>1</sup>FHI 360, Mbabane, Eswatini, <sup>2</sup>FHI 360, Washington, DC, United States, <sup>3</sup>Ministry of Health, Eswatini National AIDS Program, Mbabane, Eswatini

**Background:** The PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Project (EpiC) Eswatini project conducted its first rapid coverage survey (RCS) in September 2023. The objectives of the study were to understand key populations (KP) access to services; and to ascertain the proportion of KPs who use HIV prevention, care and treatment interventions, and knowledge provided specifically on condom access and use compared to sexually transmitted infection (STI) cases diagnosed.

**Materials and Methods:** A structured tool specifically designed for the study was used to interview participants. The survey was approved by ethics committees from FHI 360 and National Health Research Review Board in Eswatini. We also used EpiC routine KP program data collected between October 2022 and September 2023 on number of STI cases by population and location. Data analysis was done with Excel and unweighted data was used to interpret and present results.

**Results:** Among the interviewed participants, [men who have sex with men (MSM) (N=772) and female sex workers (FSW) (N=1,685)], access to free condoms was reported to be higher among MSM at 85% (n=433) compared to 57.9% (n=975) among FSW. Condom use in last sexual encounter; 58.2% (n=981) FSW whilst MSM reported 63% (n=488) use which translates to about 40% inconsistent condom use by each population. In Hhohho and Manzini regions FSW reported above average for both free condoms and condom use in last sexual encounter; 78.1% and 61.7%



respectively, whilst below average for MSM at 75% and 68% respectively. FSWs further provided information on clients influencing non-condom use (multiple responses); 58.2% regular, 37.4% high paying, 17% new clients, 12.6% depend on client's preference and 24% non-response. Program data also shows high STI diagnosis in both regions; FSW diagnosed in Hhohho and Manzini were 8% (188/2,456) and 13% (339/2,675), MSM 8% (101/1,330) and 10% (137/1,330) compared to the others which range between 2% and 7%.

**Conclusions:** The survey identified gaps in access to free condoms at KP hotspots and it's consistent use to prevent the spread of HIV and STIs. The findings will help the KP program to provide targeted interventions that address the gaps identified per sub-population and location.

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## “...We Are One Sided, Most Boys Have Not Been Taught Anything”: Qualitative Assessment of the Perceived Role of Boys and Young Men in the DREAMS Program in Zambia

Muchanga G<sup>1</sup>, Stoebenau K<sup>2</sup>, Maambo C<sup>1</sup>, Mwale M<sup>1</sup>, Mwamba M<sup>3</sup>, Toussaint S<sup>2</sup>, Kashyap A<sup>2</sup>, Bwalya C<sup>2</sup>, Baumhart C<sup>4,5</sup>, Muleya C<sup>6</sup>, Mwila A<sup>6</sup>, Claassen C<sup>1,4,5</sup>

<sup>1</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>2</sup>University of Maryland College Park, College Park, USA, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, USA, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

**Background:** Adolescent girls and young women (AGYW) in sub-Saharan Africa countries like Zambia are at high risk of HIV acquisition. The Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) initiative was developed to mitigate this risk. Combination HIV prevention programs such as DREAMS have demonstrated moderate success in reducing HIV risk among AGYW. However, despite being critical

stakeholders, adolescent boys and young men (ABYM) are often left out of such intervention activities, creating an HIV risk knowledge gap between ABYM and AGYW, with implications for program effectiveness. We highlight concerns with omitting ABYM from DREAMS following a qualitative assessment of DREAMS program implementation.

**Materials and Methods:** Between April and July 2023, we conducted a three-site qualitative case study assessment of DREAMS in three districts of Zambia. We conducted in-depth interviews and focus groups with program implementers (n=51), AGYW beneficiaries and non-beneficiaries aged 16-21 (n=66), and interviews with key stakeholders (n=6). Gaps in programming to ABYM were addressed by participants, and further incorporating ABYM in DREAMS was a key recommendation. We identified and captured these findings using thematic analysis.

**Results:** There were three sub-themes raised by participants concerning the implications of omitting ABYM from most of the DREAMS programming: 1) ABYM are left with inadequate knowledge on sexual reproductive health and rights (SRH); gender issues, including abuse prevention, and HIV risk behaviours 2) perpetuation of gender inequitable relationship norms, and 3) concern for ABYM's empowerment and opportunities. Implementers were the most concerned, but did acknowledge DREAMS ABYM engagement efforts via peer education on SRH, and exposure to some anti-gender-based violence messaging. To safeguard AGYW, implementers suggested providing more comprehensive services to ABYM, including education on SRH, gender issues, and abuse prevention. Some proposed a parallel DREAMS program for ABYM.

**Conclusions:** DREAMS successfully reached large numbers of at-risk AGYW in Zambia with HIV services, demonstrating potential effectiveness and effective implementation. However, implementers suggested that without reaching ABYM, the program benefits to AGYW may remain more muted. They recommended expanding services delivered to ABYM in the community in order to scale-up HIV prevention and elimination, and ultimately create healthier communities in Zambia.



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## Stepping Stones: A Content Analysis Exploring Beneficiaries and Implementers Perceived Effectiveness of the 13-Week HIV Education Program in Zambia

Kashyap A<sup>1</sup>, Stoebenau K<sup>1</sup>, Mwamba M<sup>2</sup>, Mwale M<sup>3</sup>, Maambo C<sup>3</sup>, Muchanga G<sup>3</sup>, Toussaint S<sup>1</sup>, Alvarez-Peralta M<sup>1</sup>, Baumhart C<sup>4,5</sup>, K Mwango L<sup>2</sup>, Muleya C<sup>6</sup>, Mwila A<sup>6</sup>, Claassen C<sup>3,4,5</sup>

<sup>1</sup>Behavioral And Community Health, School of Public Health, University Of Maryland College Park, College Park, United States, <sup>2</sup>Ciheb, Zambia, Lusaka, Zambia, <sup>3</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, United States, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

**Background:** Adolescent girls and young women (AGYW) in Zambia are at high risk of acquiring HIV due to gender-inequitable relationships, compounded by social, cultural, and economic factors that increase susceptibility to early and unprotected sexual activity. Stepping Stones, the DREAMS initiative's 13-week HIV education package, provides safe spaces for AGYW to explore gender norms, relationships, sexual health, and life skills. This abstract presents the perceived effectiveness of Stepping Stones among DREAMS beneficiaries and implementers.

**Materials and Methods:** Between March and July 2023, semi-structured interviews, focus groups and community/program observations were conducted with DREAMS beneficiaries (n=55) and other AGYW (n=11) ages 16-21, and program implementers (n=51) across three purposively selected sites in three DREAMS districts. We used content analysis to identify preferences, perceived effectiveness, and implementation challenges of Stepping Stones. Data were analyzed using Atlas.ti (Version 23).

**Results:** Stepping Stones was generally well-received by beneficiaries who highlighted it provided needed sexual and reproductive health

(SRH) information (e.g., HIV, pregnancy prevention); exposed them to content not learned elsewhere in the community (e.g. safer sex, gender-based violence); helped build communication skills, and plan for their future. Beneficiaries found the modules Planning My Future, Gender Based Violence, and Let's Communicate most helpful. Implementers resoundingly felt that Stepping Stones improved beneficiary's SRH knowledge, and helped beneficiaries open up to implementers, thus allowing them to be connected to other needed services. Beneficiaries who could not relate the content to their life, already knew the content, or felt that the services were not needed were less attentive or appreciative of Stepping Stones. Implementers reported challenges with delivering content on contraception and sexuality to younger girls, and fear of being accused of teaching younger kids about "adult topics." Implementers recommended boys would also benefit from this program, as it would help them, and improve the impact for AGYW.

**Conclusions:** Stepping Stones was perceived to be an effective package in improving SRH knowledge and skills; as it prepared AGYW to self-identify what is right for them and for their future. Looking ahead, implementers suggested the overall benefit would be more sustainable if Stepping Stones also included boys and young men.

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## Building Resilience to Risk of HIV Infection Among Adolescent Girls and Young Women Through Economic Strengthening Activities: Lessons from the DREAMS Program in Zimbabwe, 2023

Mudzengerere F<sup>1</sup>, Dhakwa D<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Bhatasara T<sup>2</sup>, Masoka T<sup>1</sup>, Nyamwanza B<sup>3</sup>, Mukandwa R<sup>1</sup>, Yekeye R<sup>3</sup>, Mugariri E<sup>1</sup>, Madzima B<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mafaune H<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Harare,



Zimbabwe, <sup>3</sup>National AIDS Council, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Adolescent girls and young women (AGYW) aged 15-24 years in Zimbabwe are twice likely to be at risk of HIV compared to their male counterparts. Literature has shown correlation between economic strengthening (ES) interventions and HIV risk reduction among AGYW. Financial empowerment of AGYW is an effective mechanism for HIV risk reduction. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program to reduce HIV incidence amongst AGYW. We documented best practices in the implementation of ES activities under the DREAMS program between October 2022 and September 2023 across all DREAMS districts.

**Description:** ZHI implemented ES interventions designed to equip AGYW with life, technical and financial skills which play a pivotal role in building resilience of vulnerable AGYW. ES is offered through financial literacy training and AGYW form savings groups within social asset building clubs (SABC). Eligible AGYW are offered vocational training and mentored internships to equip them with employability and entrepreneurship skills. SABC also offer linkages to essential health and social services which help to reduce the risk of HIV among AGYW.

**Lesson Learnt:** A total of 464 internal savings and lending schemes (ISALs) groups were formed across the 9 high HIV burdened ZHI-supported DREAMS districts, with a total membership of 31,114. About 96% (29,869/31,114) of AGYW were retained in the savings groups with an average attendance rate of 94% for the monthly savings meetings. All groups had a total savings value of US\$15,426, and ZAR231,504.80, with value of loans of US\$24,400.65 and cash at hand of ZAR231,504,80.

**Conclusions:** The program recorded high savings among ES groups, high AGYW retention and attendance rates in ES activities which is critical for building resilience and reduce HIV infection risk. We recommend continued empowerment of AGYW through implementation of community-based ES activities.

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## Reducing HIV Infection Risk Among Adolescent Girls and Young Women Through Innovative Gender-Based Violence Prevention and Response Strategies: Lessons from Matobo District of Zimbabwe, 2023

Dube K<sup>1</sup>, Mangena P<sup>1</sup>, Mudzengerere F<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Mudokwani F<sup>1</sup>, Yogo K<sup>1</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Nyamwanza B<sup>2</sup>, Bhatasara T<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Tachiwenyika E<sup>1</sup>  
<sup>1</sup>Ministry of Health and Child Care, Zimbabwe, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Zimbabwe., Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Zimbabwe., Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Zimbabwe, Harare, Zimbabwe

**Background:** Gender-based violence (GBV) is a key driver of HIV infection among adolescent girls and young women (AGYW). In 2022, 31% of women aged 15-19 years old globally, 26% in Sub-Saharan Africa and 19% in Zimbabwe experienced GBV. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program to reduce new HIV infections among AGYW across 9 high HIV burdened districts of Zimbabwe. We document lessons learnt from GBV response services offered to AGYW in Matobo district.

**Description:** GBV prevention services offered to AGYW by ZHI include GBV and HIV prevention sessions, self-defence skills, community norms change, awareness campaigns and assisting AGYW to identify safe spaces that include a community hall or playground. The program provides post GBV services such as psychosocial support (PSS), legal counselling services, shuttle services and emergency medical assistance to GBV survivors aged 10 to 24 years. Community cadres were trained to identify, offer immediate post-GBV response services, and refer GBV survivors to organizations offering specialized services. Beneficiary level data were captured in a web based DHIS2 database.



**Lessons Learnt:** Data for 8,591 AGYW were analysed using SPSS and Ms Excel. About 7% (581/8,591) had experienced GBV. About 75% (546/581) of GBV survivors reported abuse and received PSS and other differentiated services. Of the 546 who experienced GBV, 75% (409/546) who experienced physical violence first reported this to the DREAMS Counsellor and Community cadres, whilst 25% reported to formal institutions. About 12% (68/546) received legal counselling services, 5% (29/546) received shuttle services and 3% (15/546) received emergence medical assistance. The program learnt that strengthening collaboration between community cadres and local institutions can improve GBV prevention and response.

**Conclusions:** Use of DREAMS program community cadres has potential to improve GBV identification and reporting which can optimize access to prevention and response services by AGYW. We recommend strong collaboration between community cadres and formal institutions for effective identification, reporting and management of GBV cases.

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## Preferences for Service Delivery Among Adult Clients in the First Six Months on Antiretroviral Therapy in Zambia

Morgan A<sup>1</sup>, Kamanga A<sup>2</sup>, Makwalu T<sup>2</sup>, Haimbe P<sup>2</sup>, Lumano-Mulenga P<sup>3</sup>, Shakwelele H<sup>2</sup>, Sande L<sup>4</sup>, Maskew M<sup>4</sup>, Ntjikelane V<sup>4</sup>, Scott N<sup>1</sup>, Benade M<sup>1</sup>, Rosen S<sup>1</sup>

<sup>1</sup>Boston University School Of Public Health, Boston, United States, <sup>2</sup>Clinton Health Access Initiative, Lusaka, Zambia, <sup>3</sup>Ministry of Health, Lusaka, Zambia, <sup>4</sup>University of the Witwatersrand, Health Economics and Epidemiology Research Office, , South Africa

**Background:** To improve engagement in HIV care, antiretroviral therapy (ART) service delivery should be responsive to recipients of care (clients). Clients in the first six months of treatment (the early treatment period) are at increased risk of disengagement from care. Initial differentiated service delivery frameworks deliberately excluded these clients and other high-risk populations, and

they were offered little choice in service delivery. We assessed preferences for service delivery among clients in the early treatment period.

**Materials and Methods:** We surveyed adult ( $\geq 18$ ) clients who were starting, restarting, or on ART for  $\leq 6$  months at 12 facilities in Zambia from 9/2022-6/2023. We collected and analyzed quantitative survey data on preferences for HIV care. A subset of these clients participated in 15 focus group discussions (FGD) between 8/2023 and 9/2023.

**Results:** We enrolled 771 adults (67% female, median age 32). At enrollment, 29% were initiating for the first time, 5% were re-initiating after previous disengagement, and 65% had been on ART for 0-6 months. 53% of clients on treatment for 0-6 months preferred 6-month visit scheduling, compared to 41% of new initiates and 33% of re-engagers: re-engagers more often preferred 3-monthly visits (40%). FGD participants reported varying preferences for visit scheduling. 6-month dispensing was favored by female respondents (57%) more than male respondents (48%). 30% of participants indicated a preference for external (community) medication pick-up points. FGD participants expressed their desire to receive HIV services at the health facility: community-based services made many fearful of involuntary disclosure and stigma. Most participants (87%) were not offered any choices regarding service delivery locations or dispensing. Work obligations and lack of transport and food posed barriers to clinic visits. Long queues, confusing client flow, and other facility attributes were cited as barriers to remaining in care. FGD participants expressed the importance of strong, empathetic, personal counseling to navigate and overcome barriers.

**Conclusions:** To improve service delivery during the early treatment period, it is critical to understand clients' preferences. We found that some preferences differ among clients and that choice is rarely offered. Models of care for the early treatment period should account for varying contexts and preferences.





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## Sexual Overlap in Puk Iyer Practice Among Kenyan Fishing Communities: Implications for HIV Risk

Juma S<sup>1,2</sup>, Orora C<sup>3</sup>, Owuor G<sup>2,4</sup>, Wango I<sup>2,4</sup>, Koloo A<sup>5</sup>, Bukusi E<sup>5</sup>, Agot K<sup>2,4</sup>

<sup>1</sup>County Youth and Adolescent Network, Homabay, Kenya,

<sup>2</sup>Reducing HIV in Adolescents and Youth (RHAY), Kisumu, Kenya,

<sup>3</sup>Population Service Kenya, Kisumu, Kenya, <sup>4</sup>Impact Research and Development Organization (IRDO), Kisumu, Kenya, <sup>5</sup>Kenya Medical Research Institute (KEMRI), Nairobi, Kenya

**Background:** Puk Iyer (choose and dispose) is an emerging and under-researched form of transactional sex in fishing communities on Lake Victoria beaches. It involves cohabitation with different partners under temporary arrangements, resulting in sexual overlaps that potentially elevates HIV risk. We explored the prevalence of Puk Iyer among adolescents and young people (AYP), resultant sexual overlaps, and implications for HIV risk.

**Materials and Methods:** We conducted a cross-sectional study in 3 beaches in Homabay, Kenya, with AYP aged 18-24 years, and working or residing around these beaches. After baseline questionnaire, a cohort of 50 Puk Iyer practitioners were randomly selected, given diaries and trained on documenting their sexual encounters over a 6-month period. Diaries captured: i) relationship start and end dates, ii) reason for relationship (sex for money, fish, household goods, pleasure), iv) concurrent partners, and v) condom use. Participants surrendered and received new diaries every time a relationship ended. They self-tested using OraQuick kits, and confirmed the results at designated health facilities. Overlaps were identified by examining relationship start and end dates; concurrent relationships lasting over 2 weeks were considered overlapping.

**Results:** We screened 524 participants and enrolled 370 who reported current or history of Puk Iyer. Mean age was 21.9 years; 54.9% were females; 36.5% were single; 33.2%, 45.1% and 21.6% had primary, secondary and post-secondary education, respectively. Perceived HIV risk was high at 98.5%, of whom 52.4% reported multiple sex partners and 32.6% reported condomless sex.

Additionally, 39.9% engaged in Puk Iyer for financial reasons. Among the diary recipients, 42.9% and 50.0% of males and females, respectively, recorded at least one sexual overlap over the 6-month period. Those with overlapping relations averaged 4.6 sex partners while those serially monogamous averaged 3.6 partners. Additionally, those HIV-positive averaged 3.3 partners while those negative averaged 4.4 partners. Of those aged 21-24, 29.4% had more overlaps than those aged 18-20 (23.3%). Of the 50, 7 tested positive, of whom 28.6% had  $\geq 1$  overlapping relationship.

**Conclusions:** The Puk Iyer practice creates an environment for HIV transmission among the fisher-folk, and calls for behavioural interventions to reduce both serial and concurrent sexual arrangements.

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## Organ Donation and HIV: Awareness and Willingness to Donate Organs Among People Living with HIV in Uganda

Bongomin F<sup>1</sup>, Nantale R<sup>1</sup>, Kibone W<sup>2</sup>, Muzoora C<sup>3</sup>, Hamer D<sup>4</sup>

<sup>1</sup>Busitema University, Mbale, Uganda, <sup>2</sup>Gulu University, Gulu, Uganda, <sup>3</sup>Mbarara University of Science and Technology, Mbarara, Uganda, <sup>4</sup>Boston University School of Public Health, Boston, United States of America

**Background:** Organ transplantation is dependent on the availability of organ donors. Most referrals for treatment abroad in Uganda are for organ transplant services and cost the government >5.6 million USD. The government of Uganda has invested in building the capacity for organ donation and transplantation services by training human resource and setting up infrastructure for these services. With the introduction of combination antiretroviral therapy that has significantly improved survival, human immunodeficiency virus (HIV)-positive patients may be potential organ donors to HIV-positive recipients. However, there is paucity of data on the awareness and acceptability of organ donation among people living with HIV in Uganda.



**Objective:** To assess awareness and willingness to donate organs among people living with HIV in Northern Uganda.

**Materials and Methods:** This was a cross-sectional among HIV-positive patients receiving care at four hospitals in Northern Uganda between October 2023 and January 2024. An interviewer administered questionnaire was used to collect data on participants sociodemographic, awareness about organ donation, beliefs regarding organ donation and willingness to donate organs. We conducted multivariable logistic regression to assess for association between willingness to donate organs and selected exposures. Data were analyzed in Stata version 15.0.

**Results:** A total of 232 participants were recruited. The mean age±standard deviation was 42.2±11.8 years. All participants were on antiretroviral therapy. A third (33.2%, n=77) had a CD4 count greater than 500cells/mm<sup>3</sup>. Majority (80.6%, n=187) had ever heard of organ donation. Slightly more than a third (34.9%, n=81) were willing to donate organs. Factors associated with willingness to donate organs included being female (Adjusted Odds Ratio (AOR): 1.56; 95% CI: 1.15-2.11), having a tertiary education level (AOR: 1.79; 95% CI: 1.03-3.11), average monthly income >500000 UGX (135.1USD) (AOR: 5.5; 95% CI: 1.97-15.40), having heard about organ donation (AOR: 5.4; 95% CI: 1.67-17.8) and attending an organ donation campaign (AOR: 2.0; 95% CI: 1.07-3.74).

**Conclusion:** Awareness about organ donation was high but the willingness to donate organs was low among people living with HIV. Sensitization of the community is needed regarding the need and benefits of organ donation with the involvement of media, and the health care fraternity.

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## “They Never Shouted at Me, I Got Help, and Look at Me Now, I Am Healthy”: Client Experiences of a Novel Person-Centred Care Model in KwaZulu-Natal, South Africa

Rambally-Greener L<sup>1</sup>, Jim A<sup>1</sup>, Mnyaiza N<sup>1</sup>, Ngubane H<sup>1</sup>, Malone S<sup>1</sup>, Zakwe L<sup>1</sup>  
<sup>1</sup>PSI, Johannesburg, South Africa

**Background:** Person-centred care approaches have become more prominent as a strategy for retaining clients in care. Designed and piloted with eight clinics in KwaZulu-Natal, South Africa, the Ngiyakuzwa model employs nurse mentors to provide on-the-job training, coaching and mentoring to strengthen providers' empathy, communication, and problem-solving, and to improve teamwork and supportive supervision, with the hypothesis that well-supported nurses will be better able to provide quality care.

**Materials and Methods:** We conducted exit surveys with 402 clients from the eight pilot facilities at baseline and endline and also interviewed 30 clients mid-intervention to assess the effect of the model on experience of care. Interview data were analysed thematically. Survey data were analysed over time for identification of trends.

**Results:** Clients in the in-depth interviews noticed and expressed satisfaction with changes in provider behaviour, particularly regarding concern for the client and their needs, sensitivity in communication, and openness to questions and concerns.

“We were not treated very nice in those days. But now things are going well... Like today they were educating us. In other clinics they would say that thing is a waste of time, but we need this.”

“Before, nurses used to do consultations with patients while the door is wide open. There was no privacy. But now they close the door, unlike before.”



“What I like is that the clinic manager updates us if there is any change. She explains to patients and asks us to be patient.”

We also observed encouraging improvement in responses to client exit surveys between baseline and endline:

Did the nurse make you feel welcome and comfortable? (89% > 96%)

Did the nurse talk to you in words you could easily understand? (79% > 99%)

Did the nurse ask you how you are feeling today? (61% > 85%)

Did the nurse ask you if you had any questions or concerns? (57% > 80%)

Did the nurse give you as much information as you wanted? (62% > 98%)

**Conclusions:** Models that strengthen healthcare provider skills and practices have the potential to improve client satisfaction and should inform the development of strategies and programs.

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## Using Human Centered Design to Better Understand Archetypes of People Who Use and Inject Drugs (PWUID) from an HIV Perspective: Case study from Zimbabwe

**Kunaka N**<sup>1</sup>, Chatora K<sup>1</sup>, Choi B<sup>1</sup>, Mavudze J<sup>1</sup>, Munjoma M<sup>1</sup>, Nhando N<sup>1</sup>, Mutsaka M<sup>2</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe, <sup>2</sup>Embassy of Sweden in Zimbabwe, Harare, Zimbabwe

**Background:** Drug and Substance Use (DSU) is fast becoming a major public health concern and threatens HIV epidemic control gains in Zimbabwe. Through Human Centered Design (HCD) techniques, we explored the behavioral characteristics of people who use and inject drugs (PWUID) in Zimbabwe and how we can tailor HIV programming to better suit each segment.

**Materials and Methods:** We conducted 66 immersions, 4 group discussions and 4 observations with 70 PWUID across Harare and

Bulawayo between May and June 2023. We identified the main barriers and facilitators to drug use behaviour. Thematic analysis was used to profile the unique segments of PWUID.

**Results:** Five archetypes were identified across the drug and substance use spectrum: The Aspirant (non-user), Cliffhanger (high-risk non-user), Apologist (occasional user), Utilizer (habitual user), and Distressed (full addiction). Aspirants have not started drug use and are most likely to adopt HIV social behavior change interventions. Cliff-hangers have been exposed to a triggering situation such as bereavement or low self-esteem which puts them at risk of starting drugs, hence it is recommended to strengthen HIV risk awareness for this segment. Apologists view themselves as occasional drug users and see no harm in using drugs, yet they are likely to have occasional lapses in using HIV prevention. It is critical to raise their HIV risk perception to minimize potential negative outcomes of occasional lapses. Utilizers regularly take drugs for perceived functional benefits and are unknowingly addicted. Frequent intoxication translates to a prolonged high-risk behaviour and therefore need longer-acting HIV bio-medical prevention methods. The Distressed are fully aware of their addiction and have experienced harmful effects of drugs but are unable to stop without rehabilitation. Consequently, they have a higher chance of engaging in risky sexual encounters and require direct interaction with care providers for effective HIV prevention.

**Conclusions:** The PWUID population group is not homogenous, and it is crucial to identify different behavioral archetypes among them. By understanding each archetype, HIV programmers can tailor strategies and identify opportunities for effective service uptake. The archetypes have provided an opportunity for PSH to re-design its HIV service demand creation strategies targeting PWUID.



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## Unveiling PrEP Perspectives: Navigating Enablers and Barriers Affecting PrEP Uptake in Youth

Fynn L<sup>1</sup>, Rousseau E<sup>1</sup>, Sindelo S<sup>1</sup>, Vundhla P<sup>1</sup>, Mathola N<sup>1</sup>, Macdonald P<sup>1</sup>, Fuzile P<sup>1</sup>, Wallace M<sup>1</sup>, Bennin F<sup>1</sup>, Lindinger N<sup>1</sup>, Joseph Davey D<sup>2,3</sup>, Bekker L<sup>1</sup>

<sup>1</sup>Desmond Tutu Health Foundation, Cape Town, South Africa, <sup>2</sup>School of Public Health, University of Cape Town, Cape Town, South Africa, <sup>3</sup>School of Medicine, University of California, United States

**Background:** In sub-Saharan Africa, where adolescents and young people face the highest HIV incidence rates, innovative decentralized HIV prevention delivery options emerge as potential solutions. This qualitative study identified enablers and barriers at personal and structural levels affecting PrEP uptake across two service delivery sites—mobile clinics and government health facilities—to improve accessibility and address uptake gaps.

**Materials and Methods:** As part of the Fast-PrEP project in Cape Town, South Africa, we examined participants' experiences with decentralized oral PrEP delivery. Peer Navigators (PNs), employed and trained by the Fast-PrEP team, assisted participants at both service sites. Employing a stratified sampling approach, we recruited participants based on site, PrEP uptake at their initial visit, and socio-demographic information. We conducted 22 in-depth interviews (IDIs) of sexually active AGYW (15-29) (n=17), young men (>18 years) (n=4) and other key populations (15-29) (n=1). Translated interviews underwent rapid transcript review and thematic analysis to extract insights.

**Results:** Perspectives shared by participants clustered into four main categories: 1) Decentralised Delivery Models and their Healthcare Providers, (2) Impact of PNs, (3) Appeal of Youth Zones, and (4) Integration of Sexual Reproductive Health Services (SRHS). Participants valued the convenience of decentralized delivery models but cited negative attitudes from healthcare providers as a deterrent to PrEP consideration. Peer Navigators (PNs) proved crucial in countering this, with participants

expressing appreciation for PNs disseminating accurate information, rectifying misconceptions, and directly addressing concerns, enhancing PrEP acceptance. Participants emphasized the significance of youth-centric features in encouraging PrEP adoption, such as youth-friendly spaces and targeted informational resources within youth zones. Furthermore, participants expressed that the integration of all sexual and reproductive health services, including PrEP, in one location, enhanced their comfort and played a role in boosting overall PrEP usage.

**Conclusions:** A combination of centrally located service sites, peer support, tailored youth environments, and comprehensive SRHS enable participants to uptake PrEP. To enhance PrEP uptake in sub-Saharan Africa, future research should prioritize transformative approaches, including targeted healthcare provider training, rigorous evaluations of Peer Navigator initiatives, and innovative youth-centric interventions, addressing barriers and optimizing service delivery.

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## Caractéristiques Sociodémographiques ET Vulnérabilité Des Femmes Usagères de Drogues à Dakar ET Sur la Petite Cote

Ndiaye S<sup>1</sup>, Dramé F<sup>1</sup>, Turpin N<sup>1</sup>

<sup>1</sup>Enda Santé, Dakar, Senegal

**Contexte :** En 2021, ENDA Santé a décidé d'accompagner une association dans le cadre du projet « Mise en place d'une association de femmes usagères de drogue » financé par OSIWA. Une des composantes de ce projet correspond à la réalisation d'une étude sur la vulnérabilité des femmes usagères de drogue. L'objectif de cette étude était de décrire les caractéristiques sociodémographiques, biologique et de la consommation des femmes usagères de drogue à Dakar et sur la Petite Côte.

**Matériels et Méthodes :** Il s'agit d'une étude descriptive et exploratoire utilisant des méthodes qualitatives. L'étude visait principalement les



femmes usagères de drogue de Dakar et de la Petite Côte. La méthode d'échantillonnage de la boule de neige a été utilisée. Deux outils de collecte d'informations ont été utilisés : Un guide d'entretien semi-structuré pour les entretiens individuels et un guide d'entretien semi-structuré pour les focus groupes.

**Résultats :** Les 50 entretiens individuels prévus ont été réalisés : 30 à Dakar et 20 sur la petite côte (Mbour, Ngaparou Saly, Joal, etc.) L'âge varie de 21 à 63 ans avec une moyenne 37,9 ans et une médiane 35 ans.

4,8% des enquêtées ont un diplôme post Bac ; 24% ont fait le lycée ; 24% se sont arrêtées au collège ; 26% se sont arrêtées au primaire et 17% sont jamais scolarisées. Presque la moitié des femmes enquêtées est divorcée soit 49%. La majorité des enquêtées a également 1 ou plusieurs enfants : au total 40 soit 80% (dont 4 eu ont des expériences d'enfants décédés)

21/45 Femmes UD avaient consommé de la drogue avant l'entretien ou la veille. Une majorité consomment principalement le crack (48% soit 24/50).

L'âge à la première consommation varie de 10 à 38 ans. 11% (5/45) avant l'âge de 15ans;22% entre 16 – 19 ans ; 35% entre 20 et 25 ans.

**Conclusions :** L'usage de la drogue chez les femmes concerne toutes les tranches d'âge. Elles sont globalement instruites, ont une expérience de mariage ou de vie de couple avec au moins un enfant.

Elles consomment surtout du crack et la région de Dakar est considérée comme un lieu d'approvisionnement.

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## Mitigating Self Stigma Among Adolescents and Young Persons Living with HIV through a Peer Support System: Evidence from an Intervention in Nigeria

Nwakamma I<sup>1</sup>, Dogo R, Erinmwinhe A, Afolabia O, Onu K, Ikpe G

<sup>1</sup>INERELA+ Nigeria, Abuja, Nigeria



**Background:** Peer support enhances self-esteem and self-efficacy among persons living with HIV. As informed by the social cognitive theory, social interventions geared towards mitigating internalized stigma in the of forms group therapy, and peer support, enhances self-identity, and self-concept by facilitating a transformation in self-awareness, fostering a more positive self-identity thereby reducing the impact of internalized stigma. This study aimed at assessing the efficacy of adolescents and young persons' (AYP)-led peer support initiative in mitigating self-stigma among AYPs living with HIV in Abia State Nigeria.

**Materials and Methods:** This study compared two groups: those enrolled in an adolescent support group model and those not enrolled in the intervention. The intervention was an AYP-led club called the Adolescents Recreational Club (ARC). The club was supported to carry out social activities for the psycho-social strengthening of the AYPs living with HIV and also to create opportunities for peer mentoring. This study included 313 AYPs enrolled in the PEPFAR HIV program in Abia State Nigeria, with 150 (48%) being in the ARC. Data was collected at baseline and one year after the commencement of ARC. Self-stigma was measured using the Berger HIV Stigma Scale, and the outcomes of interest were disclosure of HIV status to a non-family member, willingness to talk about HIV status, and clinic appointment compliance. Descriptive and inferential statistics were conducted to characterize the population and establish an association/correlation between participation in ARC and outcomes of interest.

**Results:** The mean age of the participants was 16.8 years, and 59% were females. Analysis revealed a significant association between ARC participation and disclosure of HIV status ( $\chi^2 = 9.72$ ,  $p < 0.01$ ), and willingness to talk about HIV status ( $\chi^2 = 5.21$ ,  $p < 0.05$ ). Logistic regression indicated that ARC participation predicted clinic appointment compliance (OR = 2.14,  $p < 0.05$ ).

**Conclusions:** The integration of AYP-friendly social activities into HIV care showed efficacy in mitigating self-stigma among AYPs on ART. It underscores the benefits of peer support in mitigating self-stigma. The limitations include potential selection bias and a small sample size. Self-report measures may have introduced response bias.

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## Service Delivery Preferences During the First Year on ART: Lessons from a Discrete Choice Experiment in South Africa and Zambia

Morgan A<sup>1</sup>, Kamanga A<sup>2</sup>, Makwalu T<sup>2</sup>, Pascoe S<sup>3</sup>, Govathson C<sup>3</sup>, Lumano-Mulenga P<sup>4</sup>, Haimbe P<sup>2</sup>, Shakwelele H<sup>2</sup>, Scott N<sup>1</sup>, Rosen S<sup>1</sup>, **Mutanda N<sup>3</sup>**  
<sup>1</sup>Boston University School Of Public Health, Boston, United States, <sup>2</sup>Clinton Health Access Initiative, Lusaka, Zambia, <sup>3</sup>University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa, <sup>4</sup>Ministry of Health, Lusaka, Zambia

**Background:** Disengagement from antiretroviral therapy (ART) is common during the first year of treatment, particularly prior to eligibility for differentiated service delivery models. The PREFER study conducted a discrete choice experiment (DCE) of service delivery and care preferences to improve early outcomes.

**Materials and Methods:** A DCE was conducted in 11 South African and 7 Zambian health facilities from 8/2023-11/2023, enrolling adults (≥18) who had initiated or re-initiated ART a median of 8 [IQR 6, 11] months prior. Participants were presented with hypothetical scenarios, each containing eight attributes representing specific aspects of HIV service delivery (see Figure) and levels detailing characteristics of each attribute. Each participant was asked to make a total of 9 unique choices between two scenarios. Preferences were analyzed using conditional logistic regression and are reported as odds ratios with [95% confidence intervals].

**Results:** We enrolled 129 respondents in Zambia (57% female, median age 33) and 124 in South Africa (SA) (84% female, median age 33). Respondents in both countries preferred receiving services at a clinic (SA 2.0 [1.6, 2.5]; Zambia 4.0 [3.1, 5.0]) or pharmacy (SA 1.7 [1.4, 2.2]; Zambia 1.5 [1.2, 1.9]) compared to in the community. Respondents preferred 6-month dispensing to shorter 1- or 3- month dispensing intervals. Respondents in South Africa favored 1-month visit scheduling to 6-month visits. Respondents were deterred from accessing services by unfriendly providers (SA 0.77 [0.64, 0.92]; Zambia 0.61 [0.51, 0.73]) and preferred adherence support using text

or phone reminders to counseling at the clinic. Costs to clients, time spent waiting for services, and time or day of week available were not considered important.

**Conclusions:** Clients in the first year of treatment expressed strong preference for receiving services in clinics rather than community locations. Many clients favored longer dispensing intervals even during the early treatment period. Models of care that emphasize facility-based service delivery and less burdensome visit/dispensing schedules should be considered for the early treatment period.

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## Gender-Based Violence (GBV) Among Women in Botswana: An Ongoing Threat to HIV Epidemic Control Achievements

**Kereng R<sup>1</sup>**, Dikobe W<sup>1</sup>, Dikobe D<sup>1</sup>, Mhatasediba M<sup>1</sup>, Ranebennur V<sup>2</sup>, Akolo C<sup>2</sup>  
<sup>1</sup>FHI360, Gaborone, Botswana, Botswana, <sup>2</sup>FHI 360, Gaborone, USA

**Background:** GBV among women in Botswana remains a pressing public health concern, potentially jeopardizing the country's strides in reaching epidemic control. We determined case rate of self-reported emotional/physical, and sexual violence, association with self-reported HIV risk among females receiving post-GBV care and psychosocial support at Botswana GBV Prevention and Support Centre (BGBVC) using data from PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project GBV database.

**Materials and Methods:** EpiC conducted a retrospective analysis of program data collected between October 2022 through September 2023 at BGBVC. For this analysis, main exposures of interest investigated were emotional/physical violence, and sexual violence. A composite exposure variable comprising the presence of any violence was generated. Outcome of interest was HIV risk defined by inconsistent condom use, discordant partner, index client and having multiple concurrent partners. Control variables



included age, education, employment and relationship status. Multivariable logistic regression models were used to compute adjusted odds ratios (aOR) and 95% confidence intervals (CI) for associations between main exposures and outcomes of interest while adjusting for control variables all analysis were conducted using Stata v15.

**Results:** Out of 920 women screened for GBV, 707 (76.9%) reported emotional/physical violence, and 120 (13.0%) reported sexual violence. Among 820 women reporting both frequency of abuse and experience of violence, 176 (21.5%) reported occurrence daily, and 358 (43.7%) weekly. Among those who screened for GBV, 151 (16.6%) were classified as high risk for HIV. Women who reported sexual or emotional/physical violence were more likely to be classified as high risk for HIV acquisition compared to those who did not report GBV; 147 (17.9%) vs 4 (4.4%); [aOR=6.0; 95%CI (2.1-17.0); p= 0.001]. Single women were more likely to be classified as high risk compared to those in cohabiting relationships [aOR=2.6; 95%CI (1.3-4.9); p= 0.002. Women aged 50 years and above compared to under 20 years were less likely to be classified as high risk for HIV acquisition [aOR=0.08; 95%CI (0.009-0.76); p= 0.03

**Conclusions:** Considering the last mile of epidemic control in Botswana, scale up of targeted interventions and prevention methods for addressing both GBV and HIV risk remains critical for sustaining achievements made in reduction of HIV incidence in Botswana.

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## Impact of HIV Transmission Knowledge and Stigma Awareness on Discriminatory Attitudes among Women (15-49) in Southern African Countries: A Trend Analysis of Demographic and Health Surveys of Two Decades

Effiong F<sup>1</sup>, Mugauri H<sup>2</sup>, Mohammed A<sup>3</sup>, Ogunkola I<sup>4</sup>, **Adewole D**<sup>5</sup>

<sup>1</sup>Faculty of Medical Laboratory Science, University Of Calabar, Calabar, Nigeria, <sup>2</sup>Department of Global Public Health and Family Medicine, Faculty of Medicine and Health Sciences, University of Zimbabwe, Harare, Zimbabwe, <sup>3</sup>APIN Public Health Initiatives, Jos, Nigeria, <sup>4</sup>Department of Public Health, University of Calabar, Calabar, Nigeria, <sup>5</sup>Department of Health Policy and Management, College of Medicine, Ibadan, Nigeria

**Background:** Discrimination and stigma poses negative effects on the overall quality of life of people living with HIV/AIDS (PLWHIV). This study aims to investigate the impact of knowledge of HIV transmission and HIV stigma awareness on discriminatory attitudes among women (aged 15-49 years) in Southern African Countries.

**Materials and Methods:** We have used the Demographic and Health Surveys (DHS) that were conducted in Southern African Countries and published between 2003 to 2023. Three discriminatory attitude questions were used to obtain the outcome variable (discriminatory attitude towards PLWHIV). Independent variables included in the model were knowledge of HIV transmission, HIV stigma awareness, and sociodemographic characteristics. DHS of countries that did not report these key independent variables were excluded. Five DHS of five countries (Eswatini 2006-2007, Lesotho 2009, Namibia 2006, Zambia 2007 and Zimbabwe 2005-2006) were included in the final analysis. A total sample of 38,467 data on women were used for the final analysis. The data were analyzed using a chi-squared test and bivariate logistic regression.

**Results:** The prevalence of discriminatory attitudes towards PLWHIV in the 5 Southern African Countries ranged from 33.7% in Eswatini to 57.2% in Zimbabwe. In the regression analysis,



respondents who were youths, were never married, had no formal education, were living in rural areas, and from the poor/poorest wealth quintile had higher odds of exhibiting discriminatory attitudes towards PLWHIV. Knowing people who have been stigmatized before (denied healthcare services, access to social events, or verbally abused because of AIDS) was not a significant predictor of discrimination in any of the countries. However, those who believed that HIV can be transmitted by sharing food were more likely to exhibit discriminatory attitudes towards PLWHIV in Zimbabwe (aOR: 3.42, 95%CI:2.92-4.01), Zambia (aOR:3.46, 95%CI: 2.93-4.09), Lesotho (aOR:4.56, 95%CI:3.97-5.24), Eswatini (aOR: 2.82, 95%CI:2.36-3.40), and Namibia (aOR: 2.07, 95%CI: 1.80-2.38).

**Conclusions:** Poor understanding of the patterns of HIV transmission is a factor that could lead to higher odds of exhibiting discriminatory behaviours. Efforts to increase understanding of the consequences of stigma and patterns of HIV transmission will likely be effective in reducing the rate of stigmatization towards PLWHIV in Southern African countries.

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## Impact of Creativity in the Wakakosha ('You're Worth It') Self-Stigma Intervention for Young People with HIV in Harare, Zimbabwe

**Mavhu W**<sup>1</sup>, Heniff L<sup>2</sup>, Ferris France N<sup>3</sup>, Ramadan M<sup>2</sup>, Nyamwanza O<sup>1</sup>, Chinembiri M<sup>4</sup>, Crehan E<sup>5</sup>, Willis N<sup>6</sup>, Ni Cheallaigh D<sup>3</sup>, Gwenzi E<sup>6</sup>, Nolan A<sup>2</sup>, Byrne E<sup>7</sup>

<sup>1</sup>CeSHHAR Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Trinity College, Dublin, Ireland, <sup>3</sup>Beyond Stigma, Dublin, Ireland, <sup>4</sup>Beyond Stigma, Harare, Zimbabwe, <sup>5</sup>Speak Up Sing Out, Meath, Ireland, <sup>6</sup>Zvandiri, Harare, Zimbabwe, <sup>7</sup>Royal College of Surgeons in Ireland, Dublin, Ireland

**Background:** Health and well-being interventions are shifting from focusing on negative mental health indices (e.g. anxiety/depression) to positive constructs (e.g. self-worth). Inclusion of creativity into these interventions is growing, with increasing evidence on how arts-based approaches can influence positive mental health. We explored the

impact of creativity embedded within an intervention to move young people living with HIV from positions of self-stigma (negative) to self-worth (positive).

**Materials and Methods:** In 2022, the Wakakosha ('You're Worth It') self-stigma intervention - a 16-session group therapy initiative using inquiry-based stress reduction, integrated with creative activities - was conducted among 60 (n=30 female) young people (ages 18-24) living with HIV. The impact of the program is published elsewhere. This study examined that same data but looking specifically at creativity and its impact on the participants. The anonymized transcripts of three focus group discussions and 12 interviews, the creative products and outcomes, were inductively analyzed to generate themes across the data.

**Results:** Wakakosha's integration of creative expression enabled intervention recipients to express and release emotions within the process of shifting negative personal beliefs. Overall, the intervention reportedly transferred a set of practical skills on self-inquiry, mindfulness, meditation and creativity that continued to be used in participants' daily lives. Creativity saturated the Wakakosha intervention through: music, dance, drawing, coloring, poetry, body mapping and letters to the body. These activities engaged participants and gave them a space in which to shift their self-stigmatizing beliefs. Four major themes on the impact of creativity in the intervention emerged: Acceptance and Forgiveness, Emotional Regulation, Self-Empowerment and Self-Worth, and Reminder of Messaging or New Skills. Our findings align with the literature on creativity and arts-based approaches that these initiatives can enhance the therapeutic environment and associated participant experience.

**Conclusions:** Creativity contributed to the self-stigma reduction process and improved overall well-being. It gave participants new skills with which to remind themselves of the program's lessons as well as regulating distress when it arose. Findings are potentially important for health and well-being interventions in general and HIV interventions, specifically particularly as programs shift from focusing on negative mental health indices to positive constructs.





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## Stigma and Nondisclosure Remain Important Barriers to Early HIV Treatment Retention During the Early Treatment Period in Zambia and South Africa

Morgan A<sup>1</sup>, Scott N<sup>1</sup>, Benade M<sup>1</sup>, Pascoe S<sup>2</sup>, Radoff K<sup>1</sup>, Kamanga A<sup>3</sup>, Lumano-Mulenga P<sup>4</sup>, Haimbe P<sup>3</sup>, Shakwelele H<sup>3</sup>, Rosen S<sup>1</sup>, Sande L<sup>2</sup>

<sup>1</sup>Boston University School Of Public Health, Boston, United States, <sup>2</sup>University of the Witwatersrand, Health Economics and Epidemiology Research Office, Johannesburg, South Africa, <sup>3</sup>Clinton Health Access Initiative, Lusaka, Zambia, <sup>4</sup>Ministry of Health, , Zambia

**Background:** Attrition from HIV treatment is highest during the first six months after antiretroviral therapy (ART) initiation. Despite years of public education and health messaging, early ART clients surveyed in South Africa and Zambia continued to identify stigma and fear of disclosure as important reasons for disengagement. We explored clients' experiences around stigma and disclosure during their first six months after ART initiation or re-initiation.

**Materials and Methods:** From 8/2022-6/2023, PREFER conducted a quantitative survey of adults ( $\geq 18$ ) who were starting, restarting, or on ART for  $\leq 6$  months at 12 facilities in Zambia (ZM) and 18 facilities in South Africa (SA) and conducted focus group discussions with a subset of survey participants up to 12 months later.

**Results:** We enrolled 771 clients in Zambia (median age 32; 67% female) and 1,098 clients in SA (median age 33; 72% female). Among those who had an opportunity to disclose, two thirds in South Africa and half in Zambia had not disclosed their status to anyone (SA 15%, Zambia 10%) or to just 1-2 others (SA 52%, Zambia 42%). Females had lower odds of disclosing their status to their partner/spouse than did males (SA OR 0.57 (IQR 0.40, 0.83); ZM 0.57 (0.46, 0.91)). Key themes around non-disclosure reported by FGD participants (n=226) included fear of not be loved if a partner knew their status, leading to treatment interruption in an effort to conceal their status. Clients also described a perceived lack of family support, ridicule, and stigmatizing behaviors

within households. FGD participants reported a reluctance to visit a clinic due to concerns regarding privacy and confidentiality, seeing familiar faces, and speculation within communities. Some clients described bypassing their nearest facility and seeking care at distant clinics to avoid stigma, leading to discouragement, financial and opportunity costs, and ultimately inconsistent engagement in care.

**Conclusions:** Twenty years after the launch of national HIV treatment programs in sub-Saharan Africa, stigma and fear of involuntary disclosure remain major barriers to retention on ART. Models of care for clients in the early treatment period should emphasize maintaining privacy and address ongoing, multi-level stigma fears.

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## Lifetime Trauma and the Severity of Depressive Symptoms Among Adults Ugandans Living with HIV and Community Controls

Ezeamama A<sup>1</sup>, Hassan D<sup>1</sup>, Zalwango S<sup>2</sup>, Sikorskii A<sup>1</sup>, Awadu J<sup>1</sup>, Abbo C<sup>3</sup>, Giordani B<sup>4</sup>

<sup>1</sup>Michigan State University, East Lansing, United States, <sup>2</sup>Kampala Capital City Authority, Kampala, Uganda, <sup>3</sup>Makerere University School of Medicine, Kampala, Uganda, <sup>4</sup>University of Michigan, Ann Arbor, USA

**Background:** The types of traumas experienced by adults living with HIV (ALWH) and their contributions to mental and physical health outcomes are under-appreciated in African adults. Hence, we investigate the frequency and types of traumas, quantify the relationship of trauma to depression, and determine the extent to which this relationship varies by HIV status.

**Materials and Methods:** Adults (n=1054) – including 696 ALWH and 348 controls, were enrolled as part of three cohort studies implemented between March 2017 and January 2024 in Kampala Uganda. The sum of lifetime traumatic experiences and the respective types of traumas experienced was quantified per the Stressful Life Events Screening Questionnaire. Depressive symptoms were measured per the



Hopkins Symptoms Check List. Multivariable linear regression models quantified risk differences (RD) and corresponding 95% confidence intervals (95% CI) for the cross-sectional relationship of traumatic experiences to depression with adjustment for cohort, age, sex, years of education and HIV status.

**Results:** An average of 2.2 (SD=2.3) traumatic events were reported overall with ALWH (mean=2.7, SD=2.4) endorsing more trauma than HIV-unaffected controls (mean=1.9, SD=2.1). Traumatic events endorsed at  $\geq 20\%$  in the sample included experiences of life-threatening illness (45%), physical abuse (as adult/child, 31.4%), unnatural death of a loved one (29%), life-threatening accident (22%) and miscarriage of a wanted pregnancy (20.5%). Child or adult sexual abuse was endorsed at 10%. Per unit increment in lifetime trauma, depressive symptoms increased by 1.7 (95%CI:1.3, 2.2) units rising up to 6.8 units (95%CI: 4.6,9.0) for persons with  $\geq$  four vs. zero traumatic events. Most forms of trauma were independently associated with higher depressive symptoms in multivariable analyses without evidence of variation in this relationship by HIV status. Emotional abuse (RD=4.2, 95%CI: 1.5,6.2), physical abuse (RD=4.7, 95%CI: 1.4, 7.6), life-threatening illnesses including HIV (RD=4.2, 95%CI:3.0, 5.4) and history of sexual assault (RD=3.3, 95%CI: 1.0,5.7) were types of traumas most strongly associated with depression in this sample.

**Conclusions:** Trauma is a modifiable determinant of depression in Ugandan adults regardless of HIV status. Routine screening of traumatic events by health providers will support trauma-informed holistic management of high-risk individuals including connection to mental health services, when indicated.

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## Exploration of Multifactorial Influences Affecting Disengagement and Re-Engagement Dynamics of PLHIVs on ART in Dalhatu Araf Specialist Hospital, North Central Nigeria

Popoola V<sup>1</sup>, Ogbonna R<sup>2</sup>, Attah P<sup>2</sup>, Ngwebite A<sup>1</sup>, Popoola T<sup>3</sup>, Kaisamba M<sup>4</sup>

<sup>1</sup>AIDS Healthcare Foundation, Abuja, Nigeria, <sup>2</sup>Nasarawa State Ministry of Health, Lafia, Nigeria, <sup>3</sup>University of Newcastle, Newcastle, Australia, <sup>4</sup>AIDS Healthcare Foundation, Freetown, Sierra Leone

**Background:** Disengagement from Antiretroviral therapy can lead to poor treatment outcomes and derail the achievement of HIV epidemic control by 2030. Understanding the factors associated with disengagement and subsequent re-engagement to care is crucial to developing targeted interventions to improve retention in care among Persons living with HIV (PLHIVs). The objective of this study was to explore the factors associated with disengagement and re-engagement in care after lost to follow-up (LFTU) among PLHIVs on antiretroviral therapy (ART) attending Dalhatu Araf Specialist Hospital in North Central Nigeria.

**Materials and Methods:** A total of 310 PLHIV who re-engaged in care after becoming LFTU between January 1, 2017, and December 31, 2021, were randomly selected and participated in a cross-sectional study in which a structured questionnaire was used to collect data. The collected data were analyzed using SPSS version 26. Binary logistic regression and chi-square test were used for inferential statistics. A p-value of  $< 0.05$  was considered to determine statistical significance.

**Results:** 72.00% of study participants were female, with a mean age of 36 years  $\pm$  12. Though majority (51.13%) of the clients had no reason for disengagement from care, personal challenges (22.70%), operational clogs in the process of care (6.45%), issues with the general environment of the clinic (7.42%) and others (12.30%) were reported as reasons for disengagement. Decreasing age and poor



satisfaction with services was associated with a 0.97 CI [0.94-1.00] and 0.65 CI [0.50-0.84] chance respectively of disengagement from care. However, those who participated in a support group were less likely to disengage from care OR= 0.24, CI [0.09-0.64]. The major reason for re-engagement in care was due to the facility tracking efforts (59.68%) and others include return from journey (20.58%), need for drug refills (5.81%) and failing health (2.58%).

**Conclusions:** Understanding PLHIVs' reasons for exiting care is very useful for re-engaging them and improving retention in care. Particular attention needs to be paid to young clients and the overall satisfaction of clients in care. Also, exploring the mental health status of clients can be beneficial as majority of the participants could not pinpoint any reason. Participation in support group activities, scheduled follow-up, and regular tracking, even after a client has been declared lost to follow are helpful for client re-engagement.

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## Counseling and Treatment Literacy Remain Critical to the Early Treatment Period in South Africa

Maskew M<sup>1</sup>, Scott N<sup>2</sup>, Mutanda N<sup>1</sup>, Morgan A<sup>2</sup>, Sande L<sup>1</sup>, Ntjikelane V<sup>1</sup>, Benade M<sup>2</sup>, Rosen S<sup>1,2</sup>  
<sup>1</sup>Health Economics And Epidemiology Research Office, Faculty Of Health Sciences, University Of The Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Boston University School of Public Health, Department of Global Health, Boston, United States

**Background:** In many countries, implementation of rapid ART treatment initiation and lower intensity treatment models have reduced counselling and treatment education pre-initiation and in the first 6 months (early treatment period) from multiple sessions over several months to a single session on the day a client tests positive and initiates ART. Little is known about contemporary experiences of and preferences for counselling and literacy during this period.

**Materials and Methods:** The PREFER study surveyed adult ART clients initiating treatment or ≤6 months on ART at 18 facilities in South Africa

from 8/2022-6/2023. We collected quantitative data on ART treatment history and preferences for and expectations of HIV care and conducted 14 focus group discussions with a subset of participants.

**Results:** We enrolled 1,098 participants (72% female, median age 33), including 28% initiating and 15% re-engaging in care at enrolment. Almost all clients (95%) reported receiving counselling prior to ART start and 78% felt better about treatment initiation after the counselling session. Re-engagers more often found counseling to be supportive or empowering (18%, compared to 7% and 8% in other groups). Despite these positive experiences, half of participants desired for more counselling (49%) and more information about HIV (48%) prior to treatment initiation. Text messaging (54%) and one-on-one sessions with providers (49%) were the preferred ways to receive information. In FGDs, respondents reported some dissatisfaction with the quality and timing of counseling. They emphasized the need for intensive, continuous, empathetic, one-on-one counselling during the early treatment period – without comprehensive counseling, clients feel they must cope on their own. Quality counseling helps clients accept their HIV status, manage emotions, and understand the importance of treatment. A typical participant said, “We do not really receive counselling here... They tell you it is an everyday thing, most people have it and that's it. [We need] counselling to make people understand the consequences of defaulting before starting treatment.”

**Conclusions:** Counselling and treatment literacy remain critical components of supporting ART clients. Though HIV program budget cuts may reduce resources available for these services, demand remains high and clients regard them as valuable.



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## Metrics That Matter: Developing Quality Standards to Measure Friendliness of Integrated Key Populations Focused HIV Service Delivery in the Public Health Sector in Zimbabwe

Ndondo H<sup>1</sup>, Bako R, Goshu C, Sola T, Murungu J, Tenga U, Ncube G, Yekeye R, Madzima B

<sup>1</sup>National AIDS Council, Zimbabwe, Harare, Zimbabwe

**Background:** Zimbabwe has reached epidemic control, surpassing the UNAIDS 95-95-95 targets among the general adult population. Key populations (KPs) in Zimbabwe, however, perform dismally against these targets and contend with disparate health equity gaps that preclude access to friendly, and comprehensive HIV services. With a paucity of programmatic monitoring and evaluation tools to measure the impact of structural barriers to HIV service access, we set out to develop a KP friendliness tool and to determine domains that measure facility KP friendliness in the public sector.

**Description:** The tool is anchored in the World Health Organizations' quality standards which include accessibility, community participation and linkages, provision of an appropriate package of services, provider competencies, facility characteristics, equity, data and non-discrimination. We piloted the tool across 10 public sector facilities among men who have sex with men, sex workers, and transgender persons in Mutare, Masvingo, Bulawayo, Chitungwiza and Gweru districts in Zimbabwe. The tool was administered with 10-15 members of health facility monitoring committees from each of the sites. Each rating was discussed, in instances where members were in discord, an average percentage score was applied. Overall facility performance was scored as bronze (<60%), silver (60-79%), gold (80-94%) and platinum (95-100%).

**Lessons Learnt:** The KP friendliness tool was successful in eliciting reliable facility ratings on critical friendliness domains and facilitated robust discussions to identify areas of improvement. This

methodology provided opportunities to nuance performance ratings with experiential evidence from community led monitoring (CLM) data. The tool was digitalized and scaled from 10 to 53 health care facilities. Quarterly implementation of the tool and annual reviews provided opportunities to iterate and nuance relevance, importance, measurability, and improvability of domains, tracking of progress and use of results to improve the KP program.

**Conclusions:** This tool provides reliable measures to monitor "KP friendliness". Its domains are critical in improving quality of care and provides a yardstick for incremental progress in addressing structural barriers to equitable access to differentiated HIV services for KPs in the public health sector. Triaging data from the KP friendliness tool with CLM feedback provides rich data for evidence informed quality improvement efforts.

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## An Intersectional Approach to Understanding Barriers to Accessing Healthcare among Women Living with HIV in Sub- Saharan Africa

Ogbuabor D<sup>1</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria

**Background:** Realizing access to healthcare in sub-Saharan Africa (SSA) requires tackling the underlying social determinants of health. However, studies examining access to healthcare disparities among women living with HIV (WLWHIV) in SSA are scarce. This study, therefore, assessed the prevalence of and factors associated with barriers to accessing healthcare among WLWHIV in SSA.

**Materials and Methods:** The study was conducted among 10,538 WLWHIV aged 15-49, using data from the most recent demographic and health surveys in 27 African countries. The outcome variable is any barrier to care derived from four healthcare access variables: obtaining permission to go to the doctor, obtaining money to pay for healthcare, distance to a health facility, and not



wanting to go alone. The outcome variable is a dichotomous variable coded "yes" if a woman faced any of the four access barriers and "no" if a woman faced none. The explanatory variables were women's demographic, socioeconomic, and geographical characteristics. We conducted descriptive and complex sample logistic regression. Statistical analyses were deemed significant with p-values of < 0.05.

**Results:** About 54.0% of WLWHIV had at least one form of barrier to accessing healthcare. Specifically, 12.3%, 18.2%, 34.3%, and 40.7% of WLWHIV had problems with permission, going alone, the distance to health facilities, and money. Residing in Central Africa (AOR=1.46, CI:1.13-1.88, p=0.004), rural areas (AOR=1.70, CI:1.48-1.95, p<0.001), conflict-prone countries (AOR=1.51, CI:1.27-1.80, p<0.001), having no education (AOR=2.55, CI:1.87-3.47, p<0.001), primary education (AOR=2.33, CI:1.79-3.04, p<0.001), secondary education (AOR=1.77, CI:1.38-2.27, p<0.001), being poor (AOR=2.01, CI:1.75-2.30, p<0.001), in the middle wealth quintile (AOR=1.49, CI:1.29-1.72, p<0.001), and not covered by health insurance (AOR=1.33, CI:1.08-1.65, p=0.009) increased the odds of facing any barrier to accessing healthcare. Conversely, residing in East Africa and Southern Africa decreased the odds of facing any barrier to accessing healthcare.

**Conclusions:** The healthcare access barrier among WLWHIV in SSA is high. Women living with HIV face geographical and socioeconomic inequities in accessing healthcare in Africa. Policies to achieve universal coverage of WLWHIV must prioritize those residing in Central Africa, rural areas, and conflict-prone countries. To enhance healthcare access, SSA countries must also improve WLWHIV's education, income level, and health insurance coverage.

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## Premenopausal Women Exhibit Variable Estrogen Levels Which Positively Correlate with the Reservoir Size

Kuali M<sup>1,2</sup>, Hossain T<sup>3,7,8</sup>, Lungu C<sup>3,7,8</sup>, Dong K<sup>4,5,6</sup>, Mahmoudi T<sup>3,7,8</sup>, Ndung'u T<sup>1,2,4,9</sup>, Madlala P<sup>1,2</sup>

<sup>1</sup>HIV Pathogenesis Programme, Doris Duke Medical Research Institute, Nelson R. Mandela School of Medicine, University of KwaZulu-Natal, Durban, South Africa, <sup>2</sup>School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, Durban, South Africa, <sup>3</sup>Department of Biochemistry, Erasmus University Medical Center, Rotterdam, The Netherlands, <sup>4</sup>Ragon Institute of Massachusetts General Hospital, Massachusetts Institute of Technology, and Harvard University, Cambridge, United States of America, <sup>5</sup>Infectious Disease Division, Massachusetts General Hospital, Boston, United States of America, <sup>6</sup>Harvard Medical School, Boston United States of America, <sup>7</sup>Department of Pathology, Erasmus University Medical Center, Rotterdam, The Netherlands, <sup>8</sup>Department of Urology, Erasmus University Medical Center, Rotterdam, The Netherlands, <sup>9</sup>Africa Health Research Institute, Durban, South Africa

Antiretroviral therapy (ART) effectively suppresses viral replication to levels below the limit of detection but is not curative due to the persistent latent viral reservoir. Women exhibit lower viral loads and stronger immune responses such as Interferon type 1 stimulated genes compared to men. Estrogen receptor-1 (ESR-1) inhibits HIV-1 replication blocking the HIV-1 promoter, 5' long terminal repeat. Therefore, ESR-1 is a critical cellular factor that has been reported to maintain HIV-1 subtype B latency in an estradiol (E2) dose-dependent manner. However, it has not been fully elucidated whether E2 will exhibit a similar effect in non-subtype B infection since inter-subtype LTR genetic variation exists. Therefore, we hypothesized that premenopausal women will exhibit differential E2 levels longitudinally and these will correlate with the reservoir size in women living with HIV-1 subtype C in South Africa.

Blood samples from early and chronically treated premenopausal women and age-matched men living with HIV-1C were obtained at three study time points, pre-HIV infection, at acute and 2 years post successful ART from the FRESH and HPP acute infection cohorts respectively. Total genomic DNA and RNA were independently extracted from CD4+ T cells, total RNA was reverse transcribed and ESR-1 mRNA expression levels were quantified by



LightCycler480, Roche. Estradiol levels were determined using the Enzyme-Linked Immunosorbent Assay (ELISA). The reservoir size and its inducibility were determined by ddPCR and TILDA respectively.

Premenopausal women exhibited differential ESR-1 mRNA and E2 levels that remain unchanged longitudinally. Interestingly, ESR-1 mRNA non-significantly correlated positively with E2 levels ( $r=0.2711$ ;  $p=0.2109$ ). Our data further showed a trend towards a significant positive correlation of ESR-1 mRNA levels with the inducible reservoir ( $r=0.6454$ ,  $p=0.0839$ ) while E2 levels exhibited a non-significant positive correlation ( $r=0.4910$ ,  $p=0.1795$ ) with the reservoir size. Lastly, our data show that women had significantly higher inducible reservoir sizes compared to men ( $p=0.0202$ ).

As expected, our data showed that premenopausal women exhibit variable ESR-1 mRNA and E2 levels. Interestingly, estrogen levels positively correlated with the reservoir size. Future studies should investigate the association of estrogen with reservoir size, and dynamics in menstrual cycle phase-matched women and postmenopausal women.

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## Assessing Uptake/Coverage of Viral Hep B and Syphilis Testing Among Pregnant Women Attending ANC Services at Four High-Volume Lighthouse Supported Sites, One Year Post-adoption of Triple MTCT Elimination Policy Implementation

Kachere L<sup>1</sup>, Viola E<sup>1</sup>, Thawani A<sup>1</sup>, Diele J<sup>1</sup>, Huwa J<sup>1</sup>, Rambiki E<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi

**Background:** The WHO set ambitious global targets to achieve triple elimination of HIV, Viral HepB & Syphilis from mother-to-child transmission

by 2030. Barriers exist especially in sub-Saharan Africa to achieve global goals. The barriers include lack of policy direction and resources to support uptake of preventive and treatment interventions in many countries. To achieve triple elimination goal the Malawi government developed policy guidance. Before policy adoption, training for providers on testing for the three conditions namely [HIV, Syphilis, HepB] were conducted across the country.

Lighthouse Clinics adopted the triple elimination policy to help achieve Malawi's goals. This study therefore aims to assess adherence of triple elimination policy on testing for three conditions among pregnant women accessing ANC care at four clinics namely, Martin Preuss Centre, Area 18, Kawale, and Mitundu hospitals by looking at testing coverage.

**Materials and Methods:** This is a cross-sectional study of pregnant women who accessed triple PMTCT interventions across the four sites from January to December 2023. Medical records from scan form registers were reviewed from ANC service delivery points and data was abstracted. Pregnant women who were tested for HIV were assessed if they received syphilis and Viral hepatitis B testing to establish testing coverage. Prevalence of syphilis and Hep B among pregnant women was also assessed.

**Results:** From January to December 2023, 124,491 people were tested for HIV of which 27% (36,894) were female pregnant. 57% of the female pregnant were 25 years and above, 38% were between 15-24 years and 4% were less than 15 years old. 479 pregnant women were newly identified HIV positive; all were linked to care. 18,247 pregnant women (49%) were tested for HepB, and 205 were found HepB positive (1%). 64% of the pregnant women (23,433) were also tested for syphilis and 4% were found positive (874).

**Conclusions:** Triple elimination is possible but there is an opportunity to improve testing coverage for Hep B and Syphilis as it stands at 50%. Test kit stockouts were one of the challenges faced. Strong coordination with the supply chain to ensure consistent test Kit availability could help achieve triple elimination.



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## Persistence of NNRTI Mutations Among Pregnant Women and Breast-Feeding Mothers in the Dolutegravir Era in Uganda

Kapaata A<sup>1</sup>, Nakiyingi L<sup>1</sup>, Balinda S<sup>2</sup>, Ayitewala A<sup>3</sup>, Sewanyana I<sup>3</sup>, Mayanja H<sup>1</sup>, Kikaire B<sup>1</sup>

<sup>1</sup>Makerere University, Kampala, Uganda, <sup>2</sup>MRC/UVRI & LSHTM Uganda Research Unit, Entebbe, Uganda, <sup>3</sup>Uganda National Public Health Laboratories, Kampala, Uganda

**Background:** In Uganda, the prevalence of vertical transmission has been reported to range between 5-8%. This could be explained by a high prevalence of HIV-1 drug resistance mutations (DRMs) that have been shown to double the risk of vertical transmission. The high prevalence of non-nucleoside reverse transcriptase inhibitor (NNRTI) mutations in the general population in Uganda led to switching from NNRTI to Dolutegravir (DTG) based regimens which has a high barrier to resistance. There are hardly any data on the prevalence of HIV DRMs after the introduction of DTG in Uganda. This study aimed to describe the prevalence of the acquired drug resistance mutations among pregnant and breastfeeding mother two-three years after the introduction of DTG in Uganda.

**Materials and Methods:** This cross-sectional study successfully sequenced residual samples of 160 pregnant and breast-feeding mothers with a viral load >1000 copies/ml using the MiSeq next generation sequencing platform. The samples were collected between May and December 2023. The Stanford HIV Drug Resistance Database (HIVDB) mutation scoring system was used to identify any resistance mutations. All statistical analyses were performed using STATA version 16.

**Results:** HIVDR mutations were detected in 82 specimens giving a prevalence of 51.3% (CI: 43.5 – 58.9) to any class of drugs. Specifically, NNRTIs contributed the highest proportion of HIVDR mutations at 40.0% (CI: 32.6 – 47.8), these were followed by the NRTIs at 19.4% (CI: 13.9 – 26.3), INSTIs at 4.4% (CI: 2.1 – 8.9), and PIs at 3.1 (1.3 – 7.3) respectively. The most frequent mutations to NNRTIs was K103N/S (20.0%) and the most common mutation to NRTIs was at position 184

(44.7%). Thymidine analogue mutations (TAMS) were detected in 8.85 of the women. The most prevalent INSTI mutation was at position 138 (2.5%).

**Conclusions:** NNRTI mutations persist two-three years after changing to a DTG based regimen among pregnant women and breastfeeding mothers in Uganda. Larger prospective studies are needed to investigate the time it takes for these mutations to wane off, and their effect on the efficacy of the DTG based regimen.

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## HIV Retesting Uptake and Incidence during Pregnancy and Postpartum Period among Women in Sub-Saharan Africa: A Systematic Review and Meta-Analysis.

Mbwana M<sup>1</sup>, Bakari H<sup>2</sup>, Ally Z<sup>3</sup>, Mustafa S<sup>4</sup>, Lascko T<sup>5,6</sup>, Ramadhani H<sup>6</sup>

<sup>1</sup>Primary Health Care Institute, Iringa, Tanzania, <sup>2</sup>University of Dar es salaam, Dar es salaam, Tanzania, <sup>3</sup>District Hospital, Tanga, Tanzania, <sup>4</sup>Canada Youth Group, Dar es salaam, Tanzania, <sup>5</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, United States of America, <sup>6</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States of America

**Background:** To reduce mother-to-child transmission of HIV and maternal morbidity and mortality, most HIV programs recommend retesting for HIV every three months during pregnancy and within 24-months postpartum periods. Data on HIV retesting uptake is limited; therefore, we aimed to estimate the pooled prevalence of HIV retesting uptake and HIV incidence among women during pregnancy and the postpartum period in sub-Saharan Africa (SSA).

**Materials and Methods:** We conducted a systematic review and meta-analysis of women attending antenatal and postnatal clinics in SSA. Databases were searched for articles published between January 2002 and December 2023. Retesting uptake was defined as the number of women who retested for HIV following an initial HIV-negative test during the antenatal and/or



postnatal periods. Using random effects models, we computed the pooled prevalence of HIV retesting uptake, incidence rates (IR) and 95% confidence intervals (CI).

**Results:** A total of 31 studies (19 cohorts, 10 cross-sectional, and 2 mixed methods) with 411,130 women were included in the final analysis. Overall, the pooled prevalence of HIV retesting uptake was 72.6% (95%CI:72.4-72.8%). Retesting uptake was significantly higher during postpartum compared to during pregnancy (89.3% vs 70.8%;  $p<0.001$ ), higher before the rollout of test and treat compared to after test and treat (79.4% vs 70.9%;  $p<0.001$ ), and higher in Eastern compared to Southern Africa (78.2% vs 70.5%;  $p<0.001$ ). A total of 2,392 (0.6%) women acquired HIV. Twenty-one studies reported an IR, and the overall pooled IR was 4.3/100 person-year (PY; 95%CI:4.0-4.6/100PY). The HIV incidence rate was significantly higher during pregnancy compared to postpartum periods (6.0/100 vs 3.5/100PY;  $p<0.001$ ), higher after test and treat compared to before test and treat (7.3/100 vs 4.0/100PY;  $p<0.001$ ), and higher in Southern compared to Eastern Africa (5.5/100 vs 3.5/100PY;  $p<0.001$ ).

**Conclusions:** Nearly three in ten women in SSA do not retest for HIV during pregnancy or postpartum periods. The risk of HIV seroconversion was significantly higher during pregnancy compared to postpartum periods. Emphasizing HIV retesting during these periods is critical to eliminate pediatric HIV given that the overall IR is beyond the World Health Organization threshold (3.0/100 PY) for substantial risk of HIV transmission.

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## High Vertical Transmission Rate Among HIV-Exposed Infants up to 9 Months of Age Born to Newly Identified Breastfeeding Women Tested at the Well-Child Clinic: Results from a Pilot in Mozambique

Tibana K<sup>1</sup>, De Schacht C<sup>2</sup>, da Conceição Eliseu N<sup>1</sup>, Couto A<sup>1</sup>, Lucas C<sup>2</sup>, Gaspar I<sup>1</sup>, Amane G<sup>1</sup>, Paizone F<sup>3</sup>, Casavant I<sup>4</sup>, Oliveira J<sup>4</sup>, Killam W<sup>5</sup>, Gutreuter S<sup>5</sup>, Gusmão Pimentel E<sup>6</sup>, Ngale K<sup>6</sup>, Uaeca A<sup>6</sup>, Bravo M<sup>2</sup>, Niyonkuru O<sup>7</sup>, Bila D<sup>7</sup>, Lain M<sup>7</sup>, Urso M<sup>8</sup>

<sup>1</sup>Ministry of Health, National Directorate of Public Health, Maputo, Mozambique, <sup>2</sup>Friends in Global Health (FGH), Maputo, Mozambique, <sup>3</sup>Ministry of Health, National Directorate of Family Medicine, Maputo, Mozambique, <sup>4</sup>US Centers for Disease Control and Prevention (CDC), Maputo, Mozambique, <sup>5</sup>US Centers for Disease Control and Prevention (CDC), Atlanta, United States, <sup>6</sup>ICAP at Columbia University, Maputo, Mozambique, <sup>7</sup>Fundação Ariel Glaser contra o SIDA Pediátrico, Maputo, Mozambique, <sup>8</sup>United Nations Development Program (UNDP), Maputo, Mozambique

**Background:** HIV retesting of breastfeeding women (BFW) is key to reducing postpartum HIV vertical transmission. In Mozambique, BFW with unknown/undocumented or negative HIV status are tested quarterly up to 9 months postpartum. As part of a broader performance assessment of a new HIV risk screening tool to optimize testing among BFW, we describe herewith the results of women's HIV positivity and the vertical transmission rate among their infants.

**Materials and Methods:** Data were collected from August 2022-November 2023, in 48 health facilities of Cabo Delgado, Nampula and Zambézia provinces. HIV tests results of women, and follow up data of women with HIV and their newly exposed infants were captured in the REDCap™ platform. Positivity rate was defined as the proportion of BFW with a positive HIV rapid diagnostic test result; vertical transmission rate as the proportion of infants of seroconverted mothers having two positive virologic test results. Descriptive analysis was performed using STATA V.15.

**Results:** A total of 70705 HIV tests were performed tested (10208, 30887, 29418 in Cabo Delgado,





Nampula, Zambézia, respectively), with 90.2% (n=63772) having a documented previous HIV negative test result. From all tests performed, 70297 (99.5%) had a negative result, 333 (0.5%) had a positive result (38 [0.4%], 186 [0.6%], 109 [0.4%] in the respective provinces), and 75 (0.1%) had an indeterminate result. Among exposed infants, 279 (83.8%) were linked to the child-at-risk clinic and had a virologic HIV test done, of whom 42 (15.1%) tested positive (, being 16.2% [n=6], 13.3% [n=20], 17.4% [n=16] in the respective provinces. Linkage to care was 93% among BFW (n=309) and 98% (n=41) among infants.

**Conclusions:** Despite a relative low proportion of BFW being identified with HIV, the vertical transmission rate among infants up to 9 months of age born to newly-diagnosed women is high. Results underscore the need for optimized retesting strategies, where a risk screening tool could target on identifying BFW and referral of newly exposed infants as soon as possible.

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## Higher Levels of Pre-exposure Prophylaxis (PrEP) Stigma Are Associated with Lower PrEP Adherence Among Adolescent Girls and Young Women in Siaya County, Kenya

Agot K<sup>1</sup>, Browne E<sup>2</sup>, Otticha S<sup>1</sup>, Nyblade L<sup>2</sup>, Hartmann M<sup>2</sup>, Ochillo M<sup>1</sup>, Bann C<sup>2</sup>, Roberts S<sup>2</sup>  
<sup>1</sup>Impact Research and Development Organization, Kisumu, Kenya, <sup>2</sup>RTI International, Berkeley, United States of America

**Background:** Despite high HIV incidence among adolescent girls and young women (AGYW) in sub-Saharan Africa, rates of effective PrEP use have been low. Qualitative studies suggest stigma is a barrier to PrEP adherence in this population, but there are limited quantitative data on how stigma impacts PrEP adherence. This study sought to test whether PrEP stigma is associated with PrEP adherence among AGYW in Siaya County, Kenya.

**Materials and Methods:** From December 2021–May 2022 we recruited AGYW aged 16–24 who had received a PrEP prescription or refill ≤6

months ago. Study staff administered questionnaires and collected hair samples to test for tenofovir, a biomarker of PrEP adherence, at enrollment and Month 3. Stigma was measured with the 17-item Young Women’s PrEP Stigma Scale, which we previously developed and validated in this population. Associations between PrEP stigma (total score and anticipated, perceived, experienced, and internalized stigma subscales) and higher PrEP adherence (hair tenofovir >0.021ng/mg; >2 doses/week) were tested using mixed-effects robust Poisson regression models with a random effect for participant, adjusted for potential confounders.

**Results:** We enrolled 250 AGYW and 89% completed Month 3 follow-up visit. Median age was 22 years, 42% had completed secondary school, and 48% were married. The most commonly reported stigma perpetrators were community women, friends, community men, and male partners; of these, only friends and male partners were reported to have strong influence on PrEP use. Mean scores were highest for perceived and anticipated stigma (3.2, SD 0.6 and 2.8, SD 0.9, respectively). On average, participants with 1-point higher total PrEP stigma scores were 39% less likely to have higher PrEP adherence (adjusted risk ratio (aRR) 0.61, 95%CI 0.42-0.90, p=0.01). Results were similar for perceived (aRR 0.72, 95%CI 0.42-0.89, p=0.003) and experienced stigma scores (aRR 0.51, 95%CI 0.28-0.94, p=0.03), while anticipated and internalized stigma scores were not associated with PrEP adherence.

**Conclusions:** Higher PrEP stigma was a strong predictor of low PrEP adherence among Kenyan AGYW. Stigma reduction interventions, especially those focused on perceived and experienced stigma, could support effective PrEP use in this population.



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## Improving Access to ANC and PMTCT Services in Osun State, Southwest Nigeria: The Community PMTCT Approach

**Adetoye D**<sup>1</sup>, Oguniola O<sup>1</sup>, Elujide O<sup>2</sup>, Dada J<sup>1</sup>, Olajide O<sup>1</sup>, Ajayi O<sup>2</sup>, Onwuatuolu I<sup>2</sup>, Samuels J<sup>2</sup>, Okonkwo P<sup>2</sup>

<sup>1</sup>APIN Public Health Initiatives, Ibadan, Nigeria, <sup>2</sup>APIN Public Health Initiatives, Abuja, Nigeria

**Background:** Vertical transmission is almost completely preventable through the prevention of mother-to-child transmission (PMTCT). According to UNAIDS, 26.9% of all cases of MTCT of HIV in the world happen in Nigeria. Antenatal Care (ANC) and PMTCT coverage in Osun State is 27% and 26%, respectively.

Unfriendly attitudes of some healthcare workers, user fees, long waiting times, and cultural and religious beliefs are some barriers to accessing ANC services at orthodox hospitals. APIN Public Health Initiatives implemented the community PMTCT (cPMTCT) program to reach pregnant women wherever they choose.

**Materials and Methods:** We assessed 40 potential community sites for service readiness to provide cPMTCT based on human resources, physical facilities, equipment, clientele, and services provided. They were categorized into three: CAT 1 is Traditional Birth Attendants (TBAs) manned by healthcare workers; CAT 2 is TBAs manned by non-healthcare workers; and CAT 3 is Faith-Based Organizations (FBO). Ten sites from the assessment in five local government areas were selected for the first phase of activation, made up of 4 CAT-1 and 6 CAT-2.

Using the hub-and-spoke model, we supported PMTCT services, including ANC and referral (linkage) services. We trained the TBAs and engaged roving nurses, HTS providers, and monitoring and evaluation officers. Commodities flow from the hubs to the spokes through the pull system. Data reporting is done through the National Data Repository Lite (NDR Lite), a national reporting platform similar to the NDR.

**Results:** A total of 8,978 pregnant women were reached through the cPMTCT between October 2021 and September 2022; 8,971 were tested for HIV, and 23 positives were identified. Sixteen are

newly diagnosed, while seven were previously known. There was 100% linkage to antiretroviral therapy (ART). These contributed 49.8% of the new ANC attendees who knew their HIV status (PMTCT\_STAT) and 7% of the diagnosed HIV-positive pregnant women who commenced ART (PMTCT\_ART) achievements in Osun State.

**Conclusions:** cPMTCT is a tool to improve access to and coverage of ANC and PMTCT. Good documentation will help monitor progress and inform planning. We recommend that the Federal Ministry of Health and state ministries consider adopting and scaling up this model of service provision.

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## Are the Determined, Resilient, Empowered, AIDS Free, Mentored, and Safe HIV Prevention Intervention Delivery Approaches Meeting Expectations of Vulnerable Adolescent Girls and Young Women: Lessons from Sentinel Survey, Zimbabwe, 2023

**Tachiwenyika E**<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Yogo K<sup>1</sup>, Modokwani F<sup>1</sup>, Nyamwanza B<sup>2</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Masoka T<sup>1</sup>, Muchedzi A<sup>1</sup>, Tafuma T<sup>1</sup>, Bhatasara T<sup>4</sup>, Mutseta M<sup>4</sup>, Mudzengerere F<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>4</sup>United States Agency for International Development, Harare, Zimbabwe

**Background:** HIV remains a major public health problem among adolescent girls and young women (AGYW) in Zimbabwe. In 2020, HIV prevalence among AGYW aged 15-24 years was 5%, twice that of their male counterparts. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program to reduce HIV incidence among AGYW. We assessed perceptions of AGYW on HIV and sexual violence prevention, gender



norms and basic financial literacy session delivery approaches.

**Materials and Methods:** A descriptive cross-sectional study was conducted where data were collected from randomly selected AGYW aged 9-19 years across 9 ZHI-supported DREAMS districts. Data on perceptions and preferences about intervention delivery approaches were collected from AGYW using semi-structured questionnaires with 5-point bipolar likert scale (strongly disagree, disagree, not sure, agree and strongly agree) built within KOBO toolbox. Data were analyzed using SPSS version 23 generating frequencies and proportions. Study received ethics approval from Medical Research Council of Zimbabwe (MRCZ/A/2933).

**Results:** A total of 2,143 AGYW were interviewed of which 67.7% were aged 9-14 and 74% (n=1,586) were in school. About 86% and 84% of the 10-14 and 15-19-year-old in-school AGYW respectively preferred getting HIV prevention and sexual and reproductive health (SRH) information from teachers; 7% preferred peers across the 2 age groups. About 87.9% (n=1,395) of in-school AGYW could confidently talk about HIV and SRH issues with teachers, and 91.9% (n=1,459) reported that teachers could influence their behaviors better than their peers. About 90.3% (503/557) of out-of-school AGYW preferred club activities as source of HIV, SRH and gender norms information. About 95.1% (n=530) of out-of-school AGYW could confidently discuss HIV and SRH issues with club facilitators (peers), 96.1% (n=535) reported that club facilitators provided adequate HIV, SRH and gender norms information, and 92.9% (n=518) reported that club facilitators positively influenced their behavior change.

**Conclusions:** Delivery of DREAMS HIV and sexual violence prevention, gender norms and basic financial literacy sessions through teachers and club facilitators for in-school and out-of-school AGYW respectively met expectations of DREAMS beneficiaries. We recommend that the program continues using this approach and consider using club facilitators for in-school AGYW.



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## Exploring HIV Treatment and Care Practices among Children of Female Sex Workers in Lilongwe, Malawi

Sato B<sup>1,2</sup>, Jumbe V<sup>1</sup>

<sup>1</sup>Kamuzu University of Health Sciences, Blantyre, Malawi,

<sup>2</sup>National AIDS Commission, Malawi, Lilongwe, Malawi

**Background:** The absence of adult support for children exposed to or living with HIV compromises access and utilization of HIV Treatment and Care (HTC) and threatens Malawi's ambition of ending the AIDS epidemic as a public health threat by 2030. Achieving this ambition requires accelerated efforts towards attaining the 95-95-95 treatment targets for all subpopulations including Children of Female Sex Workers (CFSW). This study was conducted to explore HTC practices across the cascade of paediatric HIV care among CFSW in Lilongwe, Malawi.

**Materials and Methods:** This was a phenomenological qualitative study. It was conducted in Likuni and Area 25 townships in Lilongwe between July 2022 and August 2023. The study population were CFSW exposed to or living with HIV aged 0-14. Twenty-one CFSW were selected using non-discriminative exponential snowball sampling. Data were collected using in-depth and key-informant interviews and was analysed using NVivo.

**Results:** The study established that HIV prevention and testing among exposed CFSW is suboptimal. Infants missing multiple prophylactic doses and CFSW with unknown HIV status were found during the study. Similarly, HIV treatment and viral load monitoring among the children are suboptimal. Most CFSW under the study reported interrupting care on one or more occasions. Parental neglect and abandonment are common barriers affecting the CFSW's access and utilization of HTC. This is worsened by failure of the local authorities to effectively implement child protection interventions. Other existent barriers include inadequate human and financial resources, disintegrated HIV services for the FSW and their children, suboptimal implementation of strategies and policies and weak enforcement of laws and by-laws for child protection and welfare.

**Conclusions:** In conclusion, access and utilization of HTC among CFSW in the study areas are poor. Efforts should focus on integrating paediatric services into FSW differentiated HTC services to ease the burden of one FSW attending two facilities for herself and her child/children. Furthermore, Malawi should intensify monitoring of paediatric HTC programs to ensure compliance to national strategies and policies. Additionally, the country should strengthen child protection by among other ways, strictly enforcing relevant laws and by-laws to enhance the CFSW's welfare and hence, their HTC utilization.

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## Beyond Borders: Leveraging Guardianship to Sustain ART Adherence for Malawians in the Diaspora Living with HIV

Chione B<sup>1</sup>, Alli H<sup>1</sup>, Munthali E<sup>1</sup>, Osman N<sup>1</sup>, Nhlema A<sup>1</sup>, Lazalo L<sup>1</sup>, Ntungalumbe E<sup>1</sup>, White Y<sup>1</sup>, Phiri M<sup>1</sup>, Kafumbi B<sup>1</sup>, Chigalu L<sup>1</sup>, Huwa J<sup>1</sup>, Thawani A<sup>1</sup>, Kamamia C<sup>1,2</sup>, Rambiki E<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Center for Health, University of Washington, Seattle, USA

**Background:** Migrants living with HIV face significant challenges in accessing Antiretroviral Therapy (ART), jeopardizing their health and viral load control. Lack of awareness about available services and healthcare systems in host countries as well as legal and administrative hurdles, including documentation issues and visa restrictions are some of the contributing factors to these challenges. This abstract explores the potential effectiveness of utilizing caregivers to facilitate ART refill for their diaspora relatives registered at Umodzi family centre clinic, Blantyre, Malawi.

**Materials and Methods:** We collected data on clients who have been in the program for at least 12 months since January 2021. Eligibility criteria included; minimum of 6 months on ART, a national ID or passport, letter from employer or other institution e.g. school/religious, willingness to access VL testing in the country they are, reliable phone number and a reliable relative. All clients meeting the criteria were registered into the



diaspora database and batch number of each dispensed bottle was scanned for reference and accountability. We assessed client demographics, antiretroviral drugs (ARV) dispensation, retention, and VL suppression. Data was collected from the Diaspora database, EMRS and client files. Data was analysed using MS Access, MySQL and STATA.

**Results:** There were 121 recipients of care, comprising 43% males and 57% females. The median age at enrolment was 38 years, IQR (31-44). Dispensing intervals for antiretroviral drugs (ARVs) varied with 5% receiving under 3 months' supply of ARVs, 19% got 3-5 months while 76% received 6-12 months.

89% honoured their clinic visit within 28-day of appointment date, while 21% visited after 28 days. A total of 105 (87%) clients were still actively receiving care while 12 (10%) transferred out, 2 (2%) interrupted treatment, 1 (1%) died, and 1 (1%) opted to discontinue treatment. Overall, retention was 96%. The VL coverage was 72% with 95% suppression.

**Conclusions:** Overall, using guardians to refill ARVs for clients in diaspora presents a promising approach with potential to improve adherence, but careful consideration of the challenges and limitations is crucial for successful implementation. Further research and evaluation are needed to determine the optimal strategies and best practices for this model.

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## Impact of NRTI-Backbone Choice on Viral Suppression in Adults Using DTG-Based ART at Martin-Preuss-Center, Malawi

Nhlema A<sup>1</sup>, Heller T<sup>1</sup>, wallrauch C<sup>1</sup>, Huwa J<sup>1</sup>, Thawani A<sup>1</sup>, Gabriel L<sup>1</sup>, Kiruthu Kamamia C<sup>2</sup>, Rambiki E<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>ITECH; University of Washington, Seattle, United States

**Background:** Dolutegravir (DTG) based regimen was recommended as first-line and second-line HIV treatment for all populations in lower- and middle-income countries in 2018 by the WHO. Malawi adopted this recommendation in 2019. Since the transition, national Viral Load (VL)

suppression rates have been reported at 95%, but little is known about the variations in the suppression rates among those on different DTG-NRTIs backbones. We aimed to describe differences in VL suppression rates in adult PLHIV  $\geq 18$  years, who transitioned to DTG-based regimens between 2019 to 2020, on different NRTIs backbone of Tenofovir, Abacavir and Zidovudine in the adult cohorts of Martin Preuss Center (MPC) one of Lighthouse Trust centers of excellence clinics in Malawi.

**Materials and Methods:** We retrospectively reviewed routine program VL data between October 2022 to September 2023. Data was extracted from the Electronic Medical Records System. Descriptive analysis, univariate, and multivariate logistic regression was performed using STATA v.18 to assess impact of demographic variables and NRTI-backbone on viral suppression defined as VL  $< 1000$  copies/ml. The outcome of interest was viral suppression, while DTG-NRTI-regimens was the exposure variable.

**Results:** During the observation period, 16,531 adults on a DTG-based regimen had recorded VL results. Approximately 62.7% were female, median age was 43 years [IQR 36-49] and median time on ART was 9 years [IQR 6-12]. A majority, 98% (15,946) were on TDF/3TC NRTI backbone, 477 (3.0%) on AZT/3TC, and 108 (1.2%) on ABC/3TC; VL suppression rate was 97.0% (95% CI 96.8%-97.3%), 89.9% (95%CI 86.8%-92.4%) and 78.6% (95%CI 70.6%-85.5%), respectively. On univariate analysis, TDF/3TC was associated with significantly higher suppression than AZT/3TC ( $P < 0.001$ ) and ABC/3TC ( $P = 0.004$ ). Age ( $p < 0.001$ ) and time-on-ART ( $p < 0.001$ ) were significantly associated with viral suppression while gender ( $p = 0.067$ ) marginally missed statistical significance. The NRTI-backbone retained high significance in the multivariate logistic model even after controlling these variables.

**Conclusions:** Our findings underscore the effectiveness of TDF-based backbone in combination with DTG, a once daily, single-tablet ART regimen, to achieve viral suppression. In our cohort, other DTG-based regimens had lower suppression rates and reasons for keeping ROC on these regimens with higher pill-burden, need to be clinically well justified.



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## Retention in Care Among PLHIV With Advanced HIV Disease: Results from the Phased Implementation of the AHD Package of Care in Nigeria

**Abudioré O<sup>1</sup>**, Eigege W<sup>2</sup>, Otubu N<sup>1</sup>, Sowale O<sup>1</sup>, Amamilo I<sup>2</sup>, Conroy J<sup>2</sup>, Lufadeju F<sup>1</sup>, Amole C<sup>2</sup>, Wiwa O<sup>1</sup>, Onotu D<sup>3</sup>, Sanni K<sup>4</sup>, Nwaokenneya P<sup>4</sup>, Mohammed - Ibrahim P<sup>4</sup>, Ikpeazu A<sup>4</sup>, Bashorun A<sup>4</sup>, Oladele R<sup>5</sup>, Oguche S<sup>6</sup>, Agbaji O<sup>6</sup>, Akanmu S<sup>6</sup>

<sup>1</sup>Clinton Health Access Initiative, Abuja, Nigeria, <sup>2</sup>Clinton Health Access Initiative, Boston, United States of America, <sup>3</sup>US Centres for Disease Control and Prevention, Abuja, Nigeria, <sup>4</sup>National AIDS, Hepatitis and STI Control Program, Nigeria, <sup>5</sup>Lagos University Teaching Hospital, Nigeria, <sup>6</sup>Jos University Teaching Hospital, Jos, Nigeria

**Background:** Nigeria introduced the Advanced HIV Disease (AHD) package of care in 2020 and commenced a phased roll-out in 2021. Phase one of the roll-out was implemented in 28 facilities, and lessons from this phase influenced the ongoing national scale up. As part of the implementation, the country assessed the retention in care and mortality for clients with AHD at these facilities.

**Materials and Methods:** In February 2021, an AHD package of care was piloted at 28 high-volume facilities in 4 states in Nigeria. Clients were enrolled into care from February to September 2021 at the 28 facilities and each client was followed up for 12 months. We assessed the retention in care and mortality among PLHIV with AHD at months 3, 6, and 12 after enrolment. We also analyzed the Kaplan–Meier estimated survival probabilities at 12 months for this population disaggregated by the presence of opportunistic infections.

**Results:** A total of 1,850 clients with AHD were enrolled in care within the reporting period. Of these, 1,599 clients were retained in care at three months, 1,421 at six months, and 1,204 at 12 months post-enrolment into care. This translates to 86.4%, 76.8%, and 65.1% retention rates in months 3, 6 and 12, respectively. Of the 1,850 AHD clients, mortality data for 174 were unavailable. The mortality rates at months 3, 6, and 12 were 4%, 6%, and 7%, respectively. The Kaplan–Meier estimated survival probability for all clients

diagnosed with AHD, regardless of opportunistic infection (OI) status, at 12-month post-enrolment in care, was 0.93 (95% CI). 0.94 (95% CI) was the survival rate for AHD clients with negative results for TB LF-LAM and CrAg, while that for those who were TB LF-LAM-positive was 0.88 (95% CI) and CrAg positive was 0.82 (95% CI).

**Conclusions:** The 12-month retention rate for AHD clients was lower than the average national retention rate in the general ART population, and the reported mortality was highest in the first three months. This underscores the critical role of active follow-up for AHD clients, as recommended in the AHD package of care, which has been re-intensified for the national scale-up.

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## Addressing Data Quality Gaps in HIV Indicators Through Data Quality Assessment in Rwanda, 2022

**Bamwesigye J<sup>1</sup>**, Tuyishime E<sup>1</sup>, Malamba S<sup>1</sup>, Yoboka E<sup>2</sup>, Hailegiorgis M<sup>1</sup>, Oluoch T<sup>1</sup>

<sup>1</sup>CDC, Kigali, Rwanda, <sup>2</sup>Ministry of Health, Kigali, Rwanda

**Background:** CDC-Rwanda in collaboration with partners conducted a Data Quality Assessment (DQA) across PEPFAR supported facilities to re-enforce data quality for informed public health decisions. Therefore, selected indicators were reviewed over a year to make recommendations for quality improvement of routinely reported HIV program data towards delivering universal health coverage and strengthened equitable health systems.

**Materials and Methods:** Mixed method approach was used, paper-based DQA quantitative and qualitative tools were utilized for data collection. Reported and specific indicator register's counted data at health facilities (HFs) were compared to assess the level of concordance and documented reason behind any discordance as part of qualitative component. Sites were purposively selected within provinces (strata) based on proximity to each other, geographical coverage, and the volume of patients, with a target of covering 80% of all PEPFAR supported HFs. PEPFAR



indicators presenting data quality issues were considered.

**Results:** There was a 55% (107/196) PEPFAR supported site coverage, and 13 out of 36 MER indicators assessed. Of 13 indicators assessed, 7 were in the acceptable concordance range ( $\pm 5\%$ ), whereas 3 were over and 3 under reported. Discordances in reporting were mainly observed in TB prevention, Pre-Exposure Prophylaxis (PrEP), and HIV testing services (HTS). Reasons for these discordances included high turnover of Data Managers (DMs), inconsistent register usage, illegible handwriting, tool versions differences, and limited EMR functionality. In addition, DMs' indicators knowledge gaps, confusion existed between MOH and PEPFAR reporting requirements, double counting due to overlapping implementing partners, and delays in return of results.

**Conclusions:** Overall, most indicators were in the acceptable concordance range except for TB, HTS and PrEP. There is need to provide refresher and hands-on technical trainings for Data Managers on indicators definition, generating data/reports in EMR, DATIM use, improve recording, and standardize data entry formats within registers; enhance data review and validation processes at HFs; and ensuring fully functional EMR at HFs.

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## High Resistance to Second Generation Non-nucleoside Reverse Transcriptase Inhibitors Among HIV-1 Treatment Naïve Individuals With Multi-Class Drug Resistance in Botswana

Ndlovu N<sup>1,2</sup>, Bareng O<sup>1,3</sup>, Choga W<sup>1,3</sup>, Moraka N<sup>1,3</sup>, Nkwe D<sup>2</sup>, Novitsky V<sup>1,4</sup>, Moyo S<sup>1,4</sup>, Gaseitsiwe S<sup>1,4</sup>

<sup>1</sup>Botswana Harvard Partnership, Gaborone, Botswana,

<sup>2</sup>Department of Biological sciences and Biotechnology, Botswana International University of Science and Technology, Palapye, Botswana, <sup>3</sup>Department of Medical Sciences, School of Allied Health Professions, University of Botswana, Gaborone, Botswana, <sup>4</sup>Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, MA, USA



**Background:** Understanding the dynamics of transmitted HIV drug resistance is paramount as pre-existing resistance could impede the efficacy of future antiretroviral therapy (ART). Therefore, we evaluated if treatment naïve individuals with multi-class drug resistance (MDR) are susceptible to second-generation non-nucleoside reverse transcriptase inhibitors (NNRTIs). The study aimed to explore the viability of doravirine (DOR), etravirine (ETR) and rilpivirine (RPV) as alternative therapy for treatment naïve individuals with multi-class drug resistance.

**Materials and Methods:** This was a retrospective study utilising 1280 HIV-1 pol gene proviral sequences of treatment-naïve individuals who were enrolled on a randomised trial in 30 communities in Botswana. We analysed for major HIV drug resistance mutations (DRMs) according to the Stanford HIV drug-resistance database. Participants harbouring resistance to  $\geq 2$  ARV classes (multi-class drug resistance) (with at-least NNRTI), were further evaluated for resistance to DOR, ETR, and RPV. The Stanford "DRM penalty scores" were utilised to predict resistance levels.

**Results:** Within the 1280 individuals, 143 (11.2%; 95% CI: 9.5-13) had resistance to at-least one ARV class, with 45/143 (31.5%) having resistance to NNRTIs. Among the 45 individuals with resistance to NNRTIs, 27 (60%) had resistant to one drug class and 18 (40%) had multi-class drug resistance. Of the 18, 14 (77.8%; 95% CI: 37.9-68.3) had resistance to all three ARVs, DOR, ETR and RPV. Majority of participants had high level RPV (85.7%) and DOR (45.8%) resistance. The predominant mutations were G190E (50%), associated with intermediate-ETR-resistance, and high-DOR- and RPV-resistance, and K101E (21.4%) associated with low-level-DOR and ETR-resistance, and intermediate-RPV-resistance. Individuals failing second-generation NNRTIs had high prevalence of resistance to nucleoside reverse transcriptase inhibitors (13/18; 92.9%) and protease inhibitors (7/18; 50%). No integrase strand transfer inhibitors resistance was observed within these individuals.

**Conclusions:** We report a high proportion of resistance to second generation NNRTIs among treatment-naïve individuals in Botswana. Therefore, we strongly suggest genotypic testing prior to ART use among treatment naïve individuals.



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## Rétention en Soins Chez Les Personnes Vivant Avec le VIH Dans le Programme National de Thérapie Antirétrovirale en Guinée : Une Analyse de Cohorte Rétrospective

Guilavogui F<sup>1</sup>, DIALLO T<sup>1</sup>, KABA L<sup>1</sup>, KOIVOGUI M<sup>2</sup>, Olivier Kadio K<sup>3</sup>

<sup>1</sup>Programme National De Lutte Contre Le Sida Et Les Hépatites, Conakry, Guinée, <sup>2</sup>Centre de Santé de Tombolia, Conakry, Guinée, <sup>3</sup>Faculté des Sciences et Techniques de la Santé, Conakry, Guinée

**Contexte :** Nous avons mesuré la rétention dans les programmes de thérapie antirétrovirale (TAR) chez les PVVIH et le réengagement dans les soins chez les personnes perdues de vue (LTFU) en Guinée et identifié les facteurs de risque associés.

**Matériels et Méthodes :** Les données au niveau des patients ont été analysées à partir de 73 sites ART. Les interruptions de traitement et les LTFU ont été définis comme manque d'un rendez-vous de renouvellement de TAR de plus de 30 jours et de plus de 90 jours respectivement.

**Résultats :** 26 290 patients ayant démarré le TAR entre janvier 2018 et septembre 2020 ont été inclus dans l'analyse. L'âge moyen était de 36,2 ans, les femmes (67 %) de la cohorte. La rétention 12 mois après le début du TAR était de 48,7 % (IC à 95 % 48,1–49,4 %). Le taux de LTFU était de 54,5 pour 1 000 personnes-mois (IC à 95 % : 53,6-55,4), le risque maximal de LTFU survenant après la première visite et diminuant régulièrement au fil du temps. Les risques de LTFU étaient plus élevés chez les hommes que chez les femmes (aHR = 1,10 ; IC à 95 % 1,08 à 1,12), étant âgés de 13 à 25 ans par rapport aux patients plus âgés (aHR = 1,07 ; IC à 95 % = 1,03 à 1,03). 1,13), et parmi ceux qui commencent le TAR dans des établissements de santé plus petits (aHR = 1,52 ; IC à 95 % 1,45-1,60). Parmi les 14 683 patients présentant un événement LTFU, 4 896 (33,3 %) ont repris les soins, dont 76 % l'ont fait dans les six mois suivant la LTFU.

Le taux de réengagement était de 27,1 pour 1 000 personnes-mois (IC à 95 % 26,3-27,9). Les interruptions de traitement étaient corrélées aux régimes pluviométriques et à la mobilité en fin

d'année. Les taux de rétention et de réengagement dans les soins restent faibles en Guinée.

**Conclusions :** Les interventions de traçage et la prestation de services différenciés de TARV (délivrance sur plusieurs mois), peuvent améliorer l'engagement des soins, en particulier dans les zones rurales.

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## Le Devenir des Patients Déclarés Perdus par Huit (8) Sites à Grande Cohorte de Prise en Charge du VIH à Conakry en 2021

Leno N<sup>1</sup>, Lamah J<sup>1</sup>, Guilavogui F<sup>1</sup>, Delamou A<sup>1</sup>

<sup>1</sup>Gamal Abdel Nasser University of Conakry, Guinea, Conakry, Guinea

**Contexte :** Cette étude a exploré le devenir des patients sous traitement antirétroviral déclarés perdus de vue par les sites de prise en charge du VIH, tout en identifiant les facteurs associés à cette perte de suivi.

**Matériels et Méthodes :** Réalisée entre janvier 2015 et décembre 2020 à Conakry, elle a adopté une approche de cohorte historique, complétée par une enquête transversale pour décrire le statut final des patients perdus de vue et les raisons de cette perte de suivi.

**Résultats :** Les résultats ont révélé une incidence cumulative d'attrition de 19,50 sur une durée médiane de suivi de 2,5 ans, équivalant à un taux global de 7,79 années pour 100 personnes-années. Au moment de l'extraction des données, 22,64 % des patients étaient perdus de vue. Une enquête active, menée par des conseillers psychosociaux et des étudiants en médecine, a permis de retrouver certains patients, réduisant le taux d'attrition de 26,81 % à 19,50 %. Les raisons les plus fréquemment citées pour l'abandon du traitement incluaient le manque de soutien alimentaire, la distance aux centres de soins, la maladie, l'amélioration de l'état de santé, et les déplacements. Moins fréquemment évoqués étaient le coût des examens, le manque



d'encouragement, la discrimination sur le site, et les pénuries d'intrants. Certains patients ignoraient même si le traitement devait être suivi à vie. Les facteurs significativement associés à l'attrition comprenaient : âge >35 ans, charge virale élevée >100 000 copies/ml et le non-respect du système de rendez-vous à 3 mois ou 6 mois.

**Conclusions :** Cette étude a souligné une augmentation de l'attrition avec la durée du suivi, mettant en évidence l'importance d'une enquête active pour réduire les patients perdus de vue et documenter les décès de manière plus exhaustive. Les recommandations finales comprennent le renforcement du soutien nutritionnel, des enquêtes régulières sur la perte de suivi, la mise en place d'outils de gestion des données, et la création d'un mécanisme de motivation/financement pour les prestataires de soins de santé. Une étude prospective intégrant davantage de variables est également suggérée pour une compréhension approfondie de l'attrition chez les personnes vivant avec le VIH en Guinée.

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## Providers' Perspectives on ART Clients' Reasons for Disengagement and Re-Engagement: A Cross-Sectional Survey from Malawi, South Africa and Zambia

Ntjikelane V<sup>1</sup>, Huber A<sup>1</sup>, Mokhele I<sup>1</sup>, Mutanda N<sup>1</sup>, Lekodeba N<sup>1</sup>, Mokgethi O<sup>1</sup>, Tchereni T<sup>2</sup>, Kamanga A<sup>3</sup>, Lumano-Mulenga P<sup>4</sup>, Hilda S<sup>3</sup>, Haembe P<sup>3</sup>, Ngoma S<sup>5</sup>, Rosen S<sup>1,6</sup>, Pascoe S<sup>1</sup>

<sup>1</sup>Health Economics And Epidemiology Research Office, Johannesburg, South Africa, <sup>2</sup>Clinton Health Access Initiative, Lilongwe, Malawi, <sup>3</sup>Clinton Health Access Initiative, Lusaka, Zambia, <sup>4</sup>Ministry of Health, Lusaka, Zambia, <sup>5</sup>Ministry of Health, Lilongwe, Malawi, <sup>6</sup>Boston University School of Public Health, Boston, United States

**Background:** Recent studies show that as many as half of all antiretroviral therapy (ART) clients in sub-Saharan Africa disengage from and later re-engage in care and that these interruptions are harmful to health. Healthcare providers who interact with clients before and after dis- and re-

engagement may understand reasons for clients' decisions.

**Materials and Methods:** We conducted a cross-sectional survey of healthcare providers at 42 public healthcare facilities in Malawi, South Africa, and Zambia, from 9/2022-4/2023. We describe providers' views on the causes of disengagement and re-engagement and potential solutions.

**Results:** We enrolled 404 providers (Malawi 110, South Africa 175, and Zambia 119), of whom 61% were nurses (72% female, median age 39). Most (Malawi 99%, South Africa 86%, Zambia 98%) said that they ask initiating clients about any prior use of ART. Mobility/relocation was the most common reason for disengagement identified by providers (Malawi 81%, South Africa 65%, Zambia 66%), followed by long distances to clinics (Malawi 63%, South Africa 38%, Zambia 49%), treatment weariness (Malawi 55%, South Africa 30%, Zambia 38%) and change in employment and difficulty getting time off work in Malawi (50% and 42%) and South Africa (50% and 47%). Poor health was the most common reason for re-engagement identified by providers (Malawi 95%, South Africa 87%, and Zambia 85%), followed by successful tracing (Malawi 78%, South Africa 53%, Zambia 26%) and clients' worrying about being off treatment (Malawi 42%, South Africa 27%, Zambia 31%). Providers in Malawi (62%) and Zambia (76%) stated that they manage re-engagers differently from new ART clients since re-engagers require intense adherence counselling and more time to understand why they stopped treatment. Providers in South Africa (74%) indicated that they managed both groups the same way. Providers recommended integration of data systems and better inter-facility communication to improve re-engager identification and mechanisms to fast-track re-engaging clients.

**Conclusions:** As the proportion of clients who present for ART initiation who are re-engaging after previous disengagement increases, understanding reasons for both actions is becoming more important. Models of care must evolve to accommodate client mobility, frequent interruptions, and simpler re-engagement procedures



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## Outcomes of People Living with HIV Referred to Newlands Clinic with Second Line Treatment Failure from January 2019 to January 2024

Mandikiyana Chirimuta L<sup>1</sup>, Shamu T<sup>1,2,3</sup>, Mandiriri A<sup>1,2,3</sup>, Chimbete C<sup>1</sup>

<sup>1</sup>Newlands Clinic, Harare, Zimbabwe, <sup>2</sup>Institute of Social and Preventive Medicine, University of Bern, Bern, Switzerland, <sup>3</sup>Graduate School of Health Sciences, University of Bern, Switzerland, Bern, Switzerland

**Background:** HIV treatment failure may arise from multiple factors including suboptimal adherence to antiretroviral therapy (ART), advanced HIV, and HIV drug resistance. Individuals experiencing treatment failure are prone to poor treatment outcomes including incident opportunistic infections and advanced HIV disease. We investigated the outcomes of people living with HIV (PLWH) referred to Newlands Clinic in Harare with HIV treatment failure.

**Materials and Methods:** We conducted a longitudinal study using routine clinical data from electronic medical records. We included PLWH referred to Newlands Clinic between January 2019 and December 2023 with more than one viral load  $\geq 1000$  copies/mL after enhanced adherence counselling, and on second line ART. We report descriptive statistics.

**Results:** A total of 589 participants were included in the study. The median age at enrolment was 34 years (IQR 22-47), and 324 (55%) were female. The median viral load at enrolment was 65,411 copies/mL (IQR 16,390-173,013) and the median CD4 count was 155 cells/ $\mu$ L (IQR 50-298). The median duration on ART was 8.6 years (IQR 5.6–14.3). Of those enrolled, 63 (10.7%) have died to date. From enrolment, the most common opportunistic conditions were pulmonary tuberculosis (n=40, 6.8%), extrapulmonary tuberculosis (n=34, 5.8%), cryptococcal meningitis (n=17, 2.9%), pneumocystis pneumonia (n=3, 0.5%), tuberculous meningitis (n=3, 0.5%), Kaposi's sarcoma (n=3, 0.5%), and non-Hodgkin's lymphoma (n=2, 0.3%). More than half (n=319, 54.0%) re-suppressed (viral load <200 copies/ml) on a second line regimen after adherence

interventions, while 122 (20.7%) were switched to a third line regimen. Of those switched, 111 (91.0%) had viral loads <200 copies/mL at database closure. Overall, 430 (73.0%) participants had viral loads <200 copies/mL, 21 (3.6%) have viral load between 200-1000 copies/mL, and 138 (23.4%) were unsuppressed (>1000 copies/mL).

**Conclusions:** We report a high mortality of PLWH referred with treatment failure. However, viral suppression was high among those remaining in care, albeit lower than the overall UNAIDS 95-95-95 targets.

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## Effect of Implementing 6-Month Dispensing of Antiretroviral Therapy on Retention in Care in Malawi

Shumba K<sup>1</sup>, Mokhele I<sup>1</sup>, Jamieson L<sup>1</sup>, Mutanda N<sup>1</sup>, Fox M<sup>1,2,3</sup>, Rosen S<sup>1,3</sup>, Tchereni T<sup>4</sup>, Ngoma S<sup>5</sup>, Nyirenda R<sup>5</sup>, Huber A<sup>1</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Boston University School of Public Health, Department of Epidemiology, Boston, United States, <sup>3</sup>Boston University School of Public Health, Department of Global Health, Boston, United States, <sup>4</sup>Clinton Health Access Initiative-Malawi, Lilongwe, Malawi, <sup>5</sup>Ministry of Health Malawi, HIV Unit, Lilongwe, Malawi

**Background:** Since October 2019, 6-month dispensing (6MMD) of antiretroviral therapy (ART) has been recommended for clinically stable clients on HIV treatment in all of Malawi's public health facilities. We assessed the impacts of 6MMD on client retention in HIV care using routine data.

**Materials and Methods:** We applied a target trial emulation using observational data from facility electronic medical record systems for ART clients eligible for 6MMD in 26 districts of Malawi. We compared 6MMD to standard of care (SOC) in a 6-month trial from 6MMD rollout in October 2019 to March 2020. SOC dispensing was considered as 1–2 months or 3-monthly ART dispensing (3MMD). Eligible participants were  $\geq 18$  years, on ART for  $\geq 6$  months, with no prior dispensing interval exceeding 6 months but with evidence of 3MMD within the last 6 months. Pregnant women were excluded. We report retention rates at 12 months



(i.e. evidence of any clinic visits between 12-24 months), based on intention-to-treat effects. Adjusted risk differences (aRD) and 95% confidence intervals (CI) were estimated using a generalized linear model adjusting for clustering.

**Results:** We identified 599,390 clients who initiated ART after the commencement of facility EMR systems. Of these 83,132 were eligible for 6MMD during the study period. These were predominantly females (59.9%) with a median (interquartile range, IQR) age of 39 (32,46) years, 27,706 (33.3%) were enrolled in 6MMD, and 55,426 (67.7%) in the comparator group of SOC. Retention rates at 12 months were relatively higher among those on 6MMD (96.4%) compared to those in the SOC arm (91.5%), with the 6MMD group being non-inferior to SOC group (aRD: 5.0%, 95% CI: 4.7%-5.4%). Females (aRD: 10.0%, 95% CI: 9.0%-11.0%), older age groups (35-44 and 45-54 years vs. 18-34 years), those with mild disease (WHO Stage 1) at ART initiation compared to advanced disease (Stage 3), and with longer duration on ART ( $\geq 12$  versus  $< 12$  months) had higher likelihood of being retained in care.

**Conclusions:** Maximising the uptake of 6MMD among clinically stable individuals may improve client retention while also gaining the other benefits of multimonth dispensing, such as lower burdens on facilities and clients.

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## The ART Kindergarten DSD Model for Improved Viral Load Suppression Among Children 0-5 Years at Lighthouse Martin Preuss HIV Clinic

Kachere L<sup>1</sup>, Nhlema A<sup>1</sup>, Rambiki E<sup>1</sup>, Wallrauch C<sup>1</sup>, Huwa J<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi

**Background:** Achieving viral load suppression (VLS) above 85% in children living with HIV (CLHIV) aged 0 to 5 years has been challenging in Malawi despite the roll out of pediatric dolutegravir in 2021. This has mostly been attributed to several family social issues, and unfriendly pediatric formulations that affect adherence. To address

this gap, Lighthouse established an ART Kindergarten differentiated service delivery (DSD) model for CLHIV 0-5 years and their caregivers aimed at providing a holistic approach in HIV management. This model offers individual and group support services to caregivers which include psychosocial counselling, enhanced child friendly environment with play center and intentional programming from clinic mentors.

**Materials and Methods:** In this retrospective descriptive analysis, we compared outcomes of CLHIV attending the kindergarten clinic with those receiving treatment during routine clinic services at Martin-Preuss-Center, Lilongwe, Malawi. Retention in care and viral load suppression (VLS) rates from October 2022 to September 2023 were compared between the groups using routinely collected program data from the Electronic Medical Record System (EMRS).

**Results:** In October 2022, 202 CLHIV were enrolled in the ART program; 121(60%) in the kindergarten clinic and 81(40%) in general cohort. Retention at the end of the observation period was 88.4% (95%CI 81.3%-93.5%) in kindergarten and 58.0% (95%CI 46.5% to 68.9%) in general cohort ( $p = < 0.0001$ ). VLS in the kindergarten improved significantly during the year from 77.4% at baseline (95%CI 67.0% to 85.8%) to 90.7% (95%CI 83.1% to 95.7%;  $p=0.0158$ ) while in the general cohort, VLS increased from 62.2% (95%CI 44.8% to 77.6%) to 78.4% (95%CI 61.8% to 90.2%); ( $p=0.13$ ). CLHIV in the kindergarten had a higher viral suppression than in the general cohort (90.7% vs. 78.4%) although this difference missed statistical significance marginally ( $p = 0.056$ ).

**Conclusions:** Holistic and person-centered care through the ART kindergarten DSD model has proved to improve retention as well as viral suppression among children in our population. ART programs must focus beyond the biomedical care to address gaps in social and family dynamics that greatly affect adherence among children.



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## Prevalence and Factors Associated with Detectable Viral Load Among Adults with HIV Receiving ART in Choma District, Zambia

Mutukwa M<sup>1</sup>, Kaonga P<sup>2</sup>, Hamooya B<sup>3</sup>

<sup>1</sup>Choma District Health Office, Choma, Zambia, <sup>2</sup>University of Zambia School of Public Health, Lusaka, Zambia, Lusaka, Zambia, <sup>3</sup>Mulungushi University School of Medicine and Health Sciences, Livingstone, Zambia, Livingstone, Zambia

**Background:** Africa accounts for two-thirds of the global HIV infection and a disproportionate burden is in sub-Saharan Africa. In 2017, the Zambian government launched the U=U campaign which is key in the prevention of HIV. However, there is a paucity of epidemiological data on the magnitude of detectable viral load in our setting. This study aimed to estimate the proportion of detectable viral load and identify the associated factors among adults living with HIV receiving antiretroviral therapy (ART) in Choma District of Zambia.

**Materials and Methods:** This was a cross-sectional study among 448 adults aged 15 years and older on ART  $\geq 12$  months. Sociodemographic, clinical and laboratory data were collected using a structured questionnaire and secondary data from medical records. Detectable Viral load and non-suppressed viral load were defined as viral load (VL)  $>200$ cp/ml and VL  $>1000$ cp/ml respectively. The data collected was analysed using STATA. Descriptive statistics, chi-square test, Wilcoxon rank sum test and logistic regression were the statistical methods used.

**Results:** The prevalences of detectable and non-suppressed VL were 10.3% (n=46; 95% confidence interval (CI) 7.6, 13.5) and 5.4% (n=24; 95%CI 3.5, 7.9) respectively. In multivariable analysis, detectable VL was significantly associated with young age range (16 – 24 years) (odds ratio (OR) 3.38; 95%CI 1.04, 10.94; p=0.042), no formal education (OR 3.32; 95%CI 1.06, 10.40; p=0.040), missing medication (OR 3.99; 95%CI 1.83, 8.73; p=0.001) and problem taking medication (OR 2.74; 95%CI 1.10; 6.84 ; p<0.030); while factors associated with non-suppressed VL were being in age group 16 – 24 years (OR 7.28; 95%CI 1.62,

32.68, p=0.009), male gender (OR 3.12; 95%CI 1.25, 7.76; p=0.014), Missing taking medication (OR 8.28; 95%CI 2.59, 26.40; p=0.000) and taking dolutegravir-based regimen with zidovudine/lamivudine backbone (OR 17.80 95% CI 2.29 - 132.31; p=0.005).

**Conclusions:** Detectable and non-suppressed VL were relatively prevalent among adults receiving ART and were significantly associated with sociodemographic and clinical characteristics. There is a need for targeted interventions, especially among young people, males, and those who miss and have difficulties taking medication to accelerate the attainment of the last 95 of the UNAIDS target.

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## Determinants of Persistent Low-Level Viremia among HIV Recipients of Care in Three Nigerian States: A Retrospective Cohort Study

Yakubu T<sup>1</sup>, Oladigbolu R<sup>1</sup>, Obasa G<sup>1</sup>, Emerenini F<sup>1</sup>, Okwor E<sup>2</sup>, Immanuel C<sup>1</sup>, Dare B<sup>2</sup>, Anyanwu P<sup>1</sup>, Omo-Emmanuel U<sup>3</sup>, Olatunbosun K<sup>3</sup>, Akinjeji A<sup>1</sup>, Atuma E<sup>2</sup>, Fayorsey R<sup>4</sup>

<sup>1</sup>ICAP Global Health, Abuja, Nigeria, <sup>2</sup>JHPIEGO, Abuja, Nigeria, <sup>3</sup>USAID, Abuja, Nigeria, <sup>4</sup>ICAP Global Health, New York, USA

**Background:** HIV programming in Nigeria has made progress towards attaining the UNAIDS 95:95:95 goals with 91% viral load (VL) coverage and 96% viral suppression in 2023. However, the incidence of Persistent Low-Level Viremia (pLLV) defined as two or more consecutive VL measurements between 50 and 999 copies/mL, an early pointer to Virologic Failure (VF), may deter the progress towards epidemic control. Monitoring pLLV among HIV recipients of care (RoCs) has the potential of predicting adherence challenges, VF, and AIDS defining events. This study aimed at deciphering the prevalence and predictors of pLLV among RoCs.

**Materials and Methods:** We conducted a retrospective cohort study of RoCs who have been on antiretroviral therapy (ART) for at least 6 months, from October 2019 to March 2023 with at



least 2 documented VL tests done across 101 health facilities in Akwa Ibom, Cross River, and Taraba States, in Nigeria. Kaplan-Meier plot was used to assess the probability of occurrence of pLLV by sex, age, WHO Clinical staging, CD4 count, ART status, functional status, ART regimen, weight, and marital status. Cox Proportional Hazard regression was used to ascertain the determinants of pLLV at an alpha level of <0.05 at a 95% confidence interval.

**Results:** There were 43,750 RoCs (male 34.3%, female 65.7%) with at least two consecutivedocumented VL with a mean age of 38±12 years, CD4 Count 429 ±296 cells/mm and 5.1±4 years of pLLV. The prevalence of pLLV was 20.2%. The Kaplan-Meier plots for time-to-pLLV showed that RoCs aged 35-49 years, being on TDF-3TC-DTG, active on ART, CD4≥200 cells/mm, single, married, female sex, and WHO Stage I were less likely to have pLLV ( $p<0.001$ ). Long rank test revealed significant association of pLLV with marital status ( $p=0.014$ ), ART regimen ( $p<0.001$ ), CD4 count ( $p=0.015$ ), and current ART status ( $p<0.001$ ). CD4 count < 200cells/mm (HR=1.3,  $p<0.001$ ) and reduced body weight (HR=1.1,  $p=0.029$ ) were predictors of pLLV.

**Conclusions:** Our data showed that CD4 count <200 cells/mm and reduced body weight were predictors of pLLV. Program implementations need to focus on active surveillance for pLLV to optimize the quality of care for RoCs to ensure they achieve undetectable VL.

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## Household-Based Support Factors Associated with Viral Load Suppression Among Adolescents Living with HIV in Western Kenya

ABUONJI E<sup>1</sup>, ADUDA D<sup>1</sup>, Okanda I<sup>1</sup>, Ochung' A<sup>1</sup>, Marete I<sup>2</sup>, Owili P<sup>3</sup>, AYODO G<sup>1</sup>

<sup>1</sup>Jaramogi Oginga Odinga University Of Science And Technology, Bondo, Kenya, <sup>2</sup>Moi University, Eldoret, Kenya, <sup>3</sup>African population and Health Research Center, Nairobi, Kenya

**Background:** Although extensive efforts have been put in place to achieve the global target of 95%

viral suppression (VS) rate among adolescents living with HIV (ALHIV), the VS rate among adolescents is generally lower compared to younger children and adults. Achieving VS targets is necessary to ensure zero HIV transmission and reduce the risk of opportunistic infections, drug resistance and AIDS. VS data among ALHIV on Antiretroviral Therapy (ART) in resource-limited settings is not readily available and the household factors contributing to the observed low rates are scantily understood.

**Materials and Methods:** Using a cross-sectional survey design with a quantitative approach, data was collected from 263 adolescents during their routine clinic visits at a large HIV comprehensive care clinic at Academic Model Providing Access to Healthcare (AMPATH) based Rafiki Center and Module 4 clinics. Respondents were identified using systematic random sampling technique. A structured questionnaire was used to assess the demographic and household factors associated with viral suppression. The viral load data was obtained from Electronic medical records.

**Results:** Of the 263 adolescents, 85.6% (n=225) were virally suppressed. Older participants (AOR = 0.62; 95% CI = 0.50-0.78;  $p < 0.001$ ), living with single parents (AOR = 0.30; 95% CI = 0.11-0.81;  $p = 0.017$ ) or guardians (AOR = 0.29; 95% CI = 0.11-0.81;  $p = 0.018$ ) had lower odds of viral suppression. Participants who talked freely with caregivers about HIV (AOR=3.53, 95%CI=1.40-8.92,  $p$ -value=0.008), who got reminders from their caregivers to take medication (AOR=2.30, 95%CI=1.20-3.38,  $p$ -value=0.032), whose family were aware of their HIV status (AOR=1.67, 95%CI=1.19-4.21,  $P$ -value=0.048), who got financial support to get to the facility (AOR 1.97, 95%CI=1.26-5.03,  $P$ -value=0.039) and who joined a social support group (AOR=3.04, 95%CI=1.09-8.50,  $p$ -value=0.34) were more likely to be virally suppressed.

**Conclusion:** The findings highlight stable living family relationships, communication among family members, and social support as potential household interventions for improving the viral suppression. Addressing the highlighted interventions is essential to meeting the 95% viral suppression goal by 2030. However, further studies should be undertaken to enable exploration of the identified factors for programmatic interventions.



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## Increasing Tuberculosis Case Identification through Contact Tracing at the Aids Support Organization - Tororo

**Atubu Esele B<sup>1</sup>**

<sup>1</sup>The AIDS Support Organisation, Tororo, Uganda

**Background:** The quality of care and treatment for tuberculosis (TB) is a barrier in efforts to end TB globally. TASO–Tororo has 8100 people living with HIV in her care, primarily identifies TB cases by carrying out regular TB symptom screening at each clinic visit. To improve TB case identification, the facility carried out a quality improvement project in which every identified TB client had the contacts screened.

**Materials and Methods:** Through a learning session, TB symptoms were emphasized to the identified cough monitors and in the health facility TB unit. At enrollment to TB care, each bacteriologic-ally (PBC) confirmed client listed the house hold contacts. The index client was initiated on treated and within a week, a home visit conducted by the health facility staff or cough monitors to screen the contacts. The contacts with a positive symptom screen had sputum samples collected for gene-X pert analysis and started on anti TB medications. Those with a negative symptom screen were initiated on TB preventive therapy.

**Results:** 293 people were identified with TB within 9 months, 223 cases were bacteriologic-ally confirmed Tuberculosis cases, 210 clients had contacts traced, 153 of the contacts were diagnosed with PBC Tuberculosis, 88 children under 5 years were initiated on Tuberculosis preventive therapy, 608 individuals above 5 years were initiated on Tuberculosis preventive therapy, 603 were presumptive TB cases.

**Discussion:** TASO – Tororo targeted to identify 255 Tuberculosis cases in 2023. Through contact tracing, the health facility achieved the targets for Tuberculosis case identification as well as the target for people at risk initiated on tuberculosis preventive therapy.

**Conclusion:** With health facilities and policy makers emphasizing the need to adopt targeted interventions, Uganda can achieve epidermic control of infectious diseases, this was well appreciated during the country's response to COVID-19. Application of contact tracing in Tuberculosis case identification aids quick discovery and control of disease spread, It's a cheap and sustainable method.

**Lessons Learnt:** Improving Tuberculosis contact tracing improves the quality of Tuberculosis care and prevention. Increases tuberculosis case identification through targeted testing and ensures that individuals most at risk for tuberculosis acquisition receive preventive treatment.

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## Improving Viral Load Coverage and Suppression Through Peer-Led Intervention

**Moyo L<sup>1</sup>, Tapesana B<sup>1</sup>, Mudiwa E<sup>1</sup>, Chitiyo V<sup>1</sup>, Mutsinze A<sup>1</sup>**

<sup>1</sup>Zvandiri, Mutare, Zimbabwe, Zimbabwe

**Background:** Monitoring viral load is critical for assessing treatment efficacy and reducing HIV transmission. However, many people living with HIV do not have access to regular viral load monitoring. Zvandiri, an organization in Zimbabwe, supports the scale up of viral load monitoring among children, adolescents and young people living with HIV, 0-24 years, through the Community Adolescent Treatment Supporters (CATS) model. An intervention was implemented in 36 health facilities within 8 supported districts of Manicaland and Midlands provinces. In April 2022, the baseline viral load coverage was 64%, suppression was 86%. More efforts were needed to improve engagement in care and treatment adherence and effect high coverage and suppression.

**Materials and Methods:** A peer-led intervention was implemented from April 2022 to December 2023. CATS were trained to provide education, counselling, and navigation assistance to promote viral load testing and adherence to ART. Strategies to increase viral load coverage included targeted mobilization for community bleeding, and targeted



mobilization for bleeding on Paediatric and Adolescent Clinic Days (PACD). Strategies to improve viral suppression included the following:

- Providing child friendly counselling using an interactive card game (Masas') developed by Zvandiri.
- Active follow up of appointments using appointment diaries, mobile health, and community tracing by CATS.
- Home visits by CATS to identify and properly address barriers to adherence both at individual and family levels.
- Delivery of Enhanced Adherence Counselling sessions (EACs) to clients and caregivers during home visits

**Results:** Baseline data as of April 2022 indicated that viral load coverage was low at 64%, and viral suppression was also low at 87%. In December 2023 after implementing the peer-led intervention with these strategies, viral load coverage increased to 90% and suppression increased to 96%.

**Conclusions:** Peer-led interventions using strategies like targeted community bleeding, paediatric adolescent clinic days, viremia clinics, caregiver engagement, and targeted home visits are effective ways to improve the HIV care continuum. Empowering peer educators (CATS) as counsellors and implementing focused strategies can optimize viral load monitoring and treatment outcomes.

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## Differentiated Service Delivery (DSD) Sustained Critical Services- Pandemic Preparedness for TB/HIV in Liberia

Flomo J<sup>1</sup>, Nyanplu T<sup>1</sup>, Mulbah D<sup>1</sup>, Gibson B<sup>1</sup>, Jones M<sup>1</sup>, Paye C<sup>1</sup>, Fassah W<sup>1</sup>, Nagbe L<sup>2</sup>, Fostor F<sup>4</sup>, Korvah S<sup>3</sup>

<sup>1</sup>National AIDS & Sti Control Program/ Ministry Of Health Liberia, Monrovia, Liberia, <sup>2</sup>Global Reach II - Jhpiego, Monrovia, Liberia, <sup>3</sup>UNICEF, Monrovia, Liberia, <sup>4</sup>PLAN Liberia, Monrovia, Liberia

**Background:** Liberia is a high-burden TB country with an incidence of 308/100,000 and HIV positive

TB incidence of 35/100,000. The country adopted a TB/HIV integration policy with universal testing of all TB patients for HIV and the screening of all PLHIVs for TB. Liberia was seriously hit (CDC-level 4) in the second wave of COVID resulting in the breakdown of her fragile health system. The absence of DSD negatively impacted the access of clients for critical TB and HIV services. To manage the situation, the national TB and HIV programs jumpstarted DSDs to strengthen TB/HIV integration among newly diagnosed TB and HIV cases between June and December 2020. We share lessons learned in strengthening TB/HIV integration during and after the COVID-19 pandemic.

**Materials and Methods:** Between March and June 2020, the disease programs established framework and a technical working group (TWG) for DSD. Meetings of stakeholders, including a network of PLHIV, were held to discuss the DSD models and the criteria for each one. Standard operating procedures and job aids for the respective models were developed to train health workers. We performed a retrospective evaluation of routine TB and HIV program aggregate data in the District Health Information System (DHIS-2) for 2020 to 2022. The number of TB patients with HIV status ascertainment and ART enrolment among TB patients, and the HIV yield from HIV testing and TB/HIV co-infection rates were analyzed and compared between 2020 and 2022.

**Results:** Of the 6,882 (4,048 males) new and relapse TB patients notified in 2020 in the TB Program, only 129 (1.9%) had HIV status ascertainment compared to 6081(88.1%) in 2022. The number of TB/HIV co-infected patients who started on ART increased from 9 (6 females) to 606 (334 females). Similarly, of the 7,870 newly diagnosed HIV cases in 2020 in the HIV program, 357 were coinfecting with TB (4.5%). The newly diagnosed increased to 9,463 with 489 (5.2%) co-infected with TB in 2022.

**Conclusions:** Differentiated service delivery can sustain TB and HIV services in fragile health systems during a pandemic. There is a need to prioritize scale-up of DSD services.





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## Intensifying Support for People Living with HIV with Unsuppressed Viral Load: Lessons from Liberia

Beyan J<sup>1</sup>, Kamanga G<sup>1</sup>, Jallah A<sup>2</sup>, Kiazolu M<sup>1</sup>, Jacobs R<sup>1</sup>, Odo M<sup>1</sup>, Darrow de Mora D<sup>3</sup>, Thakur Kumar P<sup>3</sup>, Jackson G<sup>4</sup>, Fosua Cement N<sup>1</sup>, Flomo J<sup>4</sup>

<sup>1</sup>FHI 360, Monrovia, Liberia, <sup>2</sup>CH Rennie Hospital, Kakata, Margibi County, Liberia, <sup>3</sup>FHI 360, Washington DC, United States, <sup>4</sup>National AIDS and STI Control Program, Monrovia, Liberia

**Background:** Achieving viral suppression, the goal of HIV treatment, ensures that people living with HIV (PLHIV) are healthy and do not transmit HIV. However, poor adherence remains the biggest challenge. The PEPFAR/USAID-funded EpiC project in Liberia supports 21 health facilities in four counties through an innovative strategy that ensures PLHIV on treatment receive adherence support to achieve viral suppression.

**Description:** In Liberia, standard practices for PLHIV with unsuppressed viral load (VL) are to attend monthly adherence counseling sessions until they are retested after three months. The project adopted a more intensive strategy of providing adherence counselling every two weeks before returning for their next viral load test. A total of 6 counseling sessions were offered instead of the regular three as per policy (three were done at facility, and the others, either by phone or done as home follow up with treatment supporter/expert client). The sessions were documented using a specifically designed tracker to hold the staff accountable. Data from the one-year period before intensive counseling (October 2019-September 2020) were compared with two similar time periods after the counseling.

**Lessons Learnt:** When the project started in 2018, viral suppression among those on treatment was just above 50%. The baseline pre intervention non-viral suppression data was 124 out of 311 tested (40%). For the two periods after the intervention, there was a progressive decrease in proportion of viral non-suppression, 1,301 unsuppressed out of 13,946 tested (9.3%) for the period October 2021 to September 2022 and 465 unsuppressed out of the 14,216 tested (3.3%) for the period of October 2022 to September 2023. These achievements are

above the benchmark for best documented experience by WHO for viral suppression among the previously virally unsuppressed people with experience of achieving 72% suppression after adherence counseling.

**Conclusions/Next steps:** The enhanced adherence counselling strategies contributed to the improvement of viral load suppression in PEPFAR supported facilities as evidenced through a tracker to monitor compliance by clinical staff. A properly designed operations study comparing other facilities with similar interventions but implementing only three regular sessions will provide better insight but scale up will continue in the setting.

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## Acquired HIV-1 Drug Resistance among People failing Antiretroviral Therapy in Cameroon and Implications for Future Treatment Options

Fokam J<sup>1,2,3,4</sup>, Tekoh T<sup>1</sup>, Pokam B<sup>2</sup>, Chenwi C<sup>1,5</sup>, Aude C<sup>1,5</sup>, Semengue E<sup>1</sup>, Beloumou G<sup>1</sup>, Takou D<sup>1</sup>, Nka A<sup>1</sup>, Djupsa S<sup>1</sup>, Etame N<sup>1,4</sup>, Molimbou E<sup>1,5</sup>, Ajeh R<sup>6</sup>, Bissek A<sup>4,7</sup>, Colizzi V<sup>1,8,9</sup>, Perno C<sup>1,10,11</sup>, Halle-Ekane G<sup>2</sup>, Ndjolo A<sup>1,4</sup>

<sup>1</sup>"Chantal Biya" International Reference Centre (circb), Yaounde, Cameroon, <sup>2</sup>University of Buea, Buea, Cameroon, <sup>3</sup>National HIV drug resistance working group, Ministry of Public Health, Yaounde, Cameroon, <sup>4</sup>Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Yaounde, Cameroon, <sup>5</sup>Faculty of Medicine and Surgery, University of Rome Tor, Rome, Italy, <sup>6</sup>Central Technical Group, National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon, <sup>7</sup>Division of Health Operational Research, Ministry of Public Health, Yaounde, Cameroon, <sup>8</sup>Faculty of Science and Technology, Evangelic University of Cameroon, Bandjoun, Cameroon, <sup>9</sup>UNESCO Board of Biotechnology, University of Rome Tor, Rome, Italy, <sup>10</sup>Ospedale Pediatrico Bambino Gesù, Rome, Italy, <sup>11</sup>AVIRALIA Foundation, Rome, Italy

**Background:** HIV-1 drug resistance (HIVDR) surveillance among individuals failing antiretroviral therapy (ART) is an essential strategy to selecting optimal ART combinations for use in a public health approach in low- and middle-income countries (LMICs) where routine HIVDR testing remains limited. This study herein describes patterns of acquired drug resistance (ADR) in



Cameroon and their adequacy with subsequent ART-regimens.

**Materials and Methods:** In accordance with WHO recommendations, a laboratory-based cross-sectional survey was conducted among ART-failing individuals from October-2022 through April-2023 at the Chantal Biya International Reference Centre, Yaoundé-Cameroon. Individual samples with confirmed virological failure were sequenced in the HIV-1 protease and reverse-transcriptase regions using the Sanger method. Sequence analysis was performed using Stanford HIVdb.v.9.4 and data were analyzed using epiinfo v7.2.5.

**Results:** Overall, 203 individuals were enrolled, with 58.1%(118/203) female and median [IQR] age 37[16-47] years. Median [IQR] duration on ART was 11 [7-14] months, with majority on second-line (78.7%; 160/203) and first-line (16.8%; 34/203) regimens. Median [IQR] CD4-count was 239 [125-452] cells/ $\mu$ l and median [IQR] viremia 4.7log [3.9log-5.3log] copies/ml. Rate of HIVDR was 85.29%(29/34) after first-line and 88.05%(140/160) after second-line failures ( $p=0.7$ ). By drug class, NNRTI, NRTI and PI/r resistance were 85.29%(9/34), 82.35%(28/34) and 2.94%(1/34) respectively after first-line failure and 86.79% (138/160), 84.91%(135/160) and 47.17%(75/160) respectively after second-line failure. NRTI-NNRTI dual class resistance was 82.35%(28/34) after first-line and 84.3%(134/160) after second-line ( $p=0.842$ ), while triple-class resistance was 2.94%(1/34) after first-line and 45.28%(72/160) after second-line ( $p<0.0001$ ). After first-line, TDF and AZT maintained potential efficacy in respectively 53.4%(18/34) and 46.7%(16/34) of individuals, all PI/r in 93.3%(32/34) of individuals, while 46.7%(16/34) had cross-resistance to second-generation NNRTI. After second-line failure, drug potential efficacy was 67.2%(107/160) for TDF, 54.4%(78/203) for AZT and 95.6%(153/160) for DRV/r as compared to 70.6%(113/160) for ATV/r/LPV/r ( $p<0.0001$ ), while 32.6%(52/160) had cross-resistance to ETR and 34.7%(56/160) to RPV/DOR.

**Conclusions:** Among patients failing ART in Cameroon, levels of ADR are high with significant levels of cross-resistance to second-generation NNRTI, hence jeopardizing the use of long-acting carbotegravir/rilpivirine; and almost all individuals presenting triple class-resistance are failing on second-line, underscoring the significance of HIVDR testing at second-line and for novel antiretrovirals for LMICs sharing similar features.

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## Assessment of HIV Treatment Failure and Drug Resistance Testing to Improve HIV Viral Load Suppression in Tanzania

van de Ven R<sup>1</sup>, Genge C<sup>1</sup>, Shigi R<sup>1</sup>, Haule D<sup>1</sup>, Songoro J<sup>1</sup>, Mkumbo J<sup>1</sup>, Haraka F<sup>1</sup>, Kimambo S<sup>1</sup>, Bateganya M<sup>2</sup>

<sup>1</sup>Elizabeth Glaser Pediatric Aids Foundation, Dar es Salaam, Tanzania, United Republic of, <sup>2</sup>United States Agency for International Development, Dar es Salaam, Tanzania

**Background:** To reach the third of the UNAIDS 95-95-95 goals, the national AIDS control program in Tanzania established service delivery models to ensure quality adherence counseling and timely HIV viral load (VL) testing. Despite progress to reach the 95% HIV viral suppression rates, there are concerns about potential treatment failure. We conducted an evaluation of the treatment cascade of people living with HIV (PLHIV) with high VL to describe the risk of HIV treatment failure.

**Materials and Methods:** A retrospective cross-sectional analysis was conducted among PLHIV with high VL, defined as  $>1,000$  copies/ml, from 472 health facilities in five regions in Tanzania from October 2022 - September 2023. Data were extracted from the national electronic HIV database, laboratory reports, and central third-line committee reports to create a treatment failure cascade.

**Results:** By September 30, 2023, 163,130 PLHIV were on antiretroviral treatment, of which 5,209 (3.2%) had a high VL test result documented. After enhanced adherence counseling, 467 (9.0%) remained viremic, and 35 of these were eligible for HIV drug resistance (HIVDR) testing per country guidelines. Of these, 32 received HIVDR test results, and 26 (81%) showed resistance-associated mutations, but no integrase strand transfer inhibitors (INSTI) mutations were reported. Of the 26 with mutations, 18 (69%) were switched to dolutegravir-based regimens, with five adding a boosted protease inhibitor as a third-line regimen. Seventeen received repeat VL testing and 15 (88%) were suppressed. Of those who continued with the same dolutegravir-based regimen, 57% (8/14) were virally suppressed at the repeat test.



**Conclusions:** While only five people required switching to third-line regimen, not all on dolutegravir-based regimen are successfully suppressed. The development of a cascade monitoring tool could help to improve monitoring outcomes of treatment failure and drug resistance and will allow for follow-up with optimized treatment.

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## Investigating Pan-Resistant HIV-1 Among High-Treatment-Experienced Patients in Zimbabwe

Washaya T<sup>1,2</sup>, Mayini J<sup>1</sup>, Rodgers L<sup>1</sup>, Manasa J<sup>2</sup>

<sup>1</sup>Biomedical Research and Training Institute, Harare, Zimbabwe,

<sup>2</sup>University of Zimbabwe, Harare, Zimbabwe

**Background:** To combat HIV drug resistance threat and inform treatment strategies in resource-limited settings, this study assesses the prevalence and profiles of multi-drug resistant HIV-1 strains in integrase inhibitor (INSTI)-experienced patients with confirmed virologic failure. We will analyze HIV genes to identify known resistance mutations with Sanger sequencing. This study aims to highlight the need for vigilant treatment monitoring, adherence education, and wider access to HIV drug resistance testing, particularly in regions like Zimbabwe. By contributing to our understanding of resistance patterns we can ensure effective HIV treatment and progress towards the UNAIDS goal of eliminating HIV as a public health threat by 2030.

**Materials and Methods:** A cross-sectional study was carried out in all provincial and central hospitals in Zimbabwe where adults and adolescents with confirmed virologic failure (VL>1000cp/mL) while taking an INSTI drug regimen were enrolled between January 2021 and December 2023. Genotypic resistance tests were performed on all collected samples on the Sanger sequencing platform. Geneious Prime was used for sequence analysis and interpretation and resistance mutations were analyzed in the Stanford HIVDR database.

**Results:** Of the 85 participants genotyped the mean age and log<sub>10</sub> viral load was 35 years and

5.44 copies/mL. 68.2% (56/82) of successfully genotyped sequences exhibited resistance to at least one drug class. 42.6% (24/56) dual-class resistance, primarily targeting reverse transcriptase and integrase with major integrase mutations (R263RK, E138AK, G140AR) and accessory mutations. 1.2% (1/56) exhibited triple-class resistance.

**Conclusions:** Our study revealed a concerning high prevalence of multi-drug resistance, especially against integrase, in Zimbabwean patients with virologic failure on integrase inhibitor-based regimens. This resistance significantly limits the effectiveness of newer treatment options. Consequently, a multi-pronged approach is crucial, including intensified treatment monitoring, thorough adherence education, wider access to HIVDR testing for precise treatment decisions, and proactive measures to prevent resistance through enhanced adherence support and rationalization of ART regimens.

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## Enhancing Treatment Outcomes, Mental Health, and Quality of Life for Stable People Living With HIV: A Quasi-Experimental Study of a Community-Based Antiretroviral Therapy Delivery Model in Cambodia

Yi S<sup>1,2,3</sup>, Tian Z<sup>1</sup>, Tuot S<sup>2</sup>, Chhoun P<sup>2</sup>, Zahari M<sup>1</sup>, Nagashima-Hayashi M<sup>1</sup>, Yam E<sup>1</sup>, Sovannarith S<sup>4</sup>, Choub S<sup>2</sup>, Ngauv B<sup>4</sup>, Ouk V<sup>4</sup>

<sup>1</sup>Saw Swee Hock School of Public Health, National University of Singapore and National Health System, Singapore, Singapore,

<sup>2</sup>KHANA Center for Population Health Research, Phnom Penh, Cambodia, <sup>3</sup>Public Health Program, Touro University California,

Vallejo, United States, <sup>4</sup>National Center for HIV/AIDS, Dermatology, and STD, Phnom Penh, Cambodia

**Background:** HIV response highlights the crucial role of community-based service delivery of antiretroviral therapy (ART), enabling stable people living with HIV (PLHIV) to benefit from fewer clinic visits and enhanced care. This study evaluated the effectiveness of the Community-



based ART Delivery (CAD) intervention on the care continuum for stable PLHIV in Cambodia.

**Materials and Methods:** This quasi-experimental study was conducted in 20 purposefully selected ART clinics spanning the capital city and nine provinces from May 2021 to April 2023. ART adherence (self-reporting + pill identification test), viral load suppression, care retention, mental health, and quality of life were compared within and between two arms, comprising 1626 PLHIV in the CAD group and 1441 in the group (multi-month dispensing [MMD]), at baseline and endline. Descriptive analyses, difference-in-difference analyses, and multivariable logistic regressions were performed using STATA and R.

**Results:** Viral suppression and care retention consistently exceeded 97% throughout the study. In comparison, self-reported ART adherence remained stable in the CAD group (87.0% at baseline, 86.8% at endline). In contrast, the MMD group experienced a significant decline from 90.3% to 84.4% ( $p < 0.001$ ). Pill identification tests showed minimal change in the CAD group (98.0% at baseline, 97.0% at endline) but a significant decrease in the MMD group (98.5% at baseline, 95.1% at endline) ( $p < 0.001$ ). Difference-in-difference analyses revealed a higher predicted margin of ART adherence in the MMD group (89.8%) than the CAD group (85.6%) at baseline, with a steeper decline in the MMD group (81.3%) compared to the CAD group (84.6%) at endline, suggesting CAD's potential effectiveness in sustaining ART adherence. Predicted margins also indicated an increase in PLHIV with good mental health in CAD (76.3% to 77.6%) over time, contrasting with a decline in MMD (84.2% to 82.1%), highlighting a positive impact on mental well-being in the CAD group.

**Conclusions:** The study highlights the CAD intervention's success in sustaining ART adherence, promoting mental health, and improving the quality of life for stable PLHIV. It establishes a solid evidence base, paving the way for future CAD model implementation, scale-up, and development of standard operating procedures in Cambodia, advancing its impactful adoption.

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## Efficacy of Lamivudine and Dolutegravir Simplification Therapy Compared with Triple Therapy in Northeast Brazil (LAMDO Study)

**Medeiros M**<sup>1</sup>, Lima Fontenele N, Nogueira Firmino N, Góberlânio de Barros Silva P, Holanda da Cunha G

<sup>1</sup>Centro Universitario Unichristus, Fortaleza, Brazil

**Background:** Modern antiretroviral therapy provides numerous effective and well-tolerated treatment options for individuals living with HIV. However, due to medication tolerability, toxicity, and cost optimization associated with the emergence of highly potent drugs, dual therapy has emerged as a new therapeutic alternative for patients with viral suppression. Observational studies worldwide are being conducted to assess the effectiveness of dual therapy in people living with HIV/AIDS. A real-world study is important to validate the findings obtained in controlled studies.

**Objective:** Assess the effectiveness of dual therapy with lamivudine and dolutegravir compared to triple therapy in real-life settings. **Methods:** The study was conducted at São José Infectious Diseases Hospital, a tertiary referral hospital in the state of Ceará, northeast Brazil, for the treatment of PLWHA.

**Results:** A total of 521 patients were taking double therapy with lamivudine plus dolutegravir and 450 patients were in triple therapy, mostly in use of association with dolutegravir, were analyzed. Patients on dual therapy had a higher median age compared to those on triple therapy. A statistically significant higher viral suppression was observed in patients on dual therapy compared to triple therapy ( $p < 0.001$ ). Viral suppression on dual therapy under 200 copies was 97.2%. There was a statistically significant higher percentage of patients with higher CD4/CD8 ratio using triple therapy compared to dual therapy.

**Conclusions:** The current study suggests a higher effective response to dual therapy compared to triple therapy in PLWHA in real-world, supporting therapy simplification as a sustainable option to



maintain virological suppression in patients experiencing toxicity or comorbidities.

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## Pediatric and Adolescent Clinical Tool (PACT) Guides Targeted Adherence Support to Children and Adolescents Unsuppressed Viral Load in Supported Facilities in Malawi

Wetzel E<sup>1,2</sup>, Cox C<sup>1,2</sup>, Kaunda G<sup>1</sup>, Mazenga A<sup>1</sup>, Kantepa A<sup>1</sup>, Manyeki R<sup>1,2</sup>, Kavuta E<sup>1</sup>, Beyene T<sup>1,2</sup>, Chikoti C<sup>1</sup>, Chilala S<sup>1</sup>, Jere H<sup>1</sup>, Khruza I<sup>1</sup>, Majoni R<sup>1</sup>, Moorman J<sup>1,2</sup>, Navaya E<sup>1</sup>, Nyasulu P<sup>1</sup>, Tesiwa A<sup>1</sup>, Simon K<sup>1,2</sup>

<sup>1</sup>Baylor College Of Medicine- Children's Foundation Malawi, Lilongwe, Malawi, <sup>2</sup>Baylor College of Medicine, Houston, United States

**Background:** Viral load (VL) suppression among children and adolescents living with HIV (CALHIV) lags behind adults despite transition to dolutegravir-based ART. To optimize care for CALHIV, we designed and implemented the Pediatric and Adolescent Clinical Tool (PACT), a guided chart audit to assess viral load status and identify adherence support needs. Audit results guided targeted community health worker (CHW) support and multidisciplinary case consultation. PACT was implemented at 95 health facilities in 5 districts supported by Baylor College of Medicine Children's Foundation Malawi, Tingathe Program. We describe factors related to detectable VL (DVL) and factors associated with viral re-suppression.

**Materials and Methods:** Clinical providers implemented PACT audit from April to August 2022, with client follow-up from September 2022 to July 2023. All CALHIV received standard intensive adherence counseling per national guidelines; CALHIV with DVL received individualized CHW follow-up guided by audit results using a conversation guide to identify and address common barriers. Factors associated with VL re-suppression were evaluated by odds ratio (OR) estimates with a 95% confidence interval.

**Results:** Of 12970 CALHIV, 12% (1513) had a DVL, 32% had a suppressed VL (4177), and 56% did not

yet have a VL result post DTG transition (7280). Among CALHIV with DVL (n=1513), 75% this was their first DVL on DTG (n=1135), 39% had two trained guardians (n=586), 89% completed age appropriate disclosure (n=1153), 41% were enrolled in care for orphans and vulnerable children (OVC) (n=627), 52% had a plan to address adherence barriers (n=784), 55% had a guardian with suppressed VL or HIV negative status (n=837), 69% received psychosocial counselling support (n=1049), and 52% were enrolled in teen club (n=786). Enrollment in teen club was associated with a suppressed follow-up VL result (OR: 1.34, 95%CI 1.08-1.68). Among 1316 CALHIV with follow-up VL, 73% (n=960) re-suppressed. Enrollment in OVC care was negatively associated with VL suppression (OR: 0.79, 95% CI 0.63- 0.998).

**Conclusions:** Guided systematic review using PACT identified common, addressable gaps among CALHIV with DVL leading to high rates of re-suppression. Individualized ongoing adherence support is important to achieve VL suppression as CALHIV experience dynamic barriers to adherence of varying complexity.

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## Prevalence and Regional Variations of Primary Antiretroviral Resistance among Treatment-Naïve Persons Living with HIV-1 in Sub-Saharan Africa: A Systematic Review and Meta-analysis

Elebesunu E<sup>1</sup>, Asori M<sup>2</sup>, Effiong F<sup>3,4</sup>, Ogunkola I<sup>5</sup>  
<sup>1</sup>Department of Medical Laboratory Sciences, Faculty of Health Sciences and Technology, College of Medicine, University of Nigeria, Nsukka, Enugu, Nigeria, <sup>2</sup>University of North Carolina at Charlotte, North Carolina, United States of America, <sup>3</sup>Faculty of Medical Laboratory Sciences, University of Calabar, Calabar, Nigeria, <sup>4</sup>African Community for Systematic Reviews and Meta-analysis, Kigali, Rwanda, <sup>5</sup>Department of Public Health, University of Calabar, Calabar, Nigeria

**Background:** Amidst the high burden of HIV-1 in sub-Saharan Africa (SSA), the problem of pretreatment drug resistance (PDR) among



persons yet to initiate antiretroviral therapy (ART) is a growing cause for concern. PDR significantly increases the risk of ART inefficacy and virological failure. This systematic review aimed to provide updated knowledge on the prevalence and regional variations of PDR mutations among ART-naïve persons in SSA.

**Materials and Methods:** Adhering to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, a systematic literature search was conducted through PubMed, EMBASE, Web of Science, as well as EBSCOhost, which comprises the databases MEDLINE, CINAHL Plus, and Academic Search Premier. Studies published between 2010 and 2023 that met the inclusion criteria were screened and selected. A meta-analysis of the PDR prevalence estimates was implemented using the R-4.3.2 software.

**Results:** A total of 41 cross-sectional and cohort studies were included. The total number of ART-naïve people living with HIV was 10,567, of which 1,083 had PDR mutations. The overall pooled prevalence of PDR was 9.3% (95% CI: 7.1%–11.8%, I<sup>2</sup>=93.3%) across 20 countries in sub-Saharan Africa. In terms of regional pooled prevalence estimates, the highest PDR prevalence was in Southern Africa with 12% (95% CI: 7.0%–19.0%, I<sup>2</sup>=96%), and the lowest was in West Africa with 6% (95% CI: 3.0%–9.0%, I<sup>2</sup>=74%), while Central Africa was 9% (95% CI: 2.0%–19.0%, I<sup>2</sup>=93%) and East Africa 10% (95% CI: 7.0%–19.0%, I<sup>2</sup>=96%). The pooled PDR prevalence based on drug class was 7.0% (95% CI: 5.5%–8.6%, I<sup>2</sup>=72%) for Non-Nucleoside Reverse-Transcriptase Inhibitors (NNRTIs), 3.7% (95% CI: 2.7%–4.8%, I<sup>2</sup>=63%) for Nucleoside Reverse-Transcriptase Inhibitors (NRTIs), and 1.1% (95% CI: 0.5%–1.7%, I<sup>2</sup>=36%) for Protease Inhibitors (PIs).

**Conclusions:** The overall prevalence of PDR mutations among ART-naïve persons in SSA was moderate, but is still above the 5% threshold recommended by the World Health Organization (WHO). Understanding the regional differences in PDR prevalence is crucial for tailoring treatment strategies based on local epidemiological patterns. In addition, the higher prevalence of NNRTI resistance emphasizes the need for incorporating integrase strand transfer inhibitors (INSTIs) or other effective drug classes in ART regimens.

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## Evaluation de la Rétention des Patients Vivant avec le VIH dans le Programme de Traitement Antirétroviral de l'Hôpital National Donka, Conakry, Guinée

Leno N<sup>1,3</sup>, Sovogui P<sup>2</sup>, Delamou A<sup>1,3</sup>

<sup>1</sup>Gamal Abdel Nasser University of Conakry, Guinea, Conakry, Guinea, <sup>2</sup>Programme National de Lutte contre le Sida et les Hépatite, Conakry, Guinée, Conakry, Guinée, <sup>3</sup>Centre d'Excellence Africain pour la Prévention et le Contrôle des Maladies Transmissibles (CEA - PCMT), Conakry, Guinée

**Contexte :** La préservation fiable de la participation des patients dans le programme de traitement antirétroviral (TAR) demeure un défi significatif dans les nations à ressources limitées telles que la Guinée, compromettant ainsi les initiatives visant à améliorer les résultats du traitement. L'objectif de cette étude était d'évaluer le taux de rétention des patients sous TAR et d'identifier les facteurs prédictifs de la non-rétention.

**Matériels et Méthodes :** Cette étude de cohorte historique a inclus des patients (adultes et enfants) confirmés positifs au VIH, ayant entamé le TAR entre le 1er mai 2015 et le 31 mars 2020 au centre de traitement ambulatoire de Donka, Conakry, et ayant au moins 6 mois de suivi sous TAR avant la date d'extraction des données. Un patient était considéré comme retenu s'il avait effectué un transfert formel ou s'il était suivi à la fin de l'étude. Les techniques de Kaplan-Meier ont été utilisées pour estimer les probabilités cumulées de rétention et d'attrition. Des modèles de risques proportionnels de Cox ont été appliqués pour identifier les facteurs prédictifs de la non-rétention.

**Résultats :** Parmi les 4 169 participants éligibles, 1 297 (31,10 %) ont connu une non-rétention dans le programme de traitement antirétroviral à la fin de l'étude. La rétention à 12 et 24 mois était respectivement de 92,60 % [92,17 – 93,06] et 77,78 % [77,02 – 79,04]. Le statut biologique (taux de CD4 bas) entre 100 et 200 cellules/ml 12,10 [9,01 - 16,24], le taux de CD4 < 100 cellules/ml 12,4 [9,4 - 16,36] étaient les principaux prédicteurs de la non-rétention.



**Conclusions :** Cette étude souligne que le taux de rétention à 24 mois des patients VIH après l'initiation du traitement antirétroviral demeure inférieur à l'objectif national (90 %), compromettant potentiellement la réalisation des objectifs mondiaux 95 – 95 – 95 d'ici 2030 en Guinée. Des recherches ultérieures sont nécessaires pour comprendre les raisons des pertes de suivi, ouvrant ainsi la voie à des interventions ciblées.

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## Dispensation des ARV par le biais des pharmacies privées dans les villes de Yaoundé et Douala au Cameroun : Un appel pour le passage à échelle

Alice K<sup>1</sup>, Haman B<sup>1</sup>, Aristide A<sup>1</sup>, Leopoldine M<sup>1</sup>, Pierre Paul E<sup>2</sup>, Julius M<sup>3</sup>, Marius<sup>3</sup>

<sup>1</sup>Ministry Of Public Health, Yaoundé, Cameroon, <sup>2</sup>FHI 360, Yaoundé, Cameroon, <sup>3</sup>FHI 360, Yaounde, Cameroon

**Contexte :** Le Cameroun s'est fixé comme objectif d'éliminer le VIH/SIDA d'ici 2030. Cet engagement passe par des stratégies innovantes d'offre de services différenciés parmi lesquelles la dispensation des ARV par le biais des pharmacies privées. L'objectif de cette communication est de présenter les résultats de la phase pilote de ce modèle mis en œuvre au Cameroun de janvier à septembre 2023

**Matériels et Méthodes :** Avant la mise en œuvre du modèle, les pharmacies de Yaoundé et de Douala ont été évaluées afin de sélectionner celles qui étaient éligibles au projet. Par la suite, les pharmacies éligibles ont été formées et des outils adaptés aux directives nationales ont été élaborés et mis à leur disposition. Une réunion de démarrage entre les pharmacies privées et les formations sanitaires auxquelles elles étaient rattachées a été organisée et les points focaux ont été désignés pour faciliter la coordination de cette activité pour une atteinte des résultats probants. Aussi, les clients ont donné leur consentement

écrit avant de s'inscrire au modèle et d'être confiés à ces pharmacies

**Résultats :** De janvier à septembre 2023, 19 pharmacies dans les deux villes pilotes soient 9 à Yaoundé et 10 à Douala ont été engagées dans la dispensation d'ARV au bénéfice des personnes vivant avec le VIH. Au total, 717 patients ont été enrôlés et ont reçu leur traitement via ce modèle soient 309 à Yaoundé et 408 à Douala. Parmi les personnes enrôlées, 12 clients sont retournés dans les établissements de santé pour bénéficier de services.

**Conclusions :** Malgré les difficultés initiales, l'acceptation et l'adoption du modèle ont été évidentes dans les deux villes pilotes. La dispensation des ARV par les pharmacies privées à Yaoundé et à Douala a permis aux clients d'accéder plus facilement aux ARV et de réduire la charge de travail dans les formations sanitaires tutrices auxquelles elles étaient rattachées. Des points d'apprentissage clés ont été générés. Toutefois, des efforts concertés sont nécessaires pour étendre le modèle à l'échelle nationale et pouvoir contribuer à l'élimination du VIH d'ici 2030 au Cameroun.

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## Potential Impact of Viral Load Switch Committees on Timely Regimen Optimization for Persons Living with HIV at Uganda Episcopal Conference supported Facilities in Uganda

Tinyo J<sup>1</sup>, Tamale R<sup>1</sup>, Khisa J<sup>1</sup>, Mwesezi H<sup>1</sup>

<sup>1</sup>Uganda Episcopal Conference - Uganda Catholic Medical Bureau, Kampala, Uganda

**Background:** Optimal HIV management through antiretroviral therapy (ART) hinges upon two pivotal factors—stringent adherence to prescribed ART and the efficacy of the regimen against the specific viral strain. Timely review and recommendation for regimen switch are important to avert adverse outcomes associated with sustained viral non-suppression (HIV RNA levels  $\geq$  1,000 copies/ml). Viral load switch



committees (VLSCs) are multidisciplinary teams within health facilities tasked with reviewing and assessing virologic outcomes of people living with HIV (PLHIV). Comprising healthcare professionals (clinicians, counsellors, pharmacists, and laboratory specialists), VLSCs systematically evaluate viral load data, adherence patterns, and clinical status to make informed recommendations for optimizing ART regimens for patients with virologic failure (>1,000 copies/mL). This study assesses the impact of VLSCs on timely optimization of regimens for patients experiencing repeat virologic failure on ART at health facilities (HFs) supported by the Uganda Episcopal Conference.

**Materials and Methods:** Data collection was conducted in September 2023 at 54 Uganda Episcopal Conference -supported health facilities. Data were collected on VLSC functionality and regimen optimization for non-suppressed clients during April–August 2023. Functional VLSC was defined as availability of switch committee meeting minutes within prior 30 days of data collection. Data analysis, including a two-sample t-test, explored correlations between switched clients and VLSC functionality.

**Results:** Analysis of facility data spanning April–August 2023 revealed that 26% (13/54) of reviewed HFs had PLHIV with more than one non-suppressed viral load result. Among these, 30% (4/13) had functional VLSCs. The four HFs with functional VLSCs exhibited a mean switch rate of 96% (386/4) non-suppressed PLHIV switched, while the nine without functional VLSCs only switched 28% (250/9) - ( $p=0.011$ ). A significant 68% variance in the proportion of non-suppressed PLHIV switched was observed between facilities with and without functional switch committees.

**Conclusions:** The presence of a functional VLSC in a health facility corresponded with timely switching of non-suppressed PLHIV failing on a regimen to a more optimal alternative. This underscores the critical role of these committees in facilitating timely regimen optimization. Future studies are necessary to assess relationships between functionality of switch committees and patient outcomes.

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## Perspectives of Patients and Healthcare Providers on Requirements for Initiating and Sustaining Telemedicine as a Model of Service Delivery for Persons with HIV

**Kwena Z<sup>1</sup>**, Odhiambo F<sup>1</sup>, Obatsa S<sup>1</sup>, Lewis-Kulzer J<sup>2</sup>, Ochieng F<sup>1</sup>, Goodrich S<sup>3</sup>, Wools-Kaloustian K<sup>3</sup>, Makokha C<sup>1</sup>, Cohen C<sup>2</sup>

<sup>1</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>2</sup>University of California San Francisco, San Francisco, USA, <sup>3</sup>Indiana University School of Medicine, Indianapolis, USA

**Background:** Telemedicine (TM) has been used in HIV care service delivery to increase access to quality and timely healthcare and to improve health outcomes of persons with HIV (PWH). We sought the perspectives of PWH and healthcare providers (HCPs) on what is needed to initiate and sustain TM in HIV care in western Kenya.

**Materials and Methods:** This was a cross-sectional qualitative study employing 23 key informant interviews (KIIs) with HCPs and eight focus group discussions (FGDs) with PWH to explore their perspectives on requirements for initiating and sustaining TM as a model of service delivery for PWH. Trained and experienced research assistants conducted KIIs with HCPs either in person or virtually and facilitated FGDs with PWH, covering topics related to the requirements for initiating and sustaining TM services. The KIIs and FGDs were conducted in the participants' preferred language, audio-recorded, and transcribed into English. A codebook was developed inductively and refined as coding in Dedoose proceeded. We used framework analysis to identify insights and recurrent themes.

**Results:** Relevant hardware and software, power supply, and staffing emerged as key requirements to initiate and sustain telemedicine for HIV service delivery. Some digital devices critical for TM, such as computers, tablets, and phones, were available in some facilities from previous or ongoing programs. Communication applications tested during the COVID-19 pandemic, such as Zoom and Teams, and databases are available for customization for virtual access to health services. Both patients and HCPs were concerned that the





cost of implementing TM, power blackouts, and phone network instability in some areas could compromise TM. However, the availability of power backup systems such as power generators and solar panels and the low cost of communication attenuated this concern. Providers conveyed that HCP training is needed to ensure TM is implemented with patient privacy and confidentiality prioritized.

**Conclusions:** Much of the hardware and software resource needs for the successful implementation of TM are already in place and familiar to both HCPs and patients. Introduction and maintenance of TM programs will require some additional investment in training of HCPs in technology use, patient privacy, and data security.

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## Prevalence and Factors Associated with Hyperglycaemia among Persons Living with HIV/AIDS on Dolutegravir-based Antiretroviral Therapy in Uganda

Byereta L<sup>1</sup><sup>1</sup>Infectious Disease Institute, KAMPALA, Uganda

**Background:** Dolutegravir-based (DTG) regimens are rapidly becoming the preferred first-line anti-retroviral therapy (ART) for people living with HIV (PLHIV) in low and middle-income countries. However, there are rising concerns over the development of hyperglycaemia and, in some cases, diabetes mellitus in patients who switched to DTG. Despite this, many public health facilities do not routinely monitor blood glucose in HIV patients. We aimed to determine the prevalence and factors associated with hyperglycaemia among HIV-positive individuals receiving DTG-based ART at Kiruddu National Referral Hospital (KNRH), Uganda.

**Materials and Methods:** A cross-sectional study was conducted on the inpatient wards and the infectious disease outpatient clinic of KNRH from May to July 2022. Participants aged 18 years and

older, who had been on a DTG-based ART regimen for at least three months, were consecutively enrolled and interviewed using a research-assistant administered questionnaire. The Uganda Diabetes Association guideline was used to define hyperglycaemia, with a threshold of HbA1c >5.7%. All statistical analysis was done using STATA 17. Factors associated with hyperglycaemia were examined through logistic regression models, adjusting for pertinent confounders. Results were presented as crude and adjusted odds ratios with 95% confidence intervals. A significance level was set at  $p < 0.05$ .

**Results:** A total of 398 PLHIV were enrolled, the majority from the outpatient department (89.2%,  $n=355$ ), and a CD4 count above 200 cells/ $\mu\text{L}$  (90%). The median age was 40.5 years (IQR: 32-49 years), and more than half were females (58.3%,  $n=232$ ). Among the participants, 16% had a family history of diabetes, 11.73% ( $n=46$ ) showed elevated blood pressure levels, and 16.7% ( $n=64$ ) had obesity. Hyperglycaemia was present in 12.8% ( $n=51$ ) of the study participants, with 10.3% having pre-diabetes ( $n=41$ ) and 2.5% with diabetes mellitus ( $n=10$ ). After adjusting for confounders, only age above 40 years (AOR 2.55, 95% CI: 1.05-6.23,  $p=0.039$ ) and a history of hypertension (AOR 2.93, 95% CI: 1.07-8.02,  $p=0.036$ ) remained significantly associated with hyperglycaemia.

**Conclusions:** More than one in ten patients on DTG-based ART in our study had hyperglycaemia. We recommend screening and regular monitoring of plasma glucose in these patients. Longitudinal studies to determine the underlying mechanisms in this population are recommended.



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## Decentralization and Demedicalization of Antiretroviral Services to Improve Client Experience in Care: Lessons from Southern Nigeria

Toyo O<sup>1</sup>, Onwah O<sup>1</sup>, Nwanja E<sup>1</sup>, Akpan U<sup>1</sup>, Nwageneh C<sup>2</sup>, Olatunbosun K<sup>3</sup>, Ogundehin D<sup>3</sup>, James E<sup>3</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Obiora-Okafo C<sup>3</sup>, Idemudia A<sup>3</sup>, Nwadike C<sup>3</sup>, Kakanfo K<sup>3</sup>, Pius B<sup>3</sup>, Onimode B<sup>3</sup>, Asaolu O<sup>3</sup>, Bashorun A<sup>4</sup>, Gambo A<sup>5</sup>, Pius J<sup>3</sup>, Oyelaran O<sup>3</sup>, Goldstein R<sup>3</sup>, Eyo A<sup>1</sup>

<sup>1</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>2</sup>FHI360, Uyo, Nigeria, <sup>3</sup>United States Agency for International Development, Abuja, Nigeria, <sup>4</sup>NASCP, Federal Ministry of Health, Abuja, Nigeria, <sup>5</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria

**Background:** Socioeconomic challenges including stigma, discrimination, and long distances to health facilities are prominent barriers limiting access to antiretroviral therapy (ART) in Sub-Saharan Africa. This paper describes the approach to decentralized and de-medicalized ART services implemented with support from PEPFAR/USAID in Akwa Ibom and Cross River States, Southern Nigeria.

**Description:** Decentralized ART services were provided to PLHIV receiving ART in Akwa Ibom and Cross River States in line with national policies from October 2015 to December 2023. The who, what, where and when framework was used to guide the development of models that best fit client needs. Between 2015 and 2017 ART decentralization was provided only through community pharmacies due to a need to keep clients within the health system. By 2017, healthcare worker-led Community ART refill Group model was created in a further shift to community-based decentralized care. By 2020, evolving client needs and the rapid increase in the treatment cohort necessitated a shift to demedicalised community-based refill models that were client-led and provided ART pickup services at routine community structures, such as schools, council halls, churches, patent medicine vendors, etc, where psychosocial support was provided by peers. The scale-up of home refills due to the

COVID-19 pandemic further decentralized services to the community. In 2021, decentralization spoke facilities were introduced as an option for clients who were able to achieve self-care.

**Lessons Learnt:** Over the eight-year period, ART services were decentralized to a total of 3, 230 community structures (122 pharmacies, 280 Decentralization Spokes, 663 Client-led Community ART refill Groups, and 2,165 Healthcare worker-led Community ART refill Groups). However, structures were inactivated based on evolving needs. At present, 1,489 community structures are serving 49,336 clients. Engagement with healthcare workers, community stakeholders and the PLHIV community was crucial for ensuring the acceptability of the approaches. Client retention was 99% across the different models. Data use from implementation was essential to the continuous improvement of the interventions.

**Conclusions:** The implementation of decentralized, demedicalised ART services enhances accessibility, acceptability, affordability, and quality of HIV care, and empowers clients to take an active role in their health management.

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## Evaluation Des Effets du Dolutegravir Sur L'Indice de Masse Corporelle et la Charge Virale des Patients Infectés au Vih Suivis en Pédiatrie au CNHU de Cotonou

Bagnan Tossa L<sup>1</sup>, Tohodjédé Y<sup>1</sup>, Ganhou I<sup>1</sup>, Assogba-Zohmaleto M

<sup>1</sup>FSS-UAC, Cotonou, Benin

**Contexte :** Le traitement antirétroviral à base du Dolutégravir est un schéma thérapeutique recommandé chez les enfants et adolescents par l'Organisation mondiale de la santé (OMS). La présente étude est initiée pour démontrer les effets du Dolutégravir sur la charge virale et l'indice de masse corporelle dans la population pédiatrique.



**Objectif :** Evaluer les effets du Dolutégravir sur l'indice de masse corporelle et la charge virale chez les patients âgés de 5 à 19ans infectés au VIH et suivis au CNHU-HKM de Cotonou.

**Matériels et Méthodes :** Il s'agissait d'une étude transversale à visée descriptive et analytique avec collecte rétrospective sur une période de quatre ans allant de juillet 2018 à juillet 2022 réalisée à la CUPGM du CNHU-HKM de Cotonou incluant 109 patients âgés de cinq à dix-neuf ans infectés au VIH. Les données ont été collectées et analysées avec le logiciel EPI info version 7.2.1.0

**Resultats :** L'âge moyen des patients était de 11,90±0,77ans avec une prédominance de la tranche d'âge 5 à 10ans. Sur le plan virologique, les délais de suppression et d'indéteçtabilité de la première charge virale ont été respectivement de trois et de six mois après la mise sous Dolutégravir. A trois mois après l'administration du Dolutégravir, 98,13% des patients avaient une charge virale supprimée et 74,77% de ceux qui avaient une charge virale supprimée avaient une charge virale indéteçtable alors qu'à six mois 98,14% des patients avaient une charge virale supprimée dont 88,79% avaient une charge virale indéteçtable. Le régime thérapeutique ABC+3TC+DTG était utilisé dans. En ce qui concerne l'évolution pondérale, 20,51% et 12,82% des patients étaient respectivement en surpoids et obèses après prise du Dolutégravir contre 1,28% de patients en surpoids et obèses après la mise sous Dolutégravir.

**Conclusions :** Le Dolutégravir a entraîné une suppression rapide de la charge virale associée à une prise de poids notable chez les patients.

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## Treatment Outcomes among Older Persons Living with HIV on Atazanavir-based Second-Line Antiretroviral Therapy: A Retrospective Study in Southern Nigeria

Onwah O<sup>1</sup>, Nwanja E<sup>1</sup>, Toyo O<sup>1</sup>, Unimuke M<sup>1</sup>, Akpan U<sup>1</sup>, Okolo C<sup>1</sup>, Nwangeneh C<sup>2</sup>, Olatunbosun K<sup>3</sup>, Ogundehin D<sup>3</sup>, James E<sup>3</sup>, Obiora-Okafo C<sup>3</sup>, Idemudia A<sup>3</sup>, Nwadike C<sup>3</sup>, Kakanfo K<sup>3</sup>, Pius B<sup>3</sup>, Onimode B<sup>3</sup>, Asaolu O<sup>3</sup>, Bashorun A<sup>4</sup>, Gambo A<sup>5</sup>, Pius J<sup>3</sup>, Oyelaran O<sup>3</sup>, Goldstein R<sup>3</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Eyo A<sup>1</sup>

<sup>1</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>2</sup>Family Health International (FHI 360), Abuja, Nigeria, <sup>3</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria, <sup>4</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, <sup>5</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria

**Background:** Second-line antiretroviral therapy (ART) is often a last resort for most people living with HIV (PLHIV) in resource-limited settings, including older PLHIV who face many challenges in adhering to ART. This study assessed treatment outcomes and associated factors among older PLHIV receiving second-line ART in southern Nigeria.

**Materials and Methods:** This retrospective cohort study utilized data from the electronic medical records of older PLHIV (≥60 years old) receiving Atazanavir-based second-line ART at 13 PEPFAR/USAID-supported health facilities in Akwa Ibom and Cross River States, Nigeria as of September 2022. Age, sex, duration on ART, health facility type, differentiated service delivery (DSD) model, HIV viral load (VL) results with dates, and ART status were abstracted at baseline (September 2022) and 12 months after (September 2023). The outcomes assessed were 12-month retention and VL suppression. Retention was calculated as the proportion with "Active" ART status after 12 months, using PEPFAR MER2.6 definition, while VL suppression was VL <1000 copies/ml. Health facilities were classified as tertiary (with specialized care) or non-tertiary, and clients were categorized based on whether they were receiving DSD. Associations with retention



and viral suppression were assessed using binary logistic regression.

**Results:** Seventy-seven persons were receiving Atazanavir-based second-line ART: 66.2% (51/77) were male, median age was 64.0±4.9 years, 59.7% (46/77) received care in tertiary health facilities, 67.5% (52/77) were in DSD models, and mean duration on ART was 12.8±3.7 years. The 12-month retention was 76.6% (59/77), 96.6% (57/59) had VL done, and VL suppression was 96.5% (55/57). Retention was better in tertiary health facilities compared to non-tertiary facilities (82.6% vs 67.7%, aOR:0.28, 95%CI:0.08-0.96), but comparable across sexes (Males:78.4% vs Females:73.1%, aOR:1.19, 95%CI:0.37-3.82) and DSD (Receiving DSD:73.1% vs No-DSD:84.0%, aOR:0.23, 95%CI:0.51-1.02). Viral suppression was comparable across facility types (tertiary:97.3% vs non-tertiary:95.0%, aOR:0.59, 95%CI:0.19-18.00), sexes (Females:94.7% vs Males:97.4%, aOR:2.05, 95%CI:0.11-39.26), and DSD (Receiving DSD:97.3% vs No-DSD:95.0%, aOR:1.33, 95%CI:0.04-43.78).

**Conclusions:** Findings from the study show that older PLHIV on second-line ART had better retention in care at tertiary health facilities than in other facilities. Further investigation of the factors affecting retention at non-tertiary facilities is recommended, to equalize treatment outcomes for this subpopulation.

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## Optimizing Viral Load Coverage Using a Combination Approach for Hard-To-Reach Areas: A Case from Chama District in the Eastern Province of Zambia

Malebe T<sup>1</sup>, Kibombwe G<sup>1</sup>, Mutale P<sup>1</sup>, Goma M<sup>1</sup>, Goma M<sup>1</sup>, Satti H<sup>2</sup>, Carpenter D<sup>2</sup>, Persaud N<sup>2</sup>, N'gambi M<sup>3</sup>, Chabikuli O<sup>4,5</sup>

<sup>1</sup>FHI 360, Lusaka, Zambia, <sup>2</sup>FHI 360 Washington, Washington, United State of America, <sup>3</sup>MOH, Chipata, Zambia, <sup>4</sup>FHI 360, Pretoria, South Africa, <sup>5</sup>Howard University, Washington DC, USA

**Background:** To achieve desirable HIV treatment outcomes and health, people living with HIV (PLHIV) must maintain a sustained viral

suppression. Meaningful estimation of viral load suppression (VLS) rates is dependent on higher viral load coverage (VLC) among eligible PLHIV. VLC is also essential for monitoring progress towards HIV epidemic control. In 2022, VLC in Chama district was at 49% of eligible clients compared to the 88% provincial average. This limited care providers' ability to offer quality monitoring of treatment or conduct meaningful estimation of VLS rates for the district. The CDC technical assistance project implemented a combination intervention approach to optimize VLC in Chama district to reach 80% by the end of 2023.

**Description:** Following interventions implemented: between October 2022 to October 2023:

- Trained 33 facility and community-based personnel in community VL sample collection using DBS cards.
- Trained 7 laboratory staff in point of care VL and early infant diagnosis analysis.
- Conducted live, interactive community radio programs on VL monitoring.
- Synchronized pharmacy and VL sample collection appointments.
- Sent clients web-to-SMS reminders for sample collection and conducted follow-ups using case management approach.
- Decentralized sample collection to the community.
- Supported real-time transmission of electronic results, prompt update of results in clients' electronic records, and improved data use.

**Lessons Learnt:** Overall VLC increased from 49% (baseline) in October 2022 to 91% in October 2023 (endline), resulting in a significant increase of 42% ( $p < 0.0001$ ). Stratified data by age group shows lower VLC (82%) among adolescents and young people (AYP) compared to adults (88%), a concern when considering of treatment as prevention in AYPs since actual VLS rates cannot be ascertained. Both males and females had a VLC of 87%, however. Further, scaling up point of care (POC) VL analysis resulted in reduction in result turnaround time from 30 days to 5 days.

**Conclusions:** These results demonstrate that implementing a combination of intervention tailored to identified gaps is effective in achieving optimal VLC and potentially VLS in rural settings. We recommend replicating this approach in other resource limited settings to contribute towards HIV epidemic control.



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## Mitigating the Impact of Climate Disasters on Continuity of HIV Service Delivery: Lessons from Cyclone Freddy in Malawi

Chiwandira B<sup>1</sup>, Nkhonjera J<sup>1</sup>, Chimbandule T<sup>1</sup>, Afirima B<sup>2</sup>

<sup>1</sup>Ministry of Health - HIV Directorate, Lilongwe, Malawi,

<sup>2</sup>National AIDS Commission, Lilongwe, Malawi

**Background:** Malawi is a high HIV burden country and highly susceptible to extreme weather-related hazards. In March 2023, Cyclone Freddy struck Malawi, leaving in its wake catastrophic consequences ranging from loss of lives to widespread destruction of health infrastructures, and disruption of health systems, particularly HIV-related services. HIV service continuation is crucial to optimizing treatment outcomes, including viral suppression. The disruption of HIV services poses a threat to sustaining the gains of epidemic control and the UNAIDS 95 95 95 fast track targets.

We aim to describe measures deployed to mitigate the impact of cyclone Freddy and ensure continued HIV service delivery in Malawi.

**Description:** Malawi leveraged on existing multisectoral and interagency collaboration with community structures as the bedrock to the national response. The department of disaster management set up camps with mobile clinics for displaced persons. Building on the lessons learnt from adapting HIV systems for COVID-19 response, the Ministry of Health took the following proactive measures: issued an emergency policy protocol that allows dispensing of ARV to every person that self-identify as living with HIV on treatment without demanding for any supporting documentation, integration of HIV services into the camp clinics, deployment of surge staff, optimising multi-month dispensing, decentralized ARV dispensing points, activated emergency supplies of ARVs, and leverage peer-led mechanism to facilitate ARV delivery especially among Key populations were effective in ensuring continuity of care.

**Results:** The study found no significant change in HIV testing and ART services ( $p = 0.716$  for both), indicating stability post-cyclone.

**Conclusions:** The impact of climate disasters on continuity of HIV service delivery can be catastrophic, particularly in highly vulnerable countries like Malawi. The response efforts deployed to mitigate the impact of cyclone Freddy in Malawi demonstrate the importance of emergency preparedness and adaptability of health systems in ensuring service continuity for People Living with HIV.

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## A Review of Viral Load Suppression Rate Following Transitioning to Pediatric Dolutegravir Based Regimen Among Children Accessing Antiretroviral Therapy (ART) at APIN Supported Facilities in Plateau State, North Central Nigeria

Bodunrin S<sup>1</sup>, Tanyishi D<sup>1</sup>, Oraegbunam C<sup>1</sup>, Ganjang D<sup>1</sup>, Ekeke V<sup>1</sup>, Okpe H<sup>2</sup>, Osayi E<sup>1</sup>, Ajayi O<sup>2</sup>, Wekpe S<sup>1</sup>, Jwanle P<sup>2</sup>, Onwuatuolo I<sup>2</sup>, Samuels J<sup>2</sup>, Okonkwo P<sup>2</sup>  
<sup>1</sup>APIN Public Health Initiatives, Jos, Nigeria, <sup>2</sup>APIN Public Health Initiatives, Abuja, Nigeria

**Background:** Children living with HIV (CLHIV) in resource constrained countries, continue to have limited access to optimal pediatric antiretroviral therapy and viral load suppression rates remain unacceptably low, persistently lagging behind the adult population. Optimization of previous pediatric ART regimens was negatively impacted by various factors including high pill burden, unpleasant taste, and difficulty in administration. Hence, the approval in 2021 of the pediatric dolutegravir (pDTG) regimen in Nigeria was well received.

APIN Public Health Initiatives (a US Centers for Disease Control and Prevention funded program), commenced the transitioning of all pediatric clients aged between 0 to 9 years and weighing less than 30kg from previously available pediatric



ART regimens to pDTG-based regimen in September 2021. This study highlights the effect of pDTG in improving the viral load suppression rate across supported facilities in Plateau State.

**Materials and Methods:** This is a descriptive cross-sectional study of CLHIV aged 0 to 9 years, accessing ART across 28 treatment facilities in Plateau State.

A total of 376 children on varying first-line regimens, commenced transitioning to pDTG in September 2021. Follow-up viral load monitoring was done in accordance with National HIV treatment guidelines between March 2022 to September 2022. Clients' data was sourced from Electronic Medical Records and statistically analyzed using an Excel spreadsheet.

**Results:** Phased transition of children on ART commenced in September 2021 with 376 children eligible for transitioning. A baseline viral load assessment was done with an average suppression rate at 67%. By March 2022, a total of 319 CLHIV (85%) had been transitioned to the pDTG-based regimen (ABC/3TC/pDTG) of which 94% (n=299) had viral load test done with documented results. The viral suppression rate increased to 78% (n=234/299) by March 2022. One year post commencement of pDTG transitioning, 97% of the eligible CLHIVs had been successfully transitioned with a recorded viral suppression rate of 84%, marking an improvement from 67% to 84%.

**Conclusions:** The transition to pDTG has created a road map to achieving improved viral load suppression among CLHIV in Plateau State, Nigeria. Continuous access to superior ART formulations is essential to sustaining the gains recorded within this sub population.

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## Short Message Service Reminders to Improve Adherence to Antiretroviral Treatment in Adolescents Living With HIV: Results from an Individual Randomized Controlled Trial in Eleven Public Health Facilities in Ethiopia

Tanga A<sup>1</sup>, Hallström I<sup>2</sup>, Jerene D<sup>3</sup>

<sup>1</sup>Arba Minch University, Arba Minch, Ethiopia, <sup>2</sup>Lund University, Lund, Sweden, <sup>3</sup>KNCV The Netherlands, The Hague, the Netherlands, Netherlands

**Background:** Suboptimal adherence to antiretroviral therapy (ART) is a major challenge among adolescents worldwide. Digital adherence technologies such as short message service (SMS) reminders can help improve adherence, but the evidence remains inconclusive. Our objective was to evaluate the effectiveness of mobile phone SMS reminders in improving adherence to ART among adolescents living with HIV in Ethiopia.

**Materials and Methods:** We conducted an individual randomized controlled trial in which we enrolled adolescents (aged 10–19) living with HIV and currently on ART in intervention and control arms in a one-to-one allocation ratio in 11 public health facilities in southern Ethiopia. Participants in the intervention arm received daily SMS based on their medication schedule, whereas participants in the control arm received standard care. The message, which contained motivational information without mentioning disease status, was sent 15 minutes before the scheduled medication time. The message delivery status was reviewed daily and displayed on the messaging server as “received” or “failed” in green or red, respectively. Failed messages were traced through ART providers to determine reasons like poor network, mobile issues, or SIM card change. Adherence to ART was classified as low, moderate, or high using self-reporting criteria. Intention-to-treat analysis and generalized estimation equation models assessed the intervention effect.



**Results:** From July 5, 2022, to February 28, 2023, we enrolled 306 individuals out of 435 assessed for eligibility. Females accounted for 43.8% of the participants, and their mean age was 15 years (standard deviation, 2.6). The primary outcome was defined for all 152 and 151 intention-to-treat (ITT) participants in the intervention and control arms, respectively. The rate of “high” adherence was similar in both arms at baseline (41.8% in the intervention versus 38.6% in the control), but it was higher in the intervention than in the control arm (75% versus 51%) at six months of follow-up. This is equivalent to a 34% improvement in adherence level (interaction effect = 0.29).

**Conclusions:** The daily SMS reminder intervention improved adherence to ART. The intervention should be considered for routine implementation.

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## Improved Clinical Outcomes Among Children Living with HIV Initiated on Pediatric Dolutegravir in Nigeria

Sowale O<sup>1</sup>, Otubu N<sup>1</sup>, Abudior O<sup>1</sup>, Campbell J<sup>2</sup>, Eigege W<sup>2</sup>, Rathakrishnan D<sup>2</sup>, Amamilo I<sup>2</sup>, Panos Z<sup>2</sup>, Lufadeju F<sup>1</sup>, Wiwa O<sup>1</sup>, Amole C<sup>2</sup>, Etiobhio E<sup>3</sup>, Atu U<sup>3</sup>, Mohammed P<sup>3</sup>, Ikpeazu A<sup>3</sup>, Bashorun A<sup>3</sup>, Lawal I<sup>4</sup>, Shehu A<sup>5</sup>, Elemuwa U<sup>5</sup>, Jajere F<sup>5</sup>, Fraden B<sup>5</sup>, Adeyeye M<sup>5</sup>, Ufot A<sup>6</sup>, Iduh P<sup>7</sup>, Emembolu-Dike J<sup>8</sup>, Essien P<sup>9</sup>, Akintan P<sup>10</sup>, Wadata H<sup>11</sup>, Abaneme C<sup>12</sup>, Urama B<sup>13</sup>, Usha T<sup>14</sup>, Agbaji O<sup>7</sup>, Akanmu S<sup>10</sup>, Lawal U<sup>15</sup>, Ochigbo S<sup>6</sup>

<sup>1</sup>Clinton Health Access Initiative, Abuja, Nigeria, <sup>2</sup>Clinton Health Access Initiative, Boston, United States of America, <sup>3</sup>National AIDS, Viral Hepatitis and STI Control Programme, Federal Ministry of Health, Abuja, Nigeria, <sup>4</sup>U.S. Department of Defense, Abuja, Nigeria, <sup>5</sup>National Agency for Food & Drug Administration & Control, Abuja, Nigeria, <sup>6</sup>University of Calabar Teaching Hospital, Calabar, Nigeria, <sup>7</sup>Jos University Teaching Hospital, Jos, Nigeria, <sup>8</sup>Federal Medical Centre Makurdi, Makurdi, Nigeria, <sup>9</sup>Primary Health Centre Base Uyo, Uyo, Nigeria, <sup>10</sup>Lagos University Teaching Hospital, Lagos, Nigeria, <sup>11</sup>Sokoto Specialist Hospital, Sokoto, Nigeria, <sup>12</sup>Military Hospital Port Harcourt, Port Harcourt, Nigeria, <sup>13</sup>Global Health Supply Chain – Procurement and Supply Management, Abuja, Nigeria, <sup>14</sup>United States Agency for International Development, Abuja, Nigeria, <sup>15</sup>Ahmadu Bello University Teaching Hospital, Zaria, Nigeria

**Background:** Before 2020, access to DTG was limited among children due to the unavailability of

a suitable pediatric formulation despite evidence of safety and efficacy among adults. A generic DTG10mg (pDTG) was approved in 2020, and Nigeria was an early adopter country. The country commenced a phased transition of eligible children from an LPV/r-based to a pDTG-based regimen in 2021. This study reports the clinical outcomes of children initiated on pDTG in the first implementation phase and lessons to inform the national scale-up.

**Materials and Methods:** The study was conducted in 7 selected ART sites among children living with HIV (CLHIV) weighing > 3kg to <20kg initiated/transitioned to pDTG and their caregivers. The enrollment period was from September 2021 to January 2022, with a 12-month follow-up period for participants. The experience of CLHIV/caregiver was assessed using a structured questionnaire at months 1, 6, and 12 post-initiation, and clinical outcomes (anthropometric measurements, side effects, viral load, random blood sugar (RBS), and lipid profile) were measured at initiation and months 6 and 12 post-initiation. The anthropometric data was analyzed using STATA Zanthro package, and other data were analyzed using SAS 9.4.

**Results:** A total of 180 CLHIV were enrolled in the study. The mean age was 4.7 years (SD 2.2), 53% were female, and 98% were treatment-experienced. Among study participants with baseline BMI for age results, 13% were wasted/severely wasted, and this percentage was reduced to 5% at month 12. Also, 26% were either overweight or obese at baseline, and this increased to 33% at month 12. The commonest side effects reported at month 12 were increased appetite(23%) and hyperactivity(10%). The percentage of participants who had viral load results <50 copies/ml increased from 66% at baseline to 90% at month 12, and the mean RBS result decreased from 4.9mmol/l to 4.6mmol/l. There were no documented cases of hyperglycemia.

**Conclusions:** We conclude that pDTG is safe and efficacious and has the potential to reduce morbidity and mortality among children living with HIV in Nigeria. The drug can be scaled up with minimal concerns around safety; however, ongoing pharmacovigilance is advised in line with national recommendations.



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## Effect of Differentiated Models of Service Delivery for HIV Treatment on Healthcare Worker Time Spent with ART Clients: Retrospective Cohort and Time and Motion Analysis

Lekodeba N<sup>1</sup>, Ntjikelane V<sup>1</sup>, Mokgethi O<sup>1</sup>, Benade M<sup>1,2,3</sup>, Sande L<sup>1</sup>, Mokhele I<sup>1</sup>, Ngcobo N<sup>1</sup>, Shumba K<sup>1</sup>, Nichols B<sup>1,2</sup>, Jamieson L<sup>1</sup>, Huber A<sup>1</sup>, Pascoe S<sup>1</sup>, Rosen S<sup>1,3</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, University of Witwatersrand, Johannesburg, South Africa,

<sup>2</sup>Amsterdam University Medical Center, Department of Medical Microbiology, , Netherlands,the, <sup>3</sup>Boston University, School of Public Health, Department of Global Health, , United State of America

**Background:** Differentiated service delivery (DSD) models, which reduce the frequency of clinic interactions for clients and been shown not to jeopardize health outcomes, are hypothesized to reduce the overall amount of time providers spend per antiretroviral therapy client per year, increasing service delivery efficiency. We compared the average number of interactions and provider time spent with clients on antiretroviral treatment (ART) per year between DSD and conventional models of care in South Africa.

**Materials and Methods:** From 09/2022-11/2023, we conducted a time and motion study with providers and a retrospective review of client medical records at 18 primary healthcare clinics in South Africa. The number of clinic interactions and provider time by interaction type were recorded per client and stratified by the client's ART delivery model (1) remaining in conventional care but eligible for DSD; 2) facility-based medication pickup points; 3) external/community medication pickup points.

**Results:** 635 ART clients (75% female, median age 41) were enrolled, with 54% in conventional care, 20% in facility pickup points, and 26% in external pickup points. We observed nurses (n=72) and pharmacy assistants (n=3) for 143 working days. Clients in facility pickup points and external pickup points averaged 1.4 and 1.5 full clinic visits/client/year, respectively. Those in conventional care had an average of 1.8 full clinic

visits/client/year. Clients in conventional care required more provider time on average (58.6 minutes/client/year) for combined consultation/medication collection visits compared to those enrolled in facility pick-up points (18.0 minutes/client/year) and external pick-up points (17.2 minutes/client/year). Overall, compared to those eligible for DSD but enrolled in conventional care, clients using facility pickup points and external pickup points had 1.4 and 2.2 fewer average clinic interactions per year, respectively, and used 71% less provider time/client/year.

**Conclusions:** The shift of ART clients, who are eligible for DSD models, from conventional care into DSD can reduce annual provider time by as much as 70% per client, reducing pressure on the healthcare workforce. The impact of DSD models on clinic efficiency and resource utilization will depend on how the freed-up provider time is utilized as uptake of DSD models expands.

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## Factors Associated with Completion of Intensive Adherence Counseling Sessions Among Virologically Non-suppressed HIV Positive Patients on ART at Fort Portal Regional Hospital, Uganda (A Cross-Sectional Study)

Okot P<sup>1</sup>, Babirye J<sup>2</sup>, Ssenyonga R<sup>2</sup>, Izudi J<sup>3</sup>, Ssebunya R<sup>1</sup>, Akoby W<sup>1</sup>, Mugume A<sup>1</sup>, Kiragga D<sup>1</sup>  
<sup>1</sup>Baylor Uganda, Kampala, Uganda, <sup>2</sup>Makerere University School of public health (MakSPH), Kampala, Uganda, <sup>3</sup>Infectious Diseases Institute (IDI), Kampala, Uganda

**Background:** In people living with HIV (PHIV) receiving anti-retroviral therapy (ART) with Non-suppressed viral load, intensive adherence counseling sessions (IAC) are vital for timely clinical decisions, reduction of mortality, morbidity, and cost of ART. Despite training and mentorships of health workers, completion of IAC remains low in Uganda (67%). Moreover, data on risk factors for non-completion of IAC are scarce.





This study explored factors associated with the completion of IAC among non-suppressed HIV-positive patients on ART at Fort Portal Regional Hospital.

**Materials and Methods:** This was a cross-sectional design. Non-suppressed HIV-positive patients on ART at Fort Portal Hospital from January 2018 to September 2019 were randomly selected for study. A pre-tested semi-structured questionnaire and data abstraction were used for data collection by trained research assistants. Data was analyzed by STATA. Modified Poisson regression analysis with robust standard errors at 95% CI was used. 15 key informants were purposively interviewed till saturation, interviews audio recorded and transcribed verbatim. Data were analyzed by content analysis and summarized into themes.

**Results:** Out of 420 participants, 204 (48.6%) were aged 20-39 years, 243 (57.9%) were females and 177 (42.1%) completed IAC sessions. At multivariable analysis, IAC completion was 21.0% lower among participants with secondary or beyond the level of education compared to those without formal education (aPR, 0.79; 95% CI, 0.64-0.98;  $p = 0.031$ ), among those not followed up, IAC completion was 24.0% lower compared to those followed up (aPR, 0.76; 95% CI, 0.67-0.87;  $p < 0.001$ ), and among malnourished, the prevalence of IAC completion was 35.0% lower compared to well-nourished (aPR, 0.65; 95% CI, 0.43-0.99;  $p = 0.046$ ). However, it was 23.0% higher among the separated/widowed or divorced than single or never married (aPR 1.23; 95% CI, 1.01-1.49;  $p = 0.042$ ). Qualitatively, patient tracking, pre-appointment cues, health education, and home-based IAC were facilitators; whereas unfriendly health facility settings, poorly filled IAC tools, group IAC, transport, and multiple caretakers were barriers.

**Conclusions:** 67.1% IAC completion was low compared to 100% MOH-Uganda and associated with education, malnutrition, marital status, peer-led follow-up, home-based IAC, appointment tracking, health system, and patient socio-economic hindrances. We recommend nutritional assessment, differentiated IAC, and further research.

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## Place de l'Éducation Thérapeutique du Patient (ETP) dans le suivi des Personnes vivant avec le VIH sous Traitement ARV : Cas des hommes ayant des rapports sexuels avec d'autres hommes, des travailleuses de sexe et leurs index vivant avec le VIH au Mali

Ag Alitini A<sup>1</sup>, Tall M<sup>2</sup>, Keita M<sup>3</sup>, Djbril B<sup>4</sup>  
<sup>1</sup>Soutoura, Mali, <sup>2</sup>FHI360, Bamako, Mali, <sup>3</sup>CSSLTBH, Bamako, Mali, <sup>4</sup>USAID, Bamako, Mali

**Contexte:** Le suivi des personnes vivant avec le VIH initiées au traitement ARV est un aspect important pour arriver à une charge virale durablement supprimée et à une réduction considérable des cas de résistance aux substances antirétrovirales. Pour atteindre cet objectif, le programme EpiC au Mali a focalisé ses interventions de suivi des PVVIH sur l'ETP dans les régions de Bamako, Ségou et Sikasso.

**Description:** Pour le suivi correct des travailleuses de sexe et des hommes ayant des rapports sexuels avec d'autres hommes vivant avec le VIH qu'elle encadre SOUTOURA a utilisé l'ETP à travers des activités axées sur les clubs d'observance, les groupes de parole, les réunions de gestion des cas. Des pairs navigateurs formés travaillant sur le projet assurent le soutien à l'observance au traitement ARV des PVVIH en organisant ces activités mensuellement au niveau des 11 cliniques communautaires de l'organisation dans le pays. À l'issue de ces réunions les causes de l'inobservance sont identifiées et des solutions spécifiques sont proposées pour renforcer l'observance de la PVVIH.

**Résultats:** D'octobre 2021 à septembre 2022, SOUTOURA a enregistré 66 cas (37 TS; 16 HSH et 13 EB de TS) des PVVIH avec une charge virale non supprimée dont 25 PVVIH ont moins de 25 ans et 41 ont 25 ans et Plus. Les activités d'ETP ont concernées 108 groupes de Parole dont 36 pour les HSH et 72 pour les TS et leur enfants



biologiques; 24 clubs d'observance et 24 réunions de gestion des cas difficiles ont été réalisées pendant la période. Ces activités ont permis d'obtenir les résultats suivants: Un taux de suppression globale de 77% (51/66) a été obtenu après administration de l'ETP avec une suppression virale à 72% chez les TS et à 93,7% chez les HSH. Les 15 PVVIH qui n'avaient pas supprimé avaient une charge virale comprise entre 4,38 Log et 7,62 Log avant l'ETP; elles ont évolué pour atteindre un intervalle entre 1,90 Log et 2 Log soit un taux de régression de la charge virale à 73%. L'ETP a été renforcée chez les 15 cas après trois mois d'ETP renforcé (ETPr) avec 100% de suppression virale.

**Conclusion:** L'ETP apparaît comme un outil incontournable dans le maintien des PVVIH sous traitement ARV et dans l'amélioration de leur qualité de vie.

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## Spatial Distribution of Clients Reporting for Clinic Appointments and Factors Associated with Missed Appointments at Largest Public ART Clinic in Lilongwe, Malawi: A Retrospective Cohort Study

Tembo P<sup>1,2</sup>, Thawani A<sup>1</sup>, Rambiki E<sup>1</sup>, Chagomerana M<sup>3,4</sup>, Mwapasa V<sup>2</sup>, Hosseinipour M<sup>3,4</sup>, Singogo E<sup>3</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>Kamuzu University of Health Sciences, Department of Community and Environmental Health, Blantyre, Malawi, <sup>3</sup>UNC Project-Malawi, Lilongwe, Malawi, <sup>4</sup>University of North Carolina, Chapel Hill, USA

**Background:** Non-attendance to scheduled clinic appointments in healthcare is often attributed to clinic congestion, long client queues, increased waiting times for patients, and high workload for healthcare workers. We investigated the magnitude of missed clinic appointments, clusters with clients who missed clinic appointments, and factors associated with missed appointments at largest public ART clinic in Lilongwe.

**Materials and Methods:** We conducted a retrospective cohort study at Bwaila-Martin Preuss

Centre the largest public ART clinic in Lilongwe, Malawi, with 25233 clients alive on ART at the end of September 2023. ART data from January 2019 and December 2022 was extracted from electronic medical records system. We applied descriptive statistics and logistic regression to generate summaries. We used STATA 18, QGIS and R packages to analyze the dataset.

**Results:** A total of 3,816 clients were included for analysis, mean age was 32±11 years with 2311 (61%) females. Overall, late reporting for clinic appointments was 2294 (60%). Clients' distribution by missed appointments were 767 (20%) missed-once, 522 (14%) missed-twice, 309 (8%) missed-3times, 230 (6%) missed-4times, 156 (4%) missed-5times and 310 (8%) missed≥6times. Clusters with high number of clients with missed appointments in Lilongwe urban were Area 24 =406 (18%), Area 56 = 240 (10%) and Area 36 = 164 (7%) whilst Chiseka =164(7%), Kalumba =125 (5%) and Mazengera=107(4%) from Lilongwe rural. Missed clinic appointments did not vary by residential area since 1389 (60%) of clients that missed appointments were from Lilongwe urban against 905 (60%) of clients from Lilongwe rural with p-value =0.70.

Factors associated with missed clinic appointments were having pregnancy [OR=1.4, 95%CI:1.1-1.9], breastfeeding [OR=2.0,95%CI:1.1-3.7], starting ART in age ranges; (15-24)years, [OR=1.91, 95%CI: 1.12-3.27]; (25-34)years, [OR=1.95, 95%CI: 1.16-3.28]; taking non-DTG based regimen, [OR=2.65, 95%CI: 1.93-3.66]; Poor ART adherence (drug consumption≤94%), [OR=1.89, 95%CI: 1.60-2.24]; viral load ≥1000 copies/ml, [OR=2.56, 95%CI: 1.38-4.77]; Longer ART duration; (0≤6)months [OR=1.95, 95%CI: 1.50-2.53]; (7-12)months [OR=4.0, 95%CI: 2.94-5.45]; (13-18)months [OR=5.3, 95%CI: 3.83-7.35]; (19-24)months [OR=5.91, 95%CI: 4.39-7.95].

**Conclusions:** Late clinic attendance was associated with pregnancy, breastfeeding, poor ART adherence and unsuppressed viral load. We recommend one-on-one health talks on the importance of adhering to clinical appointments to all clients with missed appointments.



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## Examining and Classifying Reasons for Missing Viral Load Measurements among Adults Living with HIV: An Extended Outcome Investigation and Ascertainment Approach in Western Kenya

Adhiambo H<sup>1</sup>

<sup>1</sup>Kenya Medical Research Institute, Nairobi, Kenya

**Background:** Reports from Sub-Saharan African Countries indicate that only 5% of people living with HIV account for almost two-thirds of the countries' total viral load. To address gaps in viral load monitoring, we conducted a cohort study applying an investigation approach to examine and classify reasons for missed viral load measurements among a cohort of adults living with HIV in Kenya.

**Materials and Methods:** We developed an extended outcome investigation tool to examine missingness and reasons for missed on-time routine viral load monitoring measurements among participants enrolled in the Adaptive Strategies for Preventing and Treating Lapses of Retention in HIV care (AdaPT-R Study; NCT#02338739). We defined missed viral load as no viral load measurement results within 9-15 months in the first year of study and between 21-27 months in the study post ART initiation. Data was collected between March 2016 and September 2019. We used descriptive statistics to determine the prevalence and reasons for missing viral load measurements and a generalized linear model to determine the patient characteristics associated with missed viral load in year 1 and year 2.

**Results:** Among the 1754 study participants investigated, 66.0% were female. The prevalence of missed viral load in years 1 and 2 was 27.6% and 30.4%, respectively. Reasons for missed viral load were being lost to follow-up (51.5% in year 1 and 57.8% in year 2), misinterpretation of viral load guidelines on timing among clinicians (36.7% in year 1 and 32.2% in year 2), unknown reason (10.3% in year 1, and 8.6% in year 2), and viral load requested but there no evidence of sample

collection (1.5% in year 1 and 1.3% in year 2). Patient characteristics associated with missed viral load monitoring included younger ages < 24 years (RR 2.27, 95% CI: 1.66-3.12), higher SES (RR 1.47, 95% CI: 1.03-1.91), receiving HIV treatment at a rural clinic (RR 1.22, 95% CI: 1.02-1.46), and advanced HIV disease (RR 2.39, 95% CI: 1.52-3.73).

**Conclusions:** Innovative, scalable, and sustainable approaches to strengthen timely patient clinical monitoring in accordance with national guidelines are urgently needed to achieve universal viral suppression among patients living with HIV.

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## HIV-1 Viral Load Suppression and Drug Resistance Mutations in persons with HIV on Dolutegravir based regimen in Ndola, Zambia

Luwaya E<sup>1,2</sup>, Mwape L<sup>2,3</sup>, Hamooya B<sup>3,4</sup>, Masenga S<sup>3,4</sup>

<sup>1</sup>Arthur Davison Children's Hospital, Ndola, Zambia,

<sup>2</sup>Mulungushi University, HANDS Research group, Livingstone, Zambia, <sup>3</sup>Serenje District Hospital, Serenje, Zambia,

<sup>4</sup>Vanderbilt Institute for Global Health, Vanderbilt University Medical Center, Nashville, USA

**Background:** An increase in the prevalence of HIV drug resistance (HIVDR) has been reported in recent years, especially in persons on non-nucleoside reverse transcriptase Inhibitors (NNRTIs) due to their low genetic barrier to mutations. However, with the introduction of dolutegravir, there's an increase in HIV viral load (VL) suppression among persons living with HIV (PLWH). We sought to determine the prevalence and correlates of VL suppression in adult PLWH on a fixed-dose combination of tenofovir disoproxil fumarate, lamivudine, and dolutegravir (TLD) or tenofovir alafenamide, emtricitabine and dolutegravir (TAFED) and describe patterns of mutations in individuals failing treatment.

**Materials and Methods:** This was a cross-sectional study that enrolled adult PLWH by random sampling at Arthur Davison Children's Hospital in Ndola, Zambia, between January and June 2023. Demographic, clinical and laboratory data were collected from electronic based and paper based



health information records. Data were analyzed in SPSS V22 using descriptive statistics and logistic regression. HIV Viral suppression was defined as a VL  $\leq 1000$  copies/ml.

**Results:** A total of 384 participants were recruited, 66.1% being females, with median age of 22 (IQR 18, 38) years. VL suppression was 90.9% (95% CI 87.6%-93.6%) after switching to TLD/TAFED. Of the virally suppressed, the majority (67%, n=234) were female. Those who missed  $\geq 2$  doses in the last 30 days prior to the most recent review were less likely to attain viral suppression compared to those who did not miss any dose; AOR 0.075 (95% CI 0.028-0.199;  $p < 0.001$ ), whereas those who were on a PI-based regimen before switching to TLD/TAFED were also less likely to attain viral suppression compared to those who were on NNRTI+NRTI before switching; AOR 0.193 (95% CI 0.057-0.652;  $p = 0.008$ ). Four participants had resistance mutations to lamivudine and tenofovir. The most common NRTI mutations were M184MV and K65R while K101E was the most common NNRTI mutation.

**Conclusions:** Our findings show that viral suppression was high after switching to TLD/TAFED. Adherence to, and type of antiretroviral therapy used before switching to TLD/TAFED were significant correlates of VL suppression. We, therefore, recommend prompt switching of PLWH to TLD/TAFED regimen and close monitoring to enhance adherence to therapy.

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## Favorable Retention in Care Outcomes Among Persons Receiving ART via a Decentralized Pharmacy Dispensation Differentiated Service Delivery Model in Mozambique: A Retrospective Cohort Study in Mozambique

De Schacht C<sup>1</sup>, Belo C<sup>1</sup>, Cabsela C<sup>1</sup>, Efigénia M<sup>2</sup>, Libombo I<sup>3</sup>, Tique J<sup>1</sup>, Matsimbe J<sup>4</sup>, Ynusse M<sup>4</sup>, Wester C<sup>5,6</sup>, Amorim G<sup>7</sup>

<sup>1</sup>Friends In Global Health (FGH), Maputo, Mozambique, <sup>2</sup>Ministry of Health, Provincial Health Directorate Quelimane, Quelimane, Mozambique, <sup>3</sup>Central de Medicamentos e Artigos Médicos, Maputo, Mozambique, <sup>4</sup>Friends in Global Health (FGH), Quelimane, Mozambique, <sup>5</sup>Vanderbilt University Medical Center (VUMC), Department of Medicine, Division of Infectious Diseases, Nashville, United States, <sup>6</sup>Vanderbilt University Medical Center (VUMC), Vanderbilt Institute for Global Health (VIGH), Nashville, United States, <sup>7</sup>Vanderbilt University Medical Center (VUMC), Department of Biostatistics, Nashville, Mozambique

**Background:** As one of the differentiated service delivery models in Mozambique, clinically stable persons with HIV (PWH) can receive antiretroviral therapy (ART) at Ministry of Health-approved public or private pharmacies outside of the health facilities (HF). This decentralized ART distribution model (DADM) initiated in Zambézia Province in July 2021. The objective of this evaluation was to assess the model's effect on retention in care, compared to HF-based ART dispensation.

**Materials and Methods:** A retrospective cohort study with a 3:1 (propensity score) matched population ( $\geq 15$  years of age; matched on time on ART, sex and HF) eligible for the DADM (i.e., adherent to ART) and receiving 3-month dispensation was done at three urban HF that were linked to seven public/ private pharmacies in the provincial capital Quelimane. Individual-level data were extracted from the electronic medical record database from July 2021-March 2023. PWH were considered retained in care at 12 months if they had at least one ART pick-up within 121-180 days after eligibility to the DADM model. Conditional logistic regression analysis estimated the effect on retention in care (adjusted for age



and sex), and Cox regression analysis estimated hazard ratio (HR) of loss to follow-up.

**Results:** Matched data included 2968 adults, 41.6% female, median age 30 years (IQR 25-39). Overall, 12-month retention in care rate was 81.9% (88.4% at public/ private pharmacies, versus 79.7% at HF). Adjusted analysis showed that PWH receiving ART at private/ public pharmacies were about twice as likely to be retained at 12 months (adjusted Odds Ratio [aOR] 1.95 [95%CI: 1.51-2.52]; p-value<0.001) and have approximately 70% reduced risk of being lost to follow-up (HR 0.27 [95%CI: 0.19-0.39]; p-value<0.001), compared to those obtaining/picking up their ART at the HF.

**Conclusions:** PWH receiving ART via DADM had improved retention in care rates compared to the standard HF-based dispensation approach, highlighting the importance of public-private partnerships, as well as the promotion of person-centered care via the availability of DSD options, in contributing to improvement of HIV outcomes.

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## Assessing the Back-to-Care Campaign Services on HIV Client's Treatment Retention: A Retrospective Study in Ghana

**Nartey D**<sup>1</sup>, Azugue T, Adiibokah E, Tagoe H, Issifu Z<sup>1</sup>, Amihere F<sup>2</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>  
<sup>1</sup>JSI, Takoradi, Ghana, <sup>2</sup>Ghana Health Service, Sekondi-Takoradi, Ghana

**Background:** The back-to-care (B2C) campaign is an initiative aimed at improving the retention of clients in HIV treatment programs in Ghana. Providing integrated person-centered services that address health literacy, financial barriers, psychosocial needs, ARV side effects, and social support systems faced by PLHIV improves their health status. The B2C campaign involved a series of interventions such as health education, client tracking and follow-up, differentiated service provision approaches based on client's needs, and strengthening of health systems. This study assesses the impact of the campaign on the treatment retention and viral load (VL) status

across the Western, Western North, and Ahafo regions.

**Materials and Methods:** We conducted a retrospective analytical study on clients brought B2C through a rigorous campaign. Trained HIV counselors tracked interrupted treatment clients using mobile telephoning counseling. The campaign period was from April 2022 to September 2022. The team tracked clients to ensure the completion of enhanced adherence counseling sessions. We extracted data from the HIV E-tracker system for clients as of October 2023 using unique identification numbers. The team conducted a gender-disaggregated descriptive analysis including client retention and VL status.

**Results:** Among the 1,177 clients' records reviewed who returned to treatment (RTT) as of September 2023, 73% (846) were female. The age ranged between 3 and 83 years with a mean age 38.18 years and SD 13.15. Geographically, 72% of clients were from Western, 16% Ahafo, and 11% Western North. Key populations (KP) were in the minority representing 4% (49). The study found 85% (1006) were active on treatment while 55% (648) of RTT clients remained consistently active with no interrupted treatment compared with 45% (499) experienced interruption at different stages and 3% (30) had died. Further analysis demonstrates that 648 consistent clients who never interrupted treatment, 54% (349) had done viral load tests with 84% (292) having their VL suppressed.

**Conclusions:** The study shows a high proportion of RTT clients remained in care indicating the campaign's effectiveness. The results provide insights that can guide future efforts in improving retention of clients for KPs in Ghana and other similar resource-limited settings focusing on providing person-centered integrated services for KPs



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## Retention Outcomes Among Malawian ART Clients Who Are Back to Care Following an Interruption in Treatment

Smith D<sup>1,2</sup>, Chikuse E<sup>1</sup>, Banda T<sup>1</sup>, Njala J<sup>1</sup>, Lichenya J<sup>1</sup>, Hoffman R<sup>2</sup>, Phiri S<sup>1,3</sup>, van Oosterhout J<sup>1,2</sup>, Chivwara M<sup>1</sup>

<sup>1</sup>Partners in Hope, Lilongwe, Malawi, <sup>2</sup>University of California Los Angeles (UCLA), Department of Medicine, Los Angeles, USA, <sup>3</sup>Kamuzu University of Health Sciences, School of Global and Public Health, Lilongwe, Malawi

**Background:** Sustained antiretroviral therapy (ART) is critical for optimizing health outcomes and HIV epidemic control. The Malawi Ministry of Health and its HIV clinical partners implement a robust back to care program for clients who have an interruption in treatment (IIT), defined as being >28 days late for an ART refill appointment. However, the effectiveness of these programs for short- and medium-term retention after IIT is uncertain.

**Materials and Methods:** Partners in Hope (PIH) is a Malawian, non-governmental organization, supporting HIV Care and Treatment across 9 districts in Malawi. From January 2021, PIH offered a comprehensive package of interventions to clients across 74 health facilities who returned to care after an interruption in treatment. Pivotal in this package is the assignment to an individual Case Manager, a lay cadre staff trained in health education and HIV counseling. Case Managers provide intensive individual counseling and psychosocial support with a non-judgmental, welcoming approach, appointment reminders and phone and/or home follow-up 7 days after a missed appointment prior to re-interruption. PIH evaluated aggregated cohort program data to determine client outcomes at 3, 6 and 12 months after return to care from an IIT episode.

**Results:** From January 2021 to September 2022, 32,732 clients (adults and children) returned to care after IIT. Among these clients, by 3 months, 27,758 (84.8%) were retained, 3,509 (10.7%) re-interrupted, 1,320 (4.0%) transferred out, 122 (0.4%) died, and 23 (0.1%) stopped ART. By 6 months: 23,873 (72.9%) were retained, 6,540 (20.0%) re-interrupted, 2,010 (6.1%) transferred out, 205 (0.6%) died, 38 (0.1%) stopped ART and

66 (0.2%) had unknown outcomes. By 12 months, 19,616 (59.9%) were retained, 9,804 (30.0%) re-interrupted, 2,825 (8.6%) transferred out, 307 (0.9%) died, 50 (0.2%) stopped ART and 130 (0.4%) had unknown outcomes.

**Conclusions:** Despite comprehensive interventions, 30% of clients re-interrupted treatment within 12 months after re-engagement. Further research is needed to fully understand the characteristics of these clients to design interventions that respond better to their needs and challenges. Meanwhile, screening for and addressing known risk determinants is taking place, including those related to mental health, gender-based violence and mobility.

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## Do the Current Enhanced Adherence Counseling Intervention Influence HIV Viral Load Suppression Among Unsuppressed Clients in Nigeria? Findings From a Multi-Center Quasi-Experimental Study

Omo-Emmanuel U<sup>1</sup>, Asaolu O<sup>1</sup>, Obiora-Okafo C<sup>1</sup>, Idemudia A<sup>1</sup>, Ogundehin D<sup>1</sup>, Oyelaran O<sup>1</sup>, Goldstein R<sup>1</sup>, Anika O<sup>2</sup>, Airiagbonbu B<sup>3</sup>

<sup>1</sup>USAID, Abuja, Nigeria, <sup>2</sup>FHI360, Uyo, Nigeria, <sup>3</sup>Heartland Alliance Ltd/Gte, Lagos, Nigeria

**Background:** The World Health Organization currently encourages enhanced adherence counseling (EAC) for human immunodeficiency virus (HIV) seropositive people on Antiretroviral therapy with a high viral load count (>1000 copies/mL) before a treatment switch to the second-line regimen, yet little is known about viral load suppression after the outcome of enhanced adherence counseling. Therefore, this study aimed to assess viral suppression status (VLS) after enhanced adherence counseling sessions and its predictors among high viral load HIV positive people.



**Materials and Methods:** A quasi-experimental design was employed for this study. The population consisted of purposively selected 741 clients with unsuppressed HIV viral load (>1000 copies/mL) enrolled on ART. The participants were drawn from 200 service delivery sites across 17 USAID supported states in Nigeria from October 2022 to June 2023. There were two experimental groups: physical EAC and virtual EAC. Physical EAC group received three in-person sessions while the virtual EAC group received three online sessions. Data were collected before and after EAC intervention. Data were analyzed using descriptive and inferential statistics at 0.05 level of significance.

**Results:** A total of 595 clients (63% Females [376]; 37% Males [219]) from 741 clients with unsuppressed HIV viral load (>1000 copies/ml) participated in the study. The mean age was 35.22 years  $\pm$  14.56, ART duration was 6.5 years  $\pm$  4.25 and average duration on EAC was 1.85 months  $\pm$  0.80. Most participants (460/595, 77%) participated in physical EAC while (135/595, 22%) participated in virtual EAC sessions. The average viral load count among physical EAC group decreased from 212,350 to 199,838 copies/mL while virtual EAC group decreased from 187,378 to 120,309 copies/mL. Overall, there was no significant decrease in the mean of viral load count from 206,684 to 181,794 copies/ml  $\pm$  24,751 ( $P > 0.005$ ).

**Conclusions:** The observed results showed that EAC did not have an impact on the VLS among high viral load HIV positive people between pre and post EAC intervention. The findings have implications for reviewing the enhanced adherence counseling intervention currently being implemented in Nigeria.

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## Improving the Offering of Timely Intensive Adherence Counselling Sessions to People Living with HIV With High Viral Load Through Community Intensive Adherence Counselling Sessions

Esele Atubu B<sup>3</sup>, Ogwang C<sup>3</sup>, Ikaka C<sup>3</sup>, Catherine A<sup>3</sup>, Mikago P<sup>1</sup>

<sup>1</sup>Uganda Protestant Medical Bureau, Kampala, Uganda,

<sup>2</sup>Uganda Moslem Medical Bureau, Kampala, Uganda, <sup>3</sup>The AIDS Support Organisation, Kampala, Uganda

**Background:** Viral load suppression is a goal of offering ART. TASO-Tororo with 8100 active clients under her care spread over a radius of 75kms. A total of 166 clients have a non-suppressed viral load. Only 40% of the non-suppressed clients successfully complete the required 3 intensive adherence counselling sessions largely because of lack of funds to travel monthly to the health facility for these sessions additionally only 56% of those rebleed for viral load achieve suppression. The community I.A.C approach was piloted in five locations with 34 clients. This analysis assesses the impact of community I.A.C on suppression after I.A.C among clients with a high viral load above 1000 copies/ml.

**Materials and Methods:** The community I.A.C model works by bring the sessions closer to the clients with high viral load. The clients from a particular sub county agree on a venue that is easily accessible, they select a group leader and convenient time to meet at least once monthly. A team of clinicians and counsellors visit these groups on the agreed days and time. The sessions are entirely dominated by the clients who share the various barriers to adherence and come up with various actions to overcome them. These are later documented in the client's files and the process repeated for three consecutive times before a repeat Viral load is done.

**Results:** In a cohort of 34 clients initiated on IAC, all completed the three IACs and advance HIV disease screening. 94% (32 clients) achieved viral load suppression after the community IAC.



Lessons Learnt: Adopting community-based interventions aids in IAC completion and viral load suppression. The client led intervention enabled clients jointly address and identify common barriers, offered peer support to each other which helped lead to the desired outcome.

The clients who benefit from this model become adherence champions because of the vast knowledge on adherence barriers from fellow clients and the clinical teams.

**Conclusion:** Community I.A.C intervention improved on successful completion of the I.A.C cascade and viral load suppression after I.A.C. The approach is entirely client centered making it effective, sustainable and serves both adult and children populations.

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## Perception and Attitude of the Youth Living with HIV/AIDS on the Use of ART and CPT at Baylor-foundation COE-Malawi- A Qualitative study

Jobo K<sup>1</sup>

<sup>1</sup>Baylor College Of Medicine, Lilongwe, Malawi, <sup>2</sup>KUHES, lilongwe, Malawi

**Background:** Adherence to ART and CPT remains a major problem in Malawi. Lack of knowledge about ART and CPT has been found to contribute to poor adherence among the youths living with HIV (YLWHIV) in Malawi. Previous studies have not concentrated on perception and attitude on ART and CPT but have mostly explored knowledge as well as factors affecting adherence to ART and CPT on all age groups. We also observed CPT dumping at COE clinic. Aim of this study was to determine perception and attitude of the YLWHIV on the use of ART and CPT.

**Materials and Methods:** This was a cross-sectional qualitative study conducted at Baylor College of medicine children's foundation center of excellence clinic between January and March 2022. We conducted 35 in-depth interviews of YLWHIV attending the clinic. Participants were purposively selected and data was recorded digitally and on papers. Data was transcribed,

translated, coded and thematically analyzed followed by hypothesis testing. Four major themes that explore the positive and negative perception and attitude among YLWHIV on CPT and ART emerged from the study.

**Results:** 35 YLWHIV with a median age of 18 ([IQR] 16 - 20) participated in the study, 15 males and 20 females. All participants had knowledge on ART. However, their knowledge on CPT was poor with only 7 participants demonstrating knowledge on CPT. 31 take both ART and CPT and 4 take ART only. 28 participants take as advised whereas 7 participants do not take as advised by the medical personnel. Many expressed that CPT is irrelevant and a burden. Some demonstrated a negative attitude towards CPT "that it is useless". Thus, one can stop CPT and still be fine.

**Conclusions:** We observed lack of knowledge, poor attitude and perception about use of CPT among the YLWHIV which also explains the CPT dumping observed at COE clinic. We recommend that YLWHIV should be provided with comprehensive information on use of CPT.

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## Prevalence of Protease Inhibitor Mutations among HIV Positive Participants in Botswana: Insights from the Botswana Combination Prevention Project

Pema M<sup>1</sup>, Maruapula D<sup>1,2</sup>, Ditshwanelo D<sup>1,2</sup>, Moraka N<sup>1,2</sup>, Ndlovu N<sup>1,3</sup>, Ontlametse B<sup>1,2</sup>, Mokgethi P<sup>1,2</sup>, Chonga W<sup>1,2,6</sup>, Zuze B<sup>1,2</sup>, Koofitlhetse C<sup>1,4</sup>, Moyo S<sup>1,2,4,5</sup>, Gaseitsewe S<sup>1,2,4</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana, <sup>2</sup>School of Allied Health Professions, Faculty of Health Sciences, University of Botswana, Gaborone, Botswana, <sup>3</sup>Department of Biological sciences and Biotechnology, Botswana International University of Science and Technology, Palapye, Botswana, <sup>4</sup>Department of Immunology and Infectious Diseases, Harvard University T.H. Chan School of Public Health, Boston, United States of America, <sup>5</sup>School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa, <sup>6</sup>Division of Medical Virology, Faculty of Medicine and Health Sciences, Stellenbosch, Stellenbosch, South Africa





**Background:** The use of protease inhibitors (PIs) in Botswana has immensely contributed to the management of HIV, however, there is limited data on PI drug resistance profiles. We explored the prevalence of PI-associated resistance mutations from the Botswana Combination Prevention Project (BCPP).

**Materials and Methods:** A total of 6075 proviral HIV-1 pol region sequences were included in this analysis. All sequences were screened for hypermutations using the Los Alamos database-Hypermut tool. The Stanford University HIV Drug Resistance Database was used to interpret PI mutations for both ART naïve and experienced individuals.

**Results:** Out of a total of 6075 participants, 1281(21.1%) were ART naïve, 4779(78.7%) were ART experienced. Majority (70.7%) of the participants were females. The overall prevalence of PI mutations was 0.92% (44/4779). Eight out of the 1281(0.6%) ART naïve participants had PI mutations, while 36/4779(0.8%) ART-experienced participants had PI mutations. The most prevalent PI mutations amongst the naïve group were (M46I, n=5) and (L90M, n=2) followed by D30N and M46L observed in one participant each. The most prevalent PI mutations amongst ART experienced participants were [(D30N, n= 8), (M46I, n= 9), (M46I, D30N, n=8), (M46L, n=9)] and L90M, N88S observed one participant each.

Among the ART-experienced participants with PI mutations and regimen data, 9/34 (26.5%) were on Integrase Strand Transfer Inhibitors (INSTI), 23/34(67.6%) were on Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI) and 2/34(5.9%) were on PI-based regimen. Thirty-three of the 36 participants with PI mutations had a viral load of  $\leq$  400 copies per/mL, while 3 had a viral load  $>$ 400 copies per/mL. Multi-drug resistance was observed within participants with PI resistance, 9 (25%) had NRTI mutations, 13(36.1%) had NNRTI and 4(11.1%) had INSTI mutations.

**Conclusions:** We report a relatively low prevalence of PI-associated mutations in ART-experienced and naïve individuals in Botswana. Our results also suggest that ART-experienced participants are at risk of developing multi-drug resistance and therefore require intensive monitoring.

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## Lessons Learnt from Implementing the Hub and Spoke Differentiated Service Delivery Model for Antiretroviral Therapy in Cross River, Nigeria

**Usang S**<sup>1</sup>, Ezissi C<sup>2</sup>, Odey K<sup>2</sup>, Agada P<sup>1</sup>, Omeh O<sup>1</sup>, Agu K<sup>1</sup>, Oqua D<sup>1</sup>, Effiong E<sup>1</sup>, Umama J<sup>2</sup>, Effiong E<sup>3</sup>, Akpan U<sup>2</sup>, Okolo C<sup>2</sup>, Nwanja E<sup>2</sup>, Unimuke M<sup>2</sup>, Onwah O<sup>2</sup>, Toyo O<sup>2</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Obiora-Okafo C<sup>4</sup>, Idemudia A<sup>4</sup>, Nwadike C<sup>4</sup>, Kakanfo K<sup>4</sup>, Pius B<sup>4</sup>, Onimode B<sup>4</sup>, Raji A<sup>5</sup>, Oyawola B<sup>4</sup>, Kagniniwai B<sup>5</sup>, Asaolu O<sup>4</sup>, Bashorun A<sup>6</sup>, Gambo A<sup>7</sup>, Onime D<sup>4</sup>, Pius J<sup>4</sup>, Oyelaran O<sup>4</sup>, Goldstein R<sup>4</sup>, Onyednachi O<sup>2</sup>, Adegboye A<sup>2</sup>, Eyo A<sup>2</sup>

<sup>1</sup>Howard University Global Initiative, Nigeria, Calabar, Nigeria,

<sup>2</sup>Excellence Community Education Welfare Scheme (ECEWS),

Uyo, Nigeria, <sup>3</sup>Cross River State Primary Health Care

Development Agency (CRS PHCDA), Calabar, Nigeria, <sup>4</sup>Office of

HIV/AIDS and TB, United States Agency for International

Development., Abuja, Nigeria, <sup>5</sup>Office of HIV/AIDS, United

States Agency for International Development (USAID),

Washington DC, USA, <sup>6</sup>National AIDS, Sexually Transmitted

Infections Control and Hepatitis Programme (NASCP), Federal

Ministry of Health, Abuja, Nigeria, <sup>7</sup>National Agency for the

Control of AIDS (NACA), Abuja, Nigeria

**Background:** National HIV programs need to be more sustainable and efficient in the context of declining donor funding. The Hub-and-Spoke Differentiated Service Delivery (DSD) model for Antiretroviral Therapy (ART) was introduced in 2021, leveraging primary healthcare facilities (PHFs) to enhance sustainability and efficiency. This paper describes lessons learnt from implementing the model in Cross River State, Nigeria.

**Description:** The implementation involved four steps: review of program ART data and National policies on ART delivery; identification of barriers to optimal ART service delivery; defining the target population for the hub-and-spoke DSD model; and implementing the model based on the four building blocks of “What” services will be differentiated, and “When”, “Where” services will be provided, and “Who” provides the services. Pre-implementation activities involved stakeholder engagement, mapping of spoke PHFs to the hub facilities, and baseline assessment of the spokes for basic requirements including: audio-visual



privacy in service areas, availability of  $\geq 2$  healthcare workers (HCWs), secure storage for antiretroviral/opportunistic infection medications, and HCWs' willingness to participate. PHFs which met all requirements were activated as spokes, and their HCWs trained; data capturing/reporting tools were deployed, and willing clients were devolved for ART services. Continued onsite capacity building and on-the-job training were provided to HCWs at the spokes. The number of spokes providing ART services, and number of clients devolved were assessed as of May 2023.

**Lessons Learnt:** In total 239 PHFs were assessed: 76% (n=181) had audio-visual privacy, 43% (n=102) had  $\geq 2$  HCWs, 49% (n=118) had secure storage facilities, and 38% (n=91) were willing to participate. Eighty-four (35%) facilities that met all requirements were activated. Forty-six months post-activation, 90% (n=76) of spokes provided ART services with 1,753 devolved clients. Despite ART being a basic health service <40% PHFs met the minimum requirements to provide ART services. In addition, >60% of assessed sites were unwilling to participate in integrating ART with existing service delivery.

**Conclusion:** The hub-and-spoke DSD model was successfully implemented in this setting, and enhanced ART service delivery for recipients of care. Further investigation of factors affecting HCWs willingness to participate in implementing this model is recommended.

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## Reasons for Enrollment in the Private Pharmacy Decentralized Antiretroviral Distribution Model in Cameroon and Mozambique

Nishimoto L<sup>1</sup>, Maranga A<sup>2</sup>, Bidashimwa D<sup>1</sup>, Filimao D<sup>3</sup>, Chang J<sup>4</sup>, Voutsas G<sup>5</sup>, Couto A<sup>6</sup>, Gaspar I<sup>6</sup>, Mussa M<sup>7</sup>, Libombo I<sup>7</sup>, Mbeve N<sup>8</sup>, Parker C<sup>1</sup>, Sacur D<sup>2</sup>, Bateganya M<sup>9</sup>, Carpenter D<sup>1</sup>

<sup>1</sup>FHI 360, USA, <sup>2</sup>FHI 360, Mozambique, <sup>3</sup>USAID,

Mozambique, <sup>4</sup>USAID, USA, <sup>5</sup>USAID, Cameroon,

<sup>6</sup>National HIV/STI Control Program, Mozambique,

<sup>7</sup>Central Medical Stores (CMAM), Mozambique, <sup>8</sup>National

Medicines Regulatory Authority, Mozambique, <sup>9</sup>USAID, Tanzania

**Background:** As countries move toward epidemic control, differentiated strategies are needed to support people living with HIV to continue treatment and maintain viral load suppression. Decentralized antiretroviral (ARV) drugs distribution (DDD) through private pharmacies was piloted in the eleven provinces of Mozambique in July 2021, and in Yaoundé and Douala, Cameroon in February 2023 by the Ministries of Health of each country. Supported by the Meeting Targets and Maintaining Epidemic Control (EpiC) project and funded by the United States Agency for International Development (USAID), this pilot sought to understand client experiences using DDD through private pharmacies to inform tailoring of differentiated care models.

**Materials and Methods:** The survey was conducted in three provinces in Mozambique (May–June 2023), and in both cities in Cameroon (August–September 2023), with enrolled clients who have refilled ARV through DDD at least once. Clients in Mozambique (120) and in Cameroon (53) were surveyed through in-person interviews. Convenience sampling was used to select clients from each participating pharmacy. Descriptive analysis was conducted.

**Results:** In Cameroon, enrollment reasons cited were 81% (43) expected shorter wait time; 77% (41) more flexible hours; and 41.5% (22) perceived increased confidentiality. Among those who reported having missed a refill appointment before DDD enrollment, 50% (8/16) cited not having enough time and 12.5% (2/16) cited inability to take off from work as reasons. Through free response for satisfaction reasons, there was no mention of cost while 32.1% (17) mentioned staff professionalism and friendliness and 22.6% (12) mentioned confidentiality.

In Mozambique, enrollment reasons included avoiding large crowds (37%; 89), shorter wait times (29%; 71), and shorter travel time (26%; 64), with only 4% (10) citing cheaper transportation costs. Most (98.3%) agreed that pharmacy staff were friendly, respectful, and competent. Reasons were similar across age groups and sex in both countries. Transport cost reduction was an insignificant reason.

**Conclusions:** Key reason for enrollment were reduced and flexible time commitment. Perception of staff professionalism and friendliness was also important. Service delivery models that reduce client time commitment should be expanded along with friendly services. More research on barriers and enablers for treatment continuity is needed.



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## HIV Care Uptake and Retention Among Pregnant and Postpartum Women Living with HIV in Sub-Saharan Africa Before and After Option B+: A Systematic Review and Meta-Analysis

Jinga N<sup>1</sup>, Hwang C<sup>1,2</sup>, Clouse K<sup>3,4</sup>, Ngcobo N<sup>1</sup>, Nattey C<sup>1</sup>, Mbwele B<sup>5</sup>, Beestrum M<sup>6</sup>, Huffman M<sup>7,8</sup>, Fox M<sup>1,9</sup>, Maskew M<sup>1</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, University of the Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Department of Medicine, Stanford University School of Medicine, Nashville, USA, <sup>3</sup>Vanderbilt University School of Nursing, Nashville, USA, <sup>4</sup>Vanderbilt Institute for Global Health, Vanderbilt University Medical Center, Nashville, USA, <sup>5</sup>Department of Epidemiology, University of Dar es Salaam Mbeya College of Health and Allied Sciences, Mbeya, Tanzania, <sup>6</sup>Galter Health Sciences Library, Northwestern University Feinberg School of Medicine, Chicago, USA, <sup>7</sup>Division of Cardiology, Department of Medicine, Washington University School of Medicine in St. Louis, St. Louis, USA, <sup>8</sup>The George Institute for Global Health, University of New South Wales, Sydney, Australia, <sup>9</sup>Department of Global Health, Boston University School of Public Health, Boston, USA

**Background:** The Option B+ guidelines which expanded lifelong antiretroviral therapy (ART) to all pregnant women living with HIV (WLWH), regardless of CD4 count, represent an early and key development in the treat-all era. However, retention in HIV care remains challenging, particularly among postpartum women. This systematic review and meta-analysis summarize updated data from 2010 to 2023 and assesses how uptake and retention rates among pregnant and postpartum WLWH in sub-Saharan Africa changed as countries transitioned to Option B+.

**Materials and Methods:** We systematically searched PubMed, Embase, Cochrane Library, Scopus, and African Index Medicus from 10/2021-03/2022 (updated 06/2023). We included studies measuring uptake/retention in HIV care for pregnant/post-partum women in any sub-Saharan African country, during policy eras prior to/including Option B+ were implemented. Primary outcomes of uptake of HIV care and retention at 12-months after ART initiation were synthesized in meta-analyses and stratified by policy era (before Option B+ vs. Option B+). Pooled

estimates of %women retained in care at 6- and 12-months were generated using crude relative risks (RR) with 95% confidence intervals (CI) also stratified by policy era.

**Results:** Among 4,409 articles identified, 61 articles from 15 countries were included in the final review; 25 articles reported retention outcomes and 40 reported HIV care uptake outcomes. 42 articles reported uptake and retention during Option B+, 17 articles prior to Option B+ and 2 articles focused on both eras. Median uptake of HIV care increased from 79% (IQR:76-100) before Option B+ to 100% (IQR:92-100) after implementation. The likelihood of initiating ART was 9 percentage points higher during Option B+, compared to earlier policy eras (RR=1.09;95% CI:1.08-1.10). Median reported retention at 6-months post ART initiation increased from 57% IQR (44-82) prior to Option B+ to 76% (IQR:71-80) after implementation. The likelihood of retention in care during Option B+ was twice that of prior to Option B+ (RR=2.38;95% CI:2.24-2.53).

**Conclusions:** Uptake and retention in HIV care for pregnant and postpartum women increased since implementation of Option B+, though retention rates remain sub-optimal to achieve the 95-95-95 goals set by UNAIDS. Targeted interventions are needed to improve retention among pregnant and postpartum WLWH.

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## Self-transfers among Clients Receiving HIV Antiretroviral Treatment in Zimbabwe, 2013-2023: Findings from the National HIV Case Surveillance of Zimbabwe

Dinh T<sup>1</sup>, Milligan K<sup>1</sup>, Muzamhindo M<sup>2</sup>, Chiguvare T<sup>2</sup>, Mhangara M<sup>3</sup>, Dzangare J<sup>4</sup>, Chaputsira S<sup>5</sup>, Lee F<sup>1</sup>, Mutsigiri-Mrewanhema F<sup>5</sup>, Moyo B<sup>4</sup>, Apollo T<sup>4</sup>, Muserere C<sup>5</sup>

<sup>1</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Harare, Zimbabwe, <sup>2</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Atlanta, United States, <sup>3</sup>U.S. Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Zimbabwe



Technical Assistance, Training & Education Center for Health (ZimTTECH), Harare, Zimbabwe, <sup>2</sup>Zimbabwe Technical Assistance, Training & Education Center for Health, Harare, Zimbabwe

**Background:** Self-transferring between HIV antiretroviral treatment (ART) clinics among clients with HIV poses challenges for HIV programs, including misclassification of patients in care as lost to follow-up (LTFU). In Zimbabwe, each client enrolled in HIV care-and-treatment is assigned a unique national HIV antiretroviral number (UAN) that should be retained when transferring clinics. Using the national HIV case surveillance (NCS) data, an individual-level dataset of people living with HIV from diagnosis throughout the continuum of care, we report trends and the extent of self-transferring among newly initiated ART clients (ARTP) in Zimbabwe, 2013-2023.

**Materials and Methods:** We analyzed data from clients who initiated ART between 1/1/2013 and 9/30/2023 with at least six-month follow-up from 44 districts across 10 provinces in Zimbabwe. We defined a transfer as receiving HIV services at multiple clinics, and a self-transfer as a transfer without a documented transfer status and with  $\geq 2$  UANs used.

**Results:** Of 721,044 newly initiated ART, 71,909 (10%) attended  $\geq 2$  clinics with 57,672 (80%) of these identified as self-transfers as defined above. Among all transfers, the proportion of self-transfers increased from 2013 (65%) to 2019 (86%) but decreased during the COVID-19 pandemic from 74% in 2020 to 66% in 2022 (Figure 1). Self-transfers primarily moved to clinics within the same province [31% (Mashonaland-East)-85% (Bulawayo)]. The highest proportion of self-transfers moving to clinics in neighboring provinces sharing a border was 40% (Matabeleland South-Matabeleland North), and provinces without common borders was 48% (Bulawayo-Midlands). Of all clients who self-transferred, 71% were female, 41% were 25-34 years of age, and 60% were married/co-habitant ARTCs.

**Conclusions:** Among those moving out of their initial ART clinics, 80% could be misclassified as LTFU. Prioritizing an online health information exchange system across clinics at each province may help track self-transfers. Additional studies to understand this population might help tailor pre-treatment counselling or service packages to reduce self-transferring.

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## Prevalence and Factors Associated with HIV Treatment Non-adherence Among People Living with HIV in Three Regions of Cameroon: A Cross-Sectional Study

Buh A<sup>1,2</sup>, Deonandan R<sup>1</sup>, Gomes J<sup>1</sup>, Krentel A<sup>1</sup>, Oladimeji O<sup>3</sup>, Yaya S<sup>1</sup>

<sup>1</sup>University of Ottawa, Ottawa, Canada, <sup>2</sup>Ministry of Public Health, Yaounde, Cameroon, <sup>3</sup>Walter Sisulu University, Mthatha, South Africa

**Background:** In Cameroon, HIV care decentralization is enforced as a national policy, but follow-up of people living with HIV (PLWH) is provider-driven. These types of services can result in low antiretroviral therapy (ART) adherence. This study's objective was to assess prevalence and predictors of ART non-adherence among PLWH in Cameroon.

**Materials and Methods:** A cross-sectional study of PLWH in HIV treatment centres was conducted. PLWH, receiving ART, and who were at least 21 years old were included. Data were collected using structured interviewer-administered questionnaire and analyzed using STATA version 14.

**Results:** A total of 451 participants participated in this study, 33.48% were from the country's Southwest region. Their mean age was 43.42 years (SD: 10.42), majority (68.89%) were females. Overall proportion of ART non-adherence among participants was 37.78%, 35.88% missed taking ART twice in the last month. Reasons for missing ART include forgetfulness, business and traveling without drugs. Over half of participants (54.67%) know ART is life-long, 53.88% have missed ART service appointments, 7.32% disbelieve in ART benefits, 28.60% think taking ART gives unwanted HIV Status reminder and 2.00% experienced discrimination seeking ART services. In multivariate analysis, odds of ART non-adherence in participants aged 41 and above was 0.35 times (95%CI: 0.14, 0.85) that in participants aged 21-30 years, odds of ART non-adherence comparing participants who attained only primary education to those who attained higher than secondary education was 0.57 times (95%CI: 0.33, 0.97) and the odds of ART non-adherence in participants



who are nonalcohol consumers was 0.62 times (95%CI: 0.39, 0.98) that in alcohol consumers.

**Conclusions:** High proportion of participants are ART non-adherent, and the factors significantly associated with ART non-adherence include age, education and alcohol consumption. However, some reasons for missing ART are masked in participants' limited knowledge in taking ART, disbelief in ART benefits, feelings that ART gives unwanted HIV status reminder and experiencing discrimination when seeking ART services. These underscores need to improve staff (health personnel) attitudes, staff-patient-communication, and proper ART prior initiation counselling of patients. Future studies need to focus on assessing long-term ART non-adherence trends and predictors using larger samples in many treatment centres and regions.

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## Retaining cross Border Clients in ART Care Through an Innovative DSD Model in Southern Region Zimbabwe: The Diaspora Omalayitsha DSD Model

Takarinda K<sup>1</sup>, Hove M<sup>1</sup>, Chimberengwa P<sup>1</sup>, Chimungu P<sup>1</sup>, Dhodho E<sup>1</sup>

<sup>1</sup>Organization For Public Health Interventions & Development (OPHID), Harare, Zimbabwe

**Background:** There are concerns of disengagement from HIV care among "diaspora" clients traveling or residing in South Africa or Botswana from health facilities in southern Zimbabwe. To mitigate ART interruptions, we developed and implemented the "Omalayitsha Model", a diaspora differentiated service delivery (DSD) model. Each health facility identified a site focal person whose role included creating cohort databases of these clients and communicating with them via WhatsApp broadcast channels on health education, scheduling and issuing reminders of pill pickups, in-person clinical visits during holidays/ whenever they return home. We aimed to determine if the retention, viral load (VL) coverage and suppressions rates were comparable pre- and

post- the Omalayitsha model implementation from March 2022 to March 2023.

**Materials and Methods:** Data from 22 randomly selected sites in Matabeleland South province was abstracted into ODK comparing March 2021-March 2022 and April 2022-March 2023 periods in Matabeleland South province. Key informant interviews were also conducted among selected site focal persons and data were analyzed thematically.

**Results:** Of the 899 clients, 572 (63%) were males, median age was 40 years (IQR, 34-47). Comparing pre- and post- Omalayitsha model enrolment, the following were comparable: 12-month retention (98% versus 97.8%,  $p=0.74$ ), VL sample collection coverage (60% versus 58%,  $p=0.43$ ), VL results received (83% versus 86%,  $p=0.10$ ) and VL suppression rates (97% versus 98%,  $p=0.17$ ). Key informant interviews revealed that clients were hesitant to transfer out for ART enrolment in the diaspora due to their undocumented residency in neighbouring countries. Therefore, the Omalayitsha Model provided convenience for ART continuity. Refills collected by relatives and given to cross-border "taxi" drivers. However, viral load coverage did not improve as some clients could not improve due to clients failing to attend their scheduled clinical visits on holidays.

**Conclusions:** Our findings show the feasibility of ensuring patient-tailored service provision of health services to "undocumented" migrant populations who wouldn't be accounted for officially through inter-country collaboration. High VL suppression is testament that clients were adherent to life-long ART medicines. There is need for innovative collaboration to improve VL coverage of these migrants.



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## The Risk Profile of People Living with HIV Switched to Dolutegravir Who Gain Clinically Significant Weight at a Large Program HIV Clinic in Uganda

Laker Odongpiny E<sup>1,2</sup>, Otaalo B<sup>1</sup>, Musaaazi J<sup>1</sup>, Nalugga E<sup>1</sup>, Kesby M<sup>2</sup>, Ddungu A<sup>1</sup>, Semeere A<sup>1</sup>, Castelnovo B<sup>1</sup>, Holden M<sup>2</sup>, Sloan D<sup>2</sup>, Sekagya C<sup>1</sup>  
<sup>1</sup>Infectious Diseases Institute, Kampala, Uganda, <sup>2</sup>University of St. Andrews, School of Medicine, Fife, United Kingdom

**Background:** Weight gain has been described for people living with HIV (PLWH) switched to integrase strand transfer inhibitors. It is important to understand which PLWH are at risk of significant weight gain ( $\geq 10\%$  of their baseline) and prioritize them for weight-reduction initiatives. We conducted a retrospective analysis among PLWH who were switched to Dolutegravir (DTG) at the Infectious Diseases in Uganda to determine those at risk.

**Materials and Methods:** Socio-demographic and clinical data was extracted from the electronic database for the period February 2017-December 2022. We included all PLWH who had been on Efavirenz (EFV), Nevirapine (NVP), and Protease Inhibitors (PIs) (Atazanavir ATV/r and Lopinavir LPV/r) for at least 24 months, with a viral load, and were on DTG for at least 12 months. We carried out a cox-proportional regression analysis at 95% level of significance.

**Results:** Of the 5,323 PLWH included in the analysis, at the time of switch 3,138 (58.9%) were female, the median age was 45 years (IQR; 40-52), 3130 (58.8%) were previously on EFV, 1558 (29.3%) on NVP, and 635 (11.9%) on PI. Median duration on previous ART was 8.9 years (IQR; 6.0 – 12.8), 2,570 (48.7%) had a BMI between 18.5-24.9 kg/m<sup>2</sup> with a median of 24.3 kg/m<sup>2</sup> (IQR; 21.3 – 28.1). The cumulative risk of  $\geq 10\%$  weight gain at 24 months was 32.3% (IQR; 30.4% -34.3%). The median weight change in the general cohort at 24 months was 1.9 kg (IQR; -1.2 - 5.1) and in those who had  $\geq 10\%$  weight gain, it was 5.3 kg (IQR; 1.2 - 9.4). PLWH were likely to gain weight if they were previously on EFV or PI (adjusted Hazard Ratio

(aHR) 1.52; 95% CI 1.30-1.78 and aHR 1.79; 95% CI 1.41 – 2.29 respectively), were female (aHR 1.68; 95% CI 1.48 – 1.90) or had BMI  $<18.5$  kg/m (aHR 1.64; 95% CI 1.35 – 2.00). Those who had a BMI  $\geq 25.0$  kg/m<sup>2</sup> were less likely to put on weight (aHR 0.70; 95% CI 0.61-0.81).

**Conclusions:** Females, those previously on PIs and EFV are more likely to put on significant weight and could be prioritized for weight-reduction initiatives.

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## None Dichotomy in Double Counting of CD4+ T Cell Values on PIMA™ and BD FACSPresto™ in Benin

Boton L<sup>1</sup>, TCHIAKPE E<sup>1,2</sup>, Wade D<sup>3</sup>, KEKE R<sup>1</sup>, Bachabi M<sup>5</sup>, Gangbo<sup>5</sup>, Akadiri Y<sup>2</sup>

<sup>1</sup>Reference Laboratory of Health Program Fighting Against AIDS In Benin (LR/PSLS), Cotonou, Benin, <sup>2</sup>Laboratory of Cell Biology and physiology, Department of Biochemistry and Cellular Biology, Faculty of Sciences and Technology (FAST) and Institute of Applied Biomedical Sciences (ISBA), University of Abomey-Calavi, Cotonou, Bénin, <sup>3</sup>Institute for Health Research, Epidemiological Surveillance and Training (IRESSEF), Dakar, Sénégal, <sup>4</sup>Laboratoire de Référence des Mycobactéries (LRM), Cotonou, Benin and Faculté des Sciences de la Santé (FSS), Université d'Abomey Calavi (UAC), Cotonou, Bénin, <sup>5</sup>Health Program Fighting Against AIDS In Benin (PSLS). Health Ministry., Cotonou, Benin

**Background:** Although the WHO recommends viral load quantification in the biological monitoring of PLHIV, immunological monitoring by CD4+T cell counting remains essential to anticipate the adequate treatment of opportunistic infections using Point-of-Care CD4 testing. Therefore, this study aimed to compare the performance of PIMA™ and BD FACSPresto™ point of care CD4 analyzers to the conventional equipment of BD FACSCount™, through CD4+T cell counting.

**Materials and Methods:** 448 HIV-1 infected-patients, aged 19 to 85 were included in the study. 216 patients, aged 19 to 80 years, were tested for CD4+T lymphocytes measurement on PIMATM™ and 232 patients aged 22 to 85 years were tested for the same on BD FACSPresto™. The values obtained from both equipment were compared to the obtained from BD FACSCount™, using



Passing Bablok, Bland-Altman and Pollock diagrams.

**Results:** Both equipment PIMA™ and BD FACSPresto™ compared with BD FACSCount™ reference showed good correlation coefficient with the Passing Bablok diagram respectively with ( $y = -0.5982 + 0.9940 x$ ;  $\rho_c = 0.9969$ ) for PIMA™ and ( $y = 7.2913 + 0.9974 x$ ;  $\rho_c = 0.9972$ ) for BD FACSPresto™. The agreement between alternative devices and reference equipment by analyzing with Bland-Altman diagram, showed an average bias of 3.7 cells/ $\mu$ L with an LOA ranging from -62.7 to 60.1 for PIMA™ technology and -1.5 cells/ $\mu$ L with an LOA ranging from -45.7 to 42.7 for BD FACSPresto™. Pollock diagram already showed an average bias of 0.5 cell/ $\mu$ L with an LOA ranging from -10.7 to 11.6 for PIMA™ and -1.9 cells/ $\mu$ L with an LOA ranging from -23.4 to 19.6. For the threshold of 350 cells/ $\mu$ L, the sensitivity and specificity of PIMA™ and FACSPresto™ analyzer ranged respectively between 98 to 99% and 96 to 98%. These values were ranged between both 98 to 100% for threshold of 500 cells/ $\mu$ L.

**Conclusion:** Study shows the advantage of both technologies PIMA™ and BD FACSPresto™ for the first time in our country. In addition to their simplicity of design and their ease of use, they appeared interchangeable with the reference technique BD FACSCount™ and can continue to be used in the immunological monitoring of PLHIV-1 in Benin.

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## Chercher Les Enfants Infectés Pour Atteindre Les Objectifs D'élimination du VIH AU Sénégal

**Sagna A**<sup>1</sup>, Koulibaly C<sup>1</sup>, Dièye C<sup>1</sup>, Thiam S<sup>1</sup>, NDOUR C<sup>2</sup>

<sup>1</sup>Conseil National De Lutte Contre Le Sida (CNLS), Dakar, Senegal, <sup>2</sup>Division de lutte contre le Sida et les IST, Dakar, Sénégal

**Contexte :** La communauté internationale s'est engagée à l'élimination de l'infection à VIH d'ici 2030. En 2022, le Sénégal a réalisé des progrès importants dans le dépistage et la prise en charge (PEC) du VIH pour l'atteinte des cibles des 95-95-

95 de manière globale. Mais chez les enfants, des difficultés persistent et constituent un obstacle pour l'atteinte des objectifs. En effet, plus de 50% des enfants vivant avec le VIH (EVVIH) n'ont pas été diagnostiqués. Les retrouver et les enrôler dans les soins est un défi important pour le pays.

**Matériels et Méthodes :** Notre analyse s'est basée sur les estimations Spectrum et les données de la cohorte des EVVIH enrôlés et traités dans les 144 sites de PEC pédiatrique. Le contenu des dossiers des patients et des maquettes de PEC a été examiné et leurs données analysées. La collecte et l'analyse des données se sont déroulées du 09 Janvier au 17 Février 2023.

**Résultats :** A la fin de l'année 2022, parmi les 41 560 personnes vivant avec le VIH, 36 714 PVVIH soit 88% connaissaient leur statut sérologique, 33 423 avaient accès au traitement ARV (91%) et 30 144 avaient une charge virale supprimée soit 90%. En revanche, chez les enfants, ces taux sont de 43-94-80. Certains facteurs pourraient expliquer ces faibles taux observés chez les enfants : l'insuffisance du dépistage précoce, l'insuffisance de l'intégration du dépistage au niveau des points d'entrée des enfants, le recours sous optimal à l'index testing, l'insuffisance du conseil dépistage à l'initiative du prestataire, l'offre de service de dépistage non disponible jusqu'au niveau poste de santé et en communauté, la stigmatisation et l'auto-stigmatisation, le statut d'orphelin, mais aussi le faible niveau socioéconomique des familles ; le recours tardif aux soins, l'absence de partage de statut sérologique au sein du couple.

**Conclusion :** La PEC des enfants demeure un problème majeur pour l'atteinte des objectifs des 95-95-95 permettant d'envisager l'élimination de l'épidémie de VIH. La mise en place d'activités de sensibilisation avec l'accompagnement des acteurs communautaires soutenues par le dépistage démedicalisé et le dépistage à l'initiative du prestataire pourra aider à identifier les enfants infectés par le VIH.



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## Profil des Personnes Vivant Avec un Handicap et le VIH à Bobo-Dioulasso au Burkina Faso

Poda A<sup>1</sup>, Zoungrana J<sup>1</sup>, Ouedraogo A

<sup>1</sup>CHU Souro Sanou, Service Des Maladies Infectieuses ; Université Nazi Boni, Bobo-dioulasso , Burkina Faso

**Contexte** : La prévalence du VIH chez les personnes vivant avec un handicap au Burkina Faso était de 4,6% pour une prévalence en population générale de 0,7% en 2018. L'objectif de cette étude était de décrire les caractéristiques des personnes vivant avec un handicap et le VIH dans la cohorte de l'hôpital de jour à Bobo-Dioulasso au Burkina Faso.

**Matériels et Méthodes** : Nous avons réalisé une étude transversale à collecte prospective et rétrospective de 2015 à novembre 2021. Nous avons inclus dans notre étude les personnes vivant avec un handicap et le VIH suivies en ambulatoire à l'hôpital de jour de Bobo-Dioulasso durant la période d'étude. Nous avons extrait les données de suivi du VIH (socio-démographiques, cliniques, immuno-virologiques) du fichier médical informatisé ESOPÉ et recueilli le type d'handicap sur la base d'un interrogatoire et d'un examen physique du patient.

**Résultats** : Sur les 4200 patients suivis au 31 décembre 2021, 68 vivaient avec un handicap soit une prévalence de 1,6%. Ces derniers avaient un âge moyen de  $49,1 \pm 10$  ans avec des extrêmes de 24 et 67 ans à leur première visite à l'hôpital de jour (HDJ). Ils étaient majoritairement des femmes (64,7%) et infectés par le VIH1 (88,2%). Le taux médian de lymphocytes CD4 à l'entrée dans la cohorte était 225(129- 383) cellules/mm<sup>3</sup>. Tous les patients vivant avec un handicap ont été mis sous traitement ARV et 6 (10,5%) d'entre eux sont passés sous deuxième ligne. La durée médiane de suivi sous ARV était de 8,3(2,9 – 12,1) ans. Le type de handicap était dominé par le handicap moteur (71,1%) et le handicap visuel (24,6%). Certains handicaps étaient liés directement à l'infection par le VIH et/ou au traitement ARV (14%).

**Conclusion** : Le profil des personnes vivant avec un handicap est dominé par le handicap moteur. Un effort devrait être fait pour un suivi particulier de

ces patients pour améliorer le succès de leur prise en charge.

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## Facteurs Associés à L'Observance du Traitement ARV par les Mères dans le Cadre de la Prévention de la Transmission du VIH de la Mère à L'Enfant dans le District Sanitaire de Do (Burkina Faso)

Sakana B<sup>1</sup>, Ilboudo B<sup>1</sup>, Ouattara A<sup>1</sup>, Konate B<sup>2</sup>, Meda Z<sup>3</sup>

<sup>1</sup>Centre Muraz, Bobo-Dioulasso, Burkina Faso, <sup>2</sup>CNRST/INSS, Bobo-Dioulasso, Burkina Faso, <sup>3</sup>Université NAZI BONI, Bobo-Dioulasso, Burkina Faso

**Contexte** : L'observance au traitement est primordiale pour éviter la transmission mère enfant du VIH. Les patientes qui sont irrégulières dans leur suivi exposent davantage leurs nourrissons à l'infection. L'étude avait pour objectif d'étudier les facteurs associés à l'observance du traitement ARV dans le cadre de l'élimination de la transmission mère enfant du VIH (eTME) au district sanitaire de Do.

**Matériels et Méthodes** : Nous avons réalisé une étude de cohorte rétrospective de femmes suivies de 2017 à 2022 dans le cadre de l'eTME, dans le district sanitaire de Do. Leur observance au traitement a été évaluée à partir du fichier de dispensation des ARV. Était considérée comme régulière, toute femme n'ayant jamais manqué un rendez-vous de l'approvisionnement en traitement ARV depuis son inclusion. Une analyse bivariée a permis d'apprécier l'influence des variables socio-démographiques sur l'observance des mères au traitement ARV.

**Résultats** : La cohorte était constituée de 344 femmes nouvellement diagnostiquées. L'âge moyen des mères étaient de  $31 \pm 7$  ans. La majorité était ménagère (68,48 %) et provenait du milieu urbain (64,31 %). Pour l'observance au traitement ARV, 14,58 % des mères adhéraient au suivi régulier. Les femmes du milieu urbain étaient moins observantes au traitement ARV que celles





du milieu rural. (OR = 0,47 CI : 0 ,25-0,87, p= 0,016). Il n'y avait pas de lien entre l'observance du traitement ARV et l'âge de la mère, son niveau d'instruction, sa profession ou le nombre de ses enfants.

**Conclusions :** L'observance au traitement dans le district de Do est très faible ; en particulier chez les femmes en milieu urbain.

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## Evaluation of Viral Suppression and Tolerability of Dolutegravir-Based Versus Other ART Regimens in Cameroon: Implications for Low-And-Middle Income Countries

**Fainguem Nguendjoung N**<sup>1,2,3</sup>, Kamgaing Simo R<sup>1,3</sup>, Sosso S<sup>1</sup>, Mbaïgolem Mbermbaye A<sup>3</sup>, Nka A<sup>1,2,3</sup>, Ka'e A<sup>1</sup>, Tchouaket Tommo M<sup>1</sup>, Yagai B<sup>5</sup>, Chenwi C<sup>1</sup>, Zam K<sup>1</sup>, Yimga J<sup>1</sup>, Jeremiah Efakika G<sup>1</sup>, Ngoufack Semengue E<sup>1,2,3</sup>, Takou D<sup>1</sup>, Kob D<sup>4</sup>, Ajeh R<sup>5</sup>, Abah Abah A<sup>6</sup>, Bouba P<sup>6,7</sup>, Halle-Ekane G<sup>8</sup>, Bissek A<sup>7,9</sup>, Ndembi N<sup>10</sup>, Colizzi V<sup>1,2,3</sup>, Perno C<sup>1,11</sup>, Fokam J<sup>1,8,12</sup>, Ndjolo A<sup>1,6</sup>

<sup>1</sup>Chantal Biya International Reference Centre For Research On Hiv/aids Prevention And Management, YAOUNDE, Cameroon, <sup>2</sup>University of Rome Tor Vergata, ROME, ITALY, <sup>3</sup>Evangelic University of Cameroon, Bandjoun, Cameroon, <sup>4</sup>UNAIDS Country office, Yaounde, Cameroon, <sup>5</sup>National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon, <sup>6</sup>National AIDS Control Committee, Yaounde, Cameroon, <sup>7</sup>Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Yaounde, Cameroon, <sup>8</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>9</sup>Division of Operational Health Research, Ministry of Public Health, Yaounde, Cameroon, <sup>10</sup>Africa Centres for Disease Control and Prevention, , Addis Ababa, Ethiopia, <sup>11</sup>Laboratory department, Bambino Gesù Pediatric Hospital, , Rome, Italy, <sup>12</sup>National HIV drug resistance working group, Ministry of Public Health, Yaounde, Cameroon

**Background:** Rollout of dolutegravir (DTG)-based antiretroviral therapy (ART) in low-and-middle countries (LMIC) requires monitoring of ART-efficacy and tolerability to maximise benefits through pharmacovigilance. We thus sought to compare viral load (VL) response and events of metabolic disorders among patients receiving

DTG-based versus other ART regimens in Cameroon.

**Materials and Methods:** A facility-based and comparative study was conducted from April-October 2023 among 183 consenting participants receiving DTG-based versus other ART regimens at the Chantal Biya International Reference Centre, Yaoundé-Cameroon. The body mass index (BMI), blood pressure, lipoproteins (LDL-low-density lipoprotein, HDL-high-density lipoprotein, total cholesterol, triglyceride (TG), blood sugar (BS), urea, creatinemia, transaminases (ALT, AST) and VL were measured. Data were compared between the two ART arms, with p<0.05 considered statistically significant.

**Results:** Among DTG-based (n=132, mainly TDF+3TC+DTG) vs. other ART-regimens (n=51, 47 TDF+3TC+EFV and 4 LPV/r+AZT+3TC) respectively, median [IQR] age (42 [32-51] vs. 49 [38-60] years) and sex distribution (female: 68.9% vs. 78.4%, p=0.27) were similar, while ART-duration was significantly different (19 vs.102 months). Regarding ART-efficacy, median VL (103[33–273] vs. 112[60–318]) and VL-suppression<1000copies/ml were similar (98.5% vs. 94.1%). Regarding metabolic-disorders, overweight/obese (57.6% vs. 58.9%), hypertensives (17.4% vs. 11.8%), hyperglycemia (5.3% vs. 3.9%, p=0.69) and lipid-profiling (high LDL: 4.5% vs. 5.9%, p=0.71; Low HDL: 21.2% vs. 13.7%, p=0.29; hypertriglyceridemia: 8.3% vs. 7.8%, p=1.00) were similar. Regarding risks of liver dysfunction, high ALT was 31.1% vs. 25.5%, p=0.45; while high AST: 66.7% vs. 43.1%, p=0.004. Regarding risk of renal dysfunction, the greatest majority had normal urea: 93.9% vs. 94.1%, p=1.00; while hypercreatinemia was: 7.6% vs. 17.6%, p=0.08 respectively.

**Conclusions:** DTG-based and other ART-regimens exhibit high rates of VL-suppression and similar risks of cardiovascular diseases (hypertension, overweight/obesity, low-HDL), liver (high ALT/AST) and acute kidney (seemingly with other ART-regimens) disfunctions. This evidence, generated in real life, underscores progress toward achieving the third-95 (viral-suppression) at programmatic-level while emphasising on long-term pharmacovigilance for optimal prevention of metabolic-disorders in LMICs.



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## Association of Advanced HIV Disease at ART initiation and treatment outcomes: A case study of Chipata Central Hospital, Zambia

**Kibombwe G**<sup>1</sup>, Goma M<sup>1</sup>, Mutale P<sup>1</sup>, Luhana C<sup>1</sup>, Malebe T<sup>1</sup>, Oladele E<sup>1</sup>, Msofe J<sup>3</sup>, Satti H<sup>2</sup>, Carpenter D<sup>2</sup>, Persaud N<sup>2</sup>, Chisenga K<sup>4</sup>, Lombe C<sup>1</sup>, Munalula W<sup>1</sup>, Nyau L<sup>4</sup>, Lushinga C<sup>4</sup>, Ngámbe M<sup>4</sup>, Chabikuli O<sup>5</sup>  
<sup>1</sup>FHI360, Lusaka, Zambia, <sup>2</sup>FHI360, Durham, United States, <sup>3</sup>FHI360, Pretoria, Zambia, <sup>4</sup>EPHO, Chipata, Zambia, <sup>5</sup>Public Health Program, Graduate School, Howard University, Washington, United States

**Background:** Many clients present with Advanced HIV Disease (AHD) at enrolment in HIV care, signaling delayed ART initiation or prior interruption in treatment (IIT). AHD means CD4 count <200 cells/mm<sup>3</sup>, WHO HIV clinical stage III or IV, or children <5 years. We share findings on the prevalence of AHD among clients enrolled in care at Chipata Hospital and their treatment outcomes 12 months post-ART initiation.

**Description:** A cross sectional study was conducted to determine the prevalence of AHD and treatment outcomes among new ART clients enrolled between 2021 and 2022. Using national electronic health records management system, ART client records were reviewed retrospectively. Data was analyzed using STATA software (version 14). Frequencies and cross tabulations run for counts and percentage. Chi-square test used to determine difference in proportions.

**Lessons Learnt:** From 428 new ART enrollments 51 (11.9%) had AHD. Children were 15 (29.4%) under 5 years; 03 (5.9%) were 5-9 years, 01 (1.9%) each among 10-14 and 15-19 years. Adults were 01 (1.9%) of 20-24 years, 02 (3.9%) 25-29 years, 07 (13.7%) 30-34 years, 08 (15.7%) 30-34 years, 04 (7.8%) 35-39 years, 08 (15.7%) 40-44 years, 03 (5.9%) 45-49 years, 03 (5.9%) 50-54 years, 09 (2.1%) 55-59 years, 02 (3.9%) 60-64 years while 01(1.9%) was over 65 years. Results showed a significant association between age group and AHD at ART initiation ( $p < 0.0001$ ). More males, 30 (58.82%) compared to females, 21 (41.18%) had AHD demonstrating a significant association between sex and presence of AHD at initiation

( $p=0.027$ ), At 12 months post-ART initiation, 54 (12.61%) clients had IIT with AHD accounting for 96.08% indicating a significant association between IIT at 12 months and AHD at initiation ( $p < 0.0001$ ).

**Conclusions:** Study demonstrates a direct relationship between age and sex to the presence of AHD at initiation. Older clients and males commencing ART are likely to have AHD when compared to younger ones, probably due to delays in seeking health services. Findings also indicate likelihood of IIT among clients initiating ART with AHD. We recommend using these predictors and other factors to build artificial intelligence models to help predict adverse occurrences for timely intervention.

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## Proteinuria and Atypical Urine Cytological Findings of Children on Antiretroviral Therapy Attending HIV Clinic in Calabar, Nigeria

**Udonkang M**<sup>1</sup>, Inyang I<sup>1</sup>, Atagada G<sup>1</sup>, Eworo R<sup>1</sup>, Njar V<sup>1</sup>  
<sup>1</sup>University Of Calabar, Calabar, Nigeria

**Background:** HIV among children has been in the rise due to increase vertical transmission and socioeconomic factors. Antiretroviral therapy has been effectively used in treatment among adults and children living with HIV. Studies have shown that adults living with HIV have abnormal cytological findings. However, there are limited data on urine cytological findings among children on ART in Sub-Saharan Africa. This study screened the urine of children on ART for abnormal chemical constituents and atypical epithelial cell changes.

**Materials and Methods:** This cross-sectional study was carried out among 88 test subjects within the ages of 0-4 years in both males and females on ART visiting the Paediatric HIV Clinic of the General Hospital in Calabar, Cross River State, Nigeria. Ethical approval and informed consents from parents were obtained. Questionnaires were used to obtain data. Fresh voided urine samples were



collected in universal containers for urinalysis using Meditest Combi-9 strip. For microscopic cytological evaluation, urine smears made from centrifuged sediments were fixed in 95% ethanol and stained with Papanicolaou technique. Chi square of SPSS version 21 software was used for data analysis and results were significant at probability level <0.05.

**Results:** Age distribution showed 30 (34.1%), 44 (50%), and 14 (16.9%) of the subjects were of the age range of 0-5 years, 6-11 years, and 11-14 years respectively. The duration of ART administration was <1 month in 20 (22.7%), 1-6 months in 44 (50%), and >6 months in 24 (27.3%) of subjects. Proteinuria was reported in 36 (40.9%) of the subjects. The cytological findings revealed that 46 (52.3%) had normal epithelial cells, 20 (22.7%) showed degenerative epithelial changes and 22 (25%) had squamous metaplasia. A total of 18 (20.5%) subjects had crystals in the urine. Long term ART use was associated with proteinuria ( $p=0.001$ ) and increased degenerative and metaplastic epithelial changes ( $p=0.001$ ).

**Conclusions:** The study showed that long-term antiretroviral therapy is capable of causing proteinuria, crystalluria, squamous metaplasia, and degenerative changes in the urinary epithelium of HIV-seropositive children. There is need to include urine analysis and cytology screening during routine clinical visits.

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## Impact of the COVID-19 Pandemic on Treatment Outcomes and HIV Drug Resistance Among Adolescents Receiving Antiretroviral Treatment in One of the Largest HIV Treatment Centers in Cameroon

Djiyou Djéuda A<sup>1,2,3</sup>, Penda C<sup>4</sup>, Madec Y<sup>5</sup>, Netongo P<sup>2</sup>, Eboumbou Moukoko C<sup>1,6</sup>, Aghokeng A<sup>3</sup>

<sup>1</sup>Virology, Mycology and Parasitology Laboratory, Postgraduate Training Unit for Health Sciences, Postgraduate school for pure and applied sciences, The University of Douala, Douala,

Cameroon, <sup>2</sup>Molecular Diagnostics Research Group, Biotechnology Centre-University of Yaounde I, Yaoundé, Cameroon, <sup>3</sup>MIVEGEC, Université de Montpellier, CNRS, IRD, , France, <sup>4</sup>Department of Clinical Sciences, Faculty of Medicine and Pharmaceutical Sciences, University of Douala, Douala, Cameroon, <sup>5</sup>Institut Pasteur, Université de Paris, Epidemiology of emerging diseases, F-75015, Paris, France, <sup>6</sup>Centre Pasteur du Cameroun, , Cameroon

**Background:** HIV drug resistance (HIVDR) continues to be a major concern in Sub-Saharan Africa, potentially exacerbated by the COVID-19 pandemic. We here focused on the evaluation of the virological suppression (VS) rate, the characterization of HIVDR, and an assessment of the impact of the COVID-19 pandemic on WHO quality-of-care indicators among adolescents in Cameroon.

**Materials and Methods:** A descriptive and longitudinal study was conducted among adolescents aged 10-19 years, and receiving antiretroviral treatment (ART) at the Laquintinie Hospital of Douala, Cameroon. A viral load (VL) measurement was attempted for consenting participants and those with a VL $\geq$ 200 copies/mL were considered for genotyping testing using the Sanger method. Recent and ongoing COVID-19 infection was assessed using the Biosynex™ Test Device as per the manufacturer's instructions. A retrospective assessment was then performed to collect early warning indicators (EWI) over four years (01/01/2018-31/12/2021). Relevant EWI monitored included: VL coverage, VL suppression, appropriate second VL, and antiretroviral drug refills at the pharmacy. The Fisher exact test was performed for trend analysis using R-4.1.1, and a p-value <0.05 was considered statistically significant.

**Results:** Of 280 participants (median age 16, median duration on ART 9.8 years, 52.5% on efavirenz-based treatment), the VS rate was 88.2% (CI:83.8%-91.7%). Out of the 54/58 (93.1%) samples genotyped, we found a resistance rate of 79.6%, with few InSTI resistance. Besides, 54/327 (16.5%) plasma samples screened had a recent or ongoing COVID-19 infection, with respectively 15.6% and 2.4% confirmed positive cases for SARS-CoV-2 IgG and IgM antibodies. Further analysis of EWI showed that between 2018 and 2019, a slight increase in almost every EWI performance was noticed ( $p<0.05$ ). However, compared to 2019, an overall decreasing performance was observed in the year 2020 ( $p<0.001$ ), corresponding to the year of tight restriction measures, followed by an increasing trend in 2021 ( $p<0.01$ ) when COVID-19 mitigation strategies were smoothly removed.



**Conclusions:** The high rate of VS (88.2%) found in this study is encouraging and may reflect increasing adaptation to the COVID-19 pandemic over time. However, the high level of HIVDR mutations even among those with a VL below the WHO threshold of 1000 copies/ml is threatening the progress made.

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## Treatment Outcomes of Community Versus Facility Managed ART Patients in 17 Nigerian States - Comparative Analysis of Clients Commenced on ART in the 1st Year of the Surge Implementation.

**Idemudia A**<sup>1</sup>, Onime D<sup>1</sup>, Obiora-Okafo C<sup>1</sup>, Kakanfo K<sup>2</sup>, Akpan U<sup>4</sup>, Toyo O<sup>4</sup>, Asaolu O<sup>1</sup>, Oyawola B<sup>1</sup>, Nwadike C<sup>1</sup>, Onimode B<sup>1</sup>, Pius B<sup>1</sup>, Raji A<sup>5</sup>, Kagniniwa B<sup>5</sup>, Gado P<sup>1</sup>, Idaboh T<sup>1</sup>, Kalaiwo A<sup>1</sup>, James E<sup>1</sup>, Pius J<sup>1</sup>, Bashorun A<sup>3</sup>, Oyelaran O<sup>1</sup>, Goldstein R<sup>1</sup>

<sup>1</sup>United States Agency for International Development (USAID), Abuja, Nigeria, <sup>2</sup>Research Hub Africa, Abuja, Nigeria, <sup>3</sup>National HIV/AIDS and STI Control Program, Federal Ministry of Health, Abuja, Nigeria, <sup>4</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, <sup>5</sup>United States Agency for International Development (USAID), Washington D.C., United States

**Background:** According to the Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS 2018), the HIV prevalence among adults is 1.3%, translating to about 1.8 million people living with HIV. In a bid to address the high unmet need, the USAID supported the Nigerian government to conduct surge activities including the formation of Community ART Management (CAM) teams. This study aimed to compare the treatment outcomes of patients managed in community-based settings versus those in healthcare facilities across 17 states in Nigeria.

**Materials and Methods:** A Retrospective Cohort analysis of data for clients initiated on HIV/AIDS treatment in 17 USAID supported States within the 1st year of the surge implementation (April 2019 – March 2020). The clients were categorized into

two groups based on their treatment management settings: community-managed and facility-managed. Treatment outcomes at the end of December 2023, including retention in care and viral suppression (less than 1000 copies/ml) were assessed and compared between the two groups.

**Results:** 133,920 clients (F: 64%; M: 36%) started ART in the cohort months with 45% receiving community-managed ART and 55% receiving facility-managed ART. Findings show that viral load suppression rates were comparable between the two groups, with 98% in the community-managed group and 97% in the facility. There was also no significant difference in the viral suppression between males and females, as well as across the age-groups among both cohort groups.

About 88% of those managed in the community were retained in care, with no significant difference in the retention rates between males and females. Among the facility-managed group, the retention rate was 40%, with females having a significantly higher retention rate. The lowest retention rate in both groups was found among those 0-4 years of age (73% & 13% respectively). The result of the Paired sample T-test was for retention was 3.13 (P-value - 0.016), while for viral suppression it was found to be 17.66 (P-value of 0.04).

**Conclusions:** The findings suggest that community-managed ART can yield comparable and even better treatment outcomes to facility-managed ART. However, further studies are required to understand the contextual factors influencing these outcomes and to inform program design.

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## Gestion Des Patients Présentant Une Charge Virale VIH Détectable : Expérience de L'Hôpital de Jour de Bobo-Dioulasso AU Burkina Faso

**Poda A**<sup>1</sup>, Sanou S<sup>3</sup>, Some D<sup>3</sup>, Da L<sup>3</sup>, Zoungrana J<sup>1</sup>, Ouedraogo A<sup>2</sup>

<sup>1</sup>Chu Souro Sanou, Service Des Maladies Infectieuses ; Université Nazi Boni, Bobo-dioulasso , Burkina Faso, <sup>2</sup>Chu Souro Sanou, Service Des Maladies Infectieuses, Bobo-Dioulasso, Burkina



Faso, <sup>3</sup>Chu Souro Sanou, Service de Bactériologie virologie ; Université Nazi Boni, Bobo-Dioulasso, Burkina Faso

**Contexte :** Le Burkina Faso rencontre des difficultés pour atteindre le 3ième 95 des objectifs de l'ONUSIDA dû l'inaccessibilité de la charge virale plasmatique (CVP) du VIH. De plus, un défi majeur est la gestion des patients présentant une CVP détectable avant de déclarer un échec au Traitement Antirétroviral (TARV). L'objectif de ce travail était de partager l'expérience de Bobo-Dioulasso au Burkina Faso sur la gestion des CVP détectables.

**Matériels et Méthodes :** De septembre 2022 à Mars 2023, les patients ont bénéficié d'un prélèvement pour la CVP. Les CVP ont fait l'objet d'un tri. Tous les patients avec une CVP détectable étaient conviés par les conseillères psychosociales pour une consultation de renforcement de l'observance afin de comprendre les raisons de l'élévation de la CVP. A l'issue, une nouvelle CVP était demandée. Chaque patient vu par un médecin a été présenté lors de la rencontre hebdomadaire du service (staff) afin d'adopter la meilleure stratégie.

**Résultats :** Sur 2435 CVP du VIH 1 réalisées, 2344 CVP (96,2%) étaient indétectables. A l'issue du premier contrôle, une CVP indétectable était obtenue chez 28 patients (30,7%) ; 41 patients (45%) avaient une CVP détectable ; 13 patients (14,2%) présentaient une CVP supprimée et 9 patients n'avaient pas honoré le rendez-vous chez le médecin. A l'issue du second contrôle de 3 mois, parmi les 41 patients colligés, un échec virologique était retenu chez 5 patients qui ont bénéficié d'un changement de protocole.

L'inobservance était la raison principale de l'élévation de la charge virale chez nos patients. Les causes de cette inobservance étaient liées aux prises manquées par négligence ou oubli (51,2%) et l'insécurité (7,3%).

**Conclusions :** La synthèse des données de CVP, la répartition par médecin et le suivi rapproché des patients à travers la tenue de réunion hebdomadaire pourrait être une option à explorer. Ceci permet un suivi amélioré de la CVP et de déterminer la meilleure stratégie pour la prise en charge de chaque patient.

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## Evaluation de l'Impact du Test and Treat Sur la Retention Des PVVIH Nouvellement Arrimees au CNRRRPEC/CNHU-HKM de Cotonou

Tounkara L<sup>1</sup>, Kouanou A<sup>1</sup>, Ayihounton G<sup>1</sup>, Bokossa L<sup>1</sup>, Donadje P<sup>1</sup>, Tamoute S<sup>1</sup>, Coovi I<sup>1</sup>

<sup>1</sup>CNRRRPEC/CNHU, Cotonou, Benin

**Contexte :** La lutte contre l'épidémie liée à l'infection au Virus de l'Immunodéficience Humaine (VIH) reste un enjeu majeur de santé publique à travers le monde. La stratégie « Test and Treat » recommandée par l'OMS depuis 2015 et appliquée au Bénin depuis 2017 a impacté la qualité de la prise en charge du VIH. Cette perspective prometteuse ne doit pas faire oublier l'enjeu du maintien dans les systèmes de soins des personnes séropositives nouvellement mises sous traitement. L'objectif de notre étude était d'analyser l'impact du « test and treat » sur la rétention dans les soins.

**Matériels et Méthodes :** Il s'agissait d'une étude de cohorte rétrospective descriptive et analytique ayant inclus des PVVIH initiés entre le 1er Octobre 2021 et 30 Avril 2023, suivis sur le site jusqu'à la date de l'enquête et ayant consenti pour participer à l'étude. La collecte des données a été faite à l'aide des dossiers médicaux des patients et un entretien téléphonique avec les patients joignables.

**Résultats :** 751 patients ont été dépistés positifs dont 98,3% ont débuté un TAR. Parmi ces derniers, 19,7% patients ont été déclarés PDV au moins une fois et 85% d'entre eux ont reçu un entretien téléphonique. 93,3% de ces patients ont apprécié la précocité de la mise sous traitement. 73,7% des patients ont apprécié les séances d'IEC et l'assistance hors site. 100% ont déploré le manque de cet accompagnement après initiation. Cela a significativement favorisé leur retour volontaire aux soins mettant en exergue le rôle important prépondérant de l'accompagnement psychologique des patients. La plupart des patients dépensent entre 1000 et 2000f CFA du lieu de résidence au site. 5,1% des enquêtés ont affirmés avoir sentis des effets secondaires dues à



la prise des ARV expliquant l'abandon du traitement.

**Conclusions :** Nous avons conclu en un lien de relation significative entre l'accompagnement, d'éducation thérapeutique et le suivi correct des traitements. Pour une meilleure application de cette stratégie il faudrait redynamiser les volets éducation thérapeutique, assistance psychologique, et l'accompagnement des patients par les gestionnaires de cas.

Mots clés : test and treat ; rétention ; accompagnement psychosocial, gestion individualisé des cas

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## A CQI Approach to Viral Load Re-Suppression Among Boarding School Adolescent Young People (AYPs) Living with HIV at Busia County Referral Hospital in Busia County, Kenya

Tebagalika F<sup>1</sup>, Zeph L<sup>1</sup>, Ashiono E<sup>1</sup>

<sup>1</sup>USAID Dumishaafya, Eldoret, Kenya

**Background:** Despite Busia County referral hospital's (BCRH) overall success with HIV treatment, with 6,464 patients in treatment as of January 2023 with a viral load suppression rate of 96% (less than 200copies), AYPs (aged 15-24 years) were lagging with 89% viral load suppression (VL <200 copies/ml). This was worse among the AYP in a boarding school with suppression of 28% (amongst 36 patients line listed) as compared to those in day schooling at 89% (amongst 278 line-listed) within the same reporting period. This necessitated a targeted Continuous Quality Improvement (CQI) approach to achieve the goal of 95% suppression among this cohort.

**Materials and Methods:** A CQI approach was conducted between January 2023 to June 2023 to obtain re-suppression among 36 AYPs who were in boarding institutions. Root cause analysis showed 5 major reasons that included stigma in schools, lack of knowledge by teachers, lack of

dissemination of school health policies, disclosure to other teachers and children without consent, and lack of proper drug storage. A multidisciplinary collaborative approach with Orphans and Vulnerable Children (OVC) partner, the Ministries of Health (MOH), and Education was used to initiate school health programs targeting teachers and learners in the identified learning institutions. These were sensitized to increase awareness, and in-depth understanding of HIV Care and Treatment to reduce stigma. A WhatsApp platform for the AYPs inclusive of all stakeholders for consultation, linkages, and tele follow-up was created. Use of peer- champions, and enrollment in family viremia clinics done for further social support. A longitudinal follow-up was done for the AYPs using the Jua Mtoto Wako register that is aimed at follow-up of AYPs to viral suppression.

**Results:** Out of the 36-cohort line -listed upon the satisfactory interventions 34 (94%) were virally suppressed with 2 (6%) unsuppressed. With 100 % cohort retention, 2 students finalized high school and moved to college.

**Conclusions:** In school health programs by use of objective AYPs interventions are required to further support AYPs living with HIV while in learning institutions to address their barriers for better treatment outcomes.

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## Client Experiences and Perceptions with Conditional Cash Incentives for HIV Care Engagement Including Effects after Cessation

Lewis-Kulzer J<sup>1</sup>, Giordano J<sup>2</sup>, Matonya L<sup>3</sup>, Akama E<sup>4</sup>, Adhiambo H<sup>4</sup>, Nyadieka E<sup>4</sup>, Iguna S<sup>4</sup>, Bukusi E<sup>4</sup>, Odeny T<sup>4</sup>, Camlin C<sup>2</sup>, Thirumurthy H<sup>5</sup>, Petersen M<sup>6</sup>, Geng E<sup>2</sup>

<sup>1</sup>Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California San Francisco, San Francisco, USA, <sup>2</sup>Washington University in St. Louis, St. Louis, USA, <sup>3</sup>University of North Carolina at Chapel Hill, Chapel Hill, USA, <sup>4</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>5</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>6</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>7</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>8</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>9</sup>Kenya Medical Research Institute, Kisumu, Kenya



Kenya, <sup>10</sup>Washington University in St. Louis, St. Louis, USA, <sup>11</sup>University of Pennsylvania, Philadelphia, USA, Philadelphia, USA, <sup>12</sup>University of California, Berkeley, USA, <sup>13</sup>Washington University in St. Louis, St Louis, USA

**Background:** Consistent HIV care engagement is needed for healthy outcomes, yet substantial loss-to-follow-up persists, leading to increased morbidity and mortality risk. Conditional cash transfers (CCTs) address structural barriers (e.g. transportation costs) and have been shown to improve HIV care engagement. Recent findings suggest incentive effects are time-limited, with CCT cessation resulting in care engagement deterioration. We explored patient experiences and perceptions with CCTs for HIV care engagement, including effects after cessation, to investigate potential mechanisms of this observation.

**Materials and Methods:** This qualitative study was nested within AdaPT-R (NCT02338739), a trial focused on improving HIV care engagement in western Kenya. Participants were purposively sampled from a subset of AdaPT-R participants: adults with HIV who had recently started ART, received CCTs for one year, completed one year of follow-up without missing a clinic visit, and were then randomized to continue or discontinue CCTs for one more year. In-depth interviews were conducted using a semi-structured guide. The interviews were carried out in the participants' preferred language (Dholuo, Kiswahili, English). Data on client characteristics and randomization and clinic visit dates to determine care lapses were extracted from the AdaPT-R database. A codebook was developed deductively from the guide and inductively refined based on initial transcripts. Transcripts were coded using Dedoose, and thematic saturation was identified.

**Results:** Of the 38 participants, 15 (39%) continued receiving incentives, while 23 (61%) were discontinued from receiving incentives. Over one-third were female (N=15), median age was 30 (range: 21-48), and nearly three-quarters were married or living with a partner. Both groups expressed high intrinsic motivation to engage in care, prioritized clinic attendance regardless of CCTs and felt the incentives expanded their decision-making options. Yet, despite high motivation to not miss a visit regardless of incentives, some clients reported that CCT cessation affected their ability to access care, especially among those with constrained financial situations. Participants also expressed concerns that incentives might foster dependency.

**Conclusions:** This study helped us better understand attitudes surrounding financial incentives in HIV care engagement, including when incentives end. Together with the AdaPT-R study findings, these results support careful consideration when implementing incentives for sustainable engagement effects.

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## Virological Success in Children Infected with HIV-1 and Follow-Ups at 5 Treatment Sites in Benin

**Dagba Gbessin H<sup>1</sup>**

<sup>1</sup>NATIONAL PROGRAM FIGHTING AGAINST AIDS, Cotonou, Benin

**Background:** The prevention of mother-to-child transmission programme increases treatment coverage and reduces failures because well-conducted paediatric antiretroviral therapy ensures immunovirological success and survival for children with limited treatment options. In Benin, the effectiveness of antiretroviral treatment is poorly documented in children living with HIV (EVHIV) monitored at the country's treatment sites.

**Materials and Methods:** This is a prospective study of 305 children under the age of 15 who have been on ARV treatment for at least six months. TCD4 lymphocytes were counted using the CyFlow counter II flow cytometer from Partec, and viral loads were measured with the m2000 RealTime platform from Abbott laboratories with a detection limit of 1.6log<sub>10</sub>. Virologic success was assessed as a suppressed viral load (CV≤1.6log<sub>10</sub> or 1.6<CV<3log<sub>10</sub>).

**Results:** The average age of children is 110 [IQR 8-178] months with a predominance of girls (52.8%). The average LTCD4 is 889 [8-4099] cells/μL of blood. A total of 73.11% (223/305) of children achieved virological success at the first viral load measurement compared to 79.63% (219/275) at the second (03 months after the first). Between the two measures, 9.83% (30/305) of children did not honour their medical appointment due to restrictions related to the COVID-19 pandemic. Also, 20.73% (17/82) of children went from not



suppressed to undetectable. Of the 13.81% (38/275) of children with virologic failure, 13.15% (5/38) are on integrase inhibitors.

**Conclusions:** This study shows that achieving virological success in children requires increased compliance in the person in charge of administering the treatment and that even under molecules with a high genetic barrier such as integrase inhibitors, obtaining virological success is not a given. Efforts must be made by all links in the management chain to guarantee the long-term effectiveness of the treatment and thus avoid the development of resistance, particularly for integrase inhibitors.

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## Barriers and Facilitators for Interventions to Improve ART Adherence in Sub-Saharan African Countries: A Systematic Review and Meta-Analysis

Buh A<sup>1,2</sup>, Deonandan R<sup>1</sup>, Gomes J<sup>1</sup>, Krentel A<sup>1</sup>, Oladimeji O<sup>3</sup>, Yaya S<sup>1</sup>

<sup>1</sup>University of Ottawa, Ottawa, Canada, <sup>2</sup>Ministry of Public Health, Yaounde, Cameroon, <sup>3</sup>Walter Sisulu University, Mthatha, South Africa

**Background:** The HIV/AIDS pandemic remains a significant public health issue, with sub-Saharan Africa (SSA) at its epicentre. Although antiretroviral therapy (ART) has been introduced to decrease new infections and deaths, SSA reports the highest incidence of HIV/AIDS, constituting two-thirds of the global new infections. This review aimed to elucidate predominant barriers and facilitators influencing ART adherence and identify effective strategies enhancing adherence across SSA.

**Materials and Methods:** A comprehensive review was conducted on studies examining barriers to ART adherence and interventions boosting adherence among HIV-positive adults aged 15 and above in SSA, published from January 2010 onwards. Databases used included Medline Ovid, CINAHL, Embase, and Scopus. Included were experimental and quasi-experimental studies,

randomized and non-randomized controlled trials, comparative before and after studies, and observational studies. Two independent reviewers screened articles, extracted pertinent data, and evaluated studies' methodological integrity using Joanna Briggs Institute's standardized appraisal tools. Compiled data underwent both meta-analysis and narrative synthesis.

**Results:** From an initial pool of 12,538 papers, 45 were selected (30 for narrative synthesis and 15 for meta-analysis). The identified barriers and facilitators to ART adherence were categorized into seven principal factors: patient-related, health system-related, medication-related, stigma, poor mental health, socioeconomic and socio-cultural-related factors. Noteworthy interventions enhancing ART adherence encompassed counselling, incentives, mobile phone short message service (SMS), peer delivered behavioural intervention, community ART delivery intervention, electronic adherence service monitoring device, lay health worker lead group intervention and food assistance. The meta-analysis revealed a statistically significant difference in ART adherence between the intervention and control groups (pooled OR=1.56, 95%CI:1.35 - 1.80, p<0.01), with evidence of low none statistically significant heterogeneity between studies (I<sup>2</sup> = 0 %, p= 0.49).

**Conclusions:** ART adherence in SSA is influenced by seven key factors. Multiple interventions, either standalone or combined, have shown effectiveness in enhancing ART adherence. To optimize ART's impact and mitigate HIV's prevalence in SSA, stakeholders must consider these barriers, facilitators, and interventions when formulating policies or treatment modalities. For sustained positive ART outcomes, future research should target specific underrepresented groups like HIV-infected children, adolescents, and pregnant women in SSA to delve into the barriers, facilitators and interventions promoting ART adherence.





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## Virological Non-suppression and Related Factors Among People Living with HIV on Dolutegravir Based Regimens: A Retrospective Study at Mbarara Regional Referral Hospital HIV Clinic

Yadesa T<sup>1</sup><sup>1</sup>Kampala International University, Mbarara, Uganda

**Background:** HIV is one of the leading causes of morbidity and mortality, with 37.7 million people living with it worldwide, 25.4 million of whom reside in Sub-Saharan Africa. Highly active antiretroviral Therapy has improved survival and quality of life, yet some patients develop viral non-suppression. Dolutegravir (DTG) has been recommended since 2018 as a first-line treatment option in low and middle-income countries due to its effectiveness, low cost, and tolerability, but some studies have reported virological non-suppression with its use. This study aims to explore the prevalence and factors associated with virological non-suppression in adults taking DTG-based regimens in Mbarara Regional Referral Hospital.

**Materials and Methods:** A retrospective cohort study was carried out among HIV-positive clients taking DTG-based HAART regimens by way of record review and SPSS was used for analysis and performed both binary and multivariate logistic regressions to test associated factors.

**Results:** Among the 422 patients' records reviewed, 62.8% were female, median age 40 (IQR=13). The prevalence of virologic non suppression was 4.2%. Poor adherence to HAART was significantly associated with VNS with 100.3 increased adjusted odds (95% CI: 28.90-348.12 p-value < 0.001) compared to those with a record of good adherence. The reasons for poor adherence included: alcohol use, stigma, forgetting to take medication, transport problems, and irregular timing of swallowing.

**Conclusion:** This study found poor adherence to be associated with the 4.2% prevalence of virological non suppression among HIV patients in a

large public HIV care clinic. Despite the high suppression rates on DTG based regimens, adherence counseling and viral load monitoring needs to be emphasized at all HIV care centers to mark the trends of virological non-suppression. Keywords: Virological, Non-suppression, Dolutegravir.

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## Factors Associated with Readiness to Start Antiretroviral Therapy (ART) Among Young People (15-24 Years) at Four HIV Clinics in Mulago Hospital, Uganda

Nkalubo J<sup>1,2,3</sup>, Kitaka Bakeera S<sup>1,3</sup>, Batte C<sup>3</sup>, Tumuhairwe R<sup>3</sup>, Asasira I<sup>3</sup><sup>1</sup>Mulago National Referral Hospital, Kampala, Uganda, <sup>2</sup>UMC Victoria Hospital, Kampala, Uganda, <sup>3</sup>Uganda National Health Research Organization, Entebbe, Uganda, <sup>4</sup>Makerere University College of Health Sciences, Kampala, Uganda

**Background:** Despite advancements in antiretroviral therapy (ART), the global HIV burden among young people is escalating. This cross-sectional study, conducted at four HIV clinics in Mulago Hospital, aimed to evaluate demographic and psycho-social factors associated with the readiness of young individuals aged 15-24 years to initiate ART.

**Materials and Methods:** A quantitative cross-sectional study involved 231 newly diagnosed HIV-positive young people. Participants, aged 15-24 years, not currently prescribed antiretroviral medication, were selected. Readiness was self-reported in response to the question, "How ready do you feel to start ART?" The study spanned from February to March 2020.

**Results:** Among the 231 participants (mean age 20.7 years, 66.2% female), a majority expressed high readiness (53.3%) and motivation (51.1%) to commence ART. Factors associated with elevated treatment readiness included being female (95% CI [5.62, 8.31], p=0.003), belief in ART curing HIV (95% CI [0.43, 0.86], p=0.005), history of unprotected sex (95% CI [0.79, 0.87], p<0.001), anticipating negative HIV results (95% CI [0.26,



0.88],  $p=0.017$ ), internalized stigma (95% CI [0.83, 0.98],  $p=0.018$ ), and knowledge of positive ART effects for others (95% CI [0.84, 0.93],  $p<0.001$ ).

**Conclusions:** Understanding factors influencing ART readiness among young people is pivotal for devising targeted strategies that support and enhance individuals' readiness for ART initiation and early engagement in care.

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## Does Operation Triple Zero (OTZ) Helps Retention of Pediatrics on HIV Management? ACE 6 Experience

Ogungbade O<sup>2</sup>, [Agboola N](#)<sup>1</sup>, Majekodunmi O<sup>1</sup>, Umeh C<sup>1</sup>, Kanu-Oji O<sup>1</sup>, Ochonye B<sup>1</sup>, Ogundehin D<sup>3</sup>, Igboelina O<sup>3</sup>

<sup>1</sup>Heartland Alliance Limited by Guarantee (HALG), Ikeja, Nigeria, <sup>2</sup>West Africa Center for Public Health and Development (WACPHD)(WACPHD), Ikeja, Nigeria, <sup>3</sup>United States Agency for International Development (USAID), Abuja, Nigeria

**Background:** Good retention of Children Living with HIV (CLHIV) on care and treatment is considered one of the planks in sustaining the quality of child management. The aim of this study is to share the experience of how a USIAD-funded project, Accelerating the control of HIV Epidemic cluster 6 (ACE 6) in Nigeria is fast tracking and closing the gap of poor retention rate among children less than 15 years on Care and Treatment through Operation Triple Zero (OTZ) - zero viral load, zero missed appointments, and zero missed drugs, within three high-volume Health Facilities (HF) in three southern states (Bayelsa, Edo and Lagos) within Nigeria.

**Materials and Methods:** A comparative analysis of the pediatric clients enrolled and their retention prior to ACE6 project were studied for the research. Patient records from the electronic medical record (EMR), and OTZ club attendance were analyzed using Microsoft Excel 2023 to identify the immediate effect of the intervention on retention in treatment.

**Results:** A total of 1112 pediatric patient records in were collected from the 2022 cohort, with 56

newly enrolled (27 male and 29 female). The 56 clients who were enrolled in the semi-annual of 2022 had 81% retention in care at the end of year 2022. In the year 2023, all the cohorts 56 newly enrolled (27 male and 29 female) participated in age-band OTZ clubs where empowerment and education engagement were adopted. An upward trend of retention rate was recorded across the health facilities. A cumulative retention rate of 75% in Q4 2022 moved to 98% at Q3 2023. The two percent are recorded to be aged out of pediatrics as of September 2023 are found to be champions in the support groups coordinating peer-to-peer refills.

**Conclusions:** The outcome of the study demonstrates that youth-friendly engagement such as OTZ club is a supportive strategy for achieving adherence to ART and retention in care of CLHIV.

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## READY for an AIDS Free Future: A Peer-Led Strategy of Trained HIV Lay Testers to Reach the Most-At-Risk Populations in Maputo

[Dziwa C](#)<sup>1</sup>, Chimatira I<sup>1</sup>, Osorio M<sup>1</sup>, Suande V<sup>1</sup>  
<sup>1</sup>Frontline Aids, Cape Town, South Africa

**Background:** AIDS is the leading cause of death among adolescents in sub-Saharan Africa, accounting for 92% of deaths. Despite global HIV decline, testing rates remain low, especially in Mozambique. The UNAIDS 95-95-95 targets are being pursued, but low awareness of HIV status remains a significant issue. The READY for an AIDS-Free Future project aims to identify at-risk adolescents for HIV testing.

**Materials and Methods:** The READY for an AIDS-Free Future program in Maputo, Mozambique, aims to increase HIV testing among adolescents and young people, particularly the marginalized. 104 peer counsellors and educators were trained to identify adolescents and young people for HIV and SRH service provision. Twenty-five were trained as HIV lay testers. The training was facilitated by the Maputo Province Health



Directorate and supervised by health service providers from eight selected health facilities. The first week focused on theory-based training on HIV testing, professional ethics, biosafety, quality of testing, and counselling. The second week involved a practicum, where trainees conducted HIV tests. The programme mobilized clients from hotspots where the most-at-risk individuals were located.

**Results:** Over two and a half years, 69,863 adolescents and young people were mobilized for HIV testing in Maputo and Matola. Out of these, 67% received HIV testing services, with 1,209 newly diagnosed. 89% received at least two tailor-made HIV and SRH services. A total of 2,359 were classified as "other," indicating the intervention's positive effect on identifying and mobilizing adolescents and young people in their diversity. Ninety-two percent of newly diagnosed individuals were linked to ART programmes, and all clients were successfully retained over 24 months.

**Conclusions:** Identification of individuals newly diagnosed with HIV can be enhanced by increasing support from lay testers who provide testing services and mobilization support. These testers, some living with HIV, share their experiences with adolescents and young people, encouraging them to take up HIV testing. Governments should review policies to ensure community-level support for HIV lay testers and expand HIV services to the most-at-risk.

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## Viral Suppression (vs) Among Adult PLHIVs Enrolled in Community DSDM Services in Ethiopia

**Minda A**<sup>1</sup>, Abraham, D<sup>1</sup>, Alemayehu L<sup>1</sup>, Andargie G<sup>1</sup>, Tekeste A<sup>1</sup>, Shiferie F<sup>1</sup>, Negash A<sup>2</sup>, Hayes A<sup>3</sup>, Yitayal M<sup>4</sup>, Azale T<sup>4</sup>

<sup>1</sup>Project HOPE Ethiopia, Addis Ababa, Ethiopia, <sup>2</sup>USAID Ethiopia, Addis Ababa, Ethiopia, <sup>3</sup>Project HOPE USA, Washington DC, USA, <sup>4</sup>Gondor University, Gondor, Ethiopia

**Background:** The public health and personal benefits of the three 95 HIV targets ultimately hinge on achieving the third 95, community-wide VS. Non-facility-based ART delivery for PLHIVs

might increase sustainable ART coverage in low and middle-income countries. Ethiopia has adopted two community differentiated ART service delivery models (cDSDM), Health extension professional managed community ART refill groups (HEP\_CAG) and peer lead community ART distribution (PCAD). This study aims to assess the effect of cDSDM interventions on HIV VS among enrolled clients.

**Materials and Methods:** Cross-sectional study design with retrospective document review of clients enrolled in cDSDM from Dec. 2018 to June 2023 conducted from September - October 2023 to describe the status of VS in 44 randomly selected health facilities (HFs) from seven PEPFAR-supported regions. Records of 1,377 randomly selected clients proportionally allocated to each facility reviewed. SPSS v21 was used for statistical analysis and descriptive analysis was made.

**Results:** Two third (68.1%) were enrolled to P-CAD, and 82.1% were from the three big regions. 39.4% were in the age group of 35-44yrs; 75.2% were female; 42.4% attended primary education and 52% were married. Most participants (95.6%) were urban residents, and 95.5% had mobile phones. There were 102,692 PLHIV on ART in the 44 health facilities and 27,015 clients in 5,287 groups enrolled to cDSDM. The ART refill was every three months. Medication refills, adherence counseling, symptom screening, psychosocial support, and linkage to care and support were the commonest services provided. The study showed that in 61.36% of HFs, ART clients were linked to community care and support; and in all health facilities, ART clients were linked to psychosocial support services. More than 70.6% of the study participants had suppressed viral load at enrollment to cDSDM. More than 81.5% cDSDM members were tested for viral load at least once for most recent clinical visits; and among tested, 99.8% had VS.

**Conclusions:** Community models of ART delivery were effective in terms of achieving VS. It creates access to additional care and support and psychosocial support services which are critical to bring a sustained VS. We recommend the scaleup of cDSDM in similar settings across Africa.



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## High Retention in Care Among Adults enrolled to a Community Differentiated HIV Treatment Program in Ethiopia

Minda A<sup>2</sup>, Abraham, D<sup>3</sup>, Alemayehu L<sup>4</sup>, Andargie G<sup>1</sup>, Tekeste A<sup>1</sup>, Shiferie F<sup>1</sup>, Negash A<sup>2</sup>, Hayes A<sup>3</sup>, Yitayal M<sup>4</sup>, Azale T<sup>4</sup>

<sup>1</sup>Gondor University, Addis Ababa, Ethiopia, <sup>2</sup>USAID Ethiopia, Addis Ababa, Ethiopia, <sup>3</sup>Project HOPE USA, Washington DC, USA, <sup>4</sup>Gondor University, Gondor, Ethiopia

**Background:** National HIV programs are striving to achieve the 95 targets. In sub-Saharan Africa, one third of adults disengaged from care within five years of starting treatment. As an innovative solution, implementation of differentiated care is recommended, a client-centered approach that simplifies and adapts HIV services across the cascade. Two community differentiated service delivery models (cDSDM) were introduced in Ethiopia (HEP\_CAG and PCAD) since 2018. This study aims to evaluate the effect of cDSDM interventions on retention to care.

**Materials and Methods:** Cross-sectional study with retrospective document review of enrolled clients from Dec. 2018 to June 2023 conducted from September - October 2023 in 44 randomly selected health facilities (HFs) from seven PEPFAR-supported regions. Records of 1,377 randomly selected clients proportionally allocated to each facility reviewed. SPSS v21 was used for statistical analysis and descriptive analysis was made.

**Results:** Most participants (95.6%) were urban residents, and 95.5% had mobile phones. Two third (68.1%) were enrolled to PCAD; 82.1% were from the three big regions; 39.4% were in the age group of 35-44 years; 75.2% were female; 42.4% attended primary education and 52% were married. There were 102,692 PLHIV on ART in the 44 facilities and 27,015 clients in 5,287 groups enrolled to cDSDM. The ART refill was every three months. Medication refills, adherence counseling, symptom screening, psychosocial support, and linkage to care and support were the commonest services provided. The study showed that in 61.36% of the HFs, ART clients were linked to community care and support; and in all HFs, ART clients were linked to psychosocial support services. On average 98.6% of participants were on

cDSDM and only 0.1% were lost to follow-up. The retention on the first, second, and third most recent clinical visits was 97.7%, 98.7%, and 99.5% respectively. The attrition rate was only 0.0%, 0.1%, and 0.2% for first, second, and third most recent clinical visits, respectively.

**Conclusion:** The retention of clients in cDSDM was very high and cDSDM service packages enabled clients to be retained in care. Scaleup of cDSDM across contexts in sub-Saharan countries should be considered to support greater retention in care for PLHIVs.

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## Evaluating HIV Care Continuum, From Testing to Viral Load Suppression Among Key Populations in Nigeria

Ukaga D<sup>1</sup>, Okeh S<sup>1</sup>, Onota A<sup>1</sup>, Momoh B<sup>1</sup>, Nwaogu P<sup>1</sup>, Hussain H<sup>1</sup>

<sup>1</sup>Society for Family Health, Abuja, Nigeria

**Background:** HIV Testing Services serve as a crucial entry point for HIV prevention, treatment, and care support, particularly among Key Populations (KPs) such as Men who have sex with men (MSM), female sex workers (FSW), people who inject drugs (PWID), people in prison or closed setting (PICC). However, in Nigeria, where KPs are marginalised and face significant stigma, accessing and adhering to HIV care services presents formidable challenges. Understanding the continuum of care for these marginalized groups is paramount for targeted interventions and improved public health outcomes. This study aims to comprehensively evaluate the HIV Care Continuum among key populations in Nigeria, focusing on the journey from testing to viral load suppression.

**Materials and Methods:** Key populations (FSW, MSM, PWID, PICC) through case finding, field visits and moonlight (night) testing in the communities were tested and linked to care and treatment at the One-Stop Shop facilities in seven Nigerian States (Abia, Gombe, Kaduna, Kano, Plateau, Kwara, Oyo) from January to December 2023. Programme data (number of KPs reached with HIV prevention education, HIV testing uptake, HIV



positive case identification, linkage to care, viral load Assay, viral suppression and Enhanced Adherence counselling) was generated and analysed using DHIS.

**Results:** The result shows that 51,625 MSM, 73,675 FSW, 28,208 PWID and 2,766 PICC were reached with HIV messaging, with corresponding testing. Of these, 533 MSM, 504 FSW, 211 PWID and 18 PICC tested positive. Subsequently, 502 FSW, 525 MSM, 211 PWID and 17 PICC were successfully linked to care with a total of 9,772 KPs current on treatment. Following the UNAIDS global objective on the 3rd 95, a total of 8712 were eligible for Viral Load Assay, 8956 samples were collected, 7,611 results were received and 7,010 were virally suppressed with a suppression rate of 92% while a total of 417 unsuppressed KPs were put on enhanced adherence counselling to ensure they adhere to their treatment.

**Conclusions:** These findings emphasise the importance of targeted interventions in addressing HIV care continuum gaps among KPs in Nigeria. Sustained efforts are needed to enhance access, linkage to care, and viral load suppression for improved public health outcomes.

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## Institutionalization of the Client audit tools improves the Quality of Care for the Children and Adolescents Living with HIV in Uganda, A key lesson learnt by Uganda Protestant Medical Bureau.

Mikago P<sup>1</sup>, Alima H<sup>1</sup>, Mporampora D<sup>1</sup>, Akot G<sup>1</sup>, Musiime F<sup>1</sup>, Muhumuza A<sup>1</sup>, Ainomujuni R<sup>1</sup>, Kasadha H<sup>1</sup>

<sup>1</sup>Uganda Protestant Medical Bureau, Kampala, Uganda

**Background:** Children and Adolescents Living with HIV (CALHIV) have suboptimal treatment outcomes compared to adults (Uganda Population based HIV Impact Assessment 2020). CALHIV receive an incomplete package of services due to poor clinic systems and processes with missed opportunities, staffs Knowledge gaps, a high staffs-

turn over and reluctance. Under the Local Service Delivery for HIV AIDS Activity (LSDA) being implemented by Uganda Protestant Medical Bureau (UPMB) 188 Private Not For Profit Health (PNFPs) Facilities serving over 7792 CALHIV as of Feb 2023 were supported. The Ministry of Health rolled out use of the audit tool that monitors quality and access to comprehensive HIV services at facility level.

**Materials and Methods:** We established a base line of all services provision among all the 7792 CALHIV at facilities supported by the project, designed a project matrix for tracking quality and submission of audit tools, built capacity of frontline service providers (midwives, health information assistants, nurses and linkage facilitators) through virtual cross learning sessions and hands on training about the audit-tool utilization. Project staffs were attached to facilities to monitor monthly and weekly performance following facility micro-plans. Clients' charts were tagged with missed services before the appointment dates.

**Results:** All services provision among the CALHIV improved from 21% ( 1637 CALHIV) as of Feb 2023 to 76% ( 5921 CALHIV) by August 2023. Improving treatment outcomes among the CALHIV requires provision of quality services.

**Conclusions:** Capacity building of frontline service providers improves quality of care among CALHIV. Weekly Micro-plans developed following prior facility audit tool utilization meetings before appointments enable provision of all services. Institutionalizing weekly audit tool use, facility micro-plans and regular cross leaning sessions improve the quality of care.



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## HIV-1 Drug Resistance Mutations and Genetic Diversity Among Children Therapeutic Failure in Five Health Cares in Benin, West Africa

Dagba Gbessin H<sup>1</sup>

<sup>1</sup>NATIONAL PROGRAM FIGHTING AGAINST AIDS, Cotonou, Benin

**Background:** Antiretroviral treatment failures increase the risk of accumulation of resistance mutations that negatively impact future treatment options, and this situation is all the more worrying in the case of children because they are in the early stages of life and the pharmaceutical formulations available are limited. In Benin, assessment of antiretroviral resistance is poorly documented, even eighteen years after the start of antiretroviral therapy in children living with HIV.

**Materials and Methods:** This was a cross-sectional study of 47 children under 15 years of age with virological failure of ARV treatment (VL  $\geq$  3log<sub>10</sub> on two consecutive realisations three months apart). Viral loads were measured using the m2000 RealTime platform from Abbott Laboratories. Viral RNA was amplified using the Viroseq commercial kit on the entire protease and the first 330 amino acids of the reverse transcriptase. The amplicates were purified and sequenced using the Viroseq kit and sequences subjected to the ABI 3500 genetic analyser from Applied Biosystem. Finally they were submitted to the HIVdb database to identify mutations. Viral subtypes were assigned for bootstrap values greater than 0.80.

**Results:** The mean age of the children was 112 months [24-168]. The most prevalent therapeutic line was ABC+3TC+LPV/r (n=11) and the mean viral load was 4.43 log<sub>10</sub> [3.81-4.86 log<sub>10</sub>]. In total, 78.72% (37/47) of the samples were correctly amplified and sequenced. Of these, 83.78% (31/37) carried at least one mutation associated with resistance, of which NNRTI, NRTI, PI and NNRTI+NRTI represented 90.62% (29/32), 27/32 (84.37%), 4/32 (12.90%), 25/32 (78.12%). Among the NRTI-associated mutations, M184V represents 88.46% (23/26), the TAMs represents 40.62%

(13/32). K103N accounted for 64.28% (18/28) of NNRTI-associated mutations, followed by P225H with a proportion of 28.57% (08/28). The major mutation associated with PIs is I54V (n=3). CRF02\_AG was the predominant strain isolated with a proportion of 80.64% (25/31) followed by G (2/31) and 12.50% A (4/31).

**Conclusions:** A high rate of mutations was observed in children. This highlights the importance of implementing genotypic testing routinely in Benin in the biological monitoring of infected children in order to anticipate virological failure and avoid the accumulation of mutations associated with resistance.

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## Factors Influencing Adolescent (15-19 Years) Attrition from Antiretroviral Clinics in Private Not-For-Profit Health Facilities Within the Masaka Region, Uganda 2022-2023

Tamale R<sup>1</sup>, Ariaka M<sup>1</sup>, Nyeko C<sup>1</sup>, Khisa J<sup>1</sup>, Sekimpi L<sup>1</sup>, Kasyaba R<sup>1</sup>

<sup>1</sup>Uganda Episcopal Conference Uganda Catholic Medical Bureau, Kampala, Uganda

**Background:** Adolescents living with HIV often face challenges in maintaining consistent engagement with antiretroviral therapy (ART) programs, leading to high attrition rates. Understanding factors influencing retention in care is essential for developing effective interventions for adolescents. This study aims to investigate factors contributing to attrition among adolescents enrolled in ART programs at private not-for-profit (PNFP) health facilities supported by the Uganda Episcopal Conference (UEC) in Uganda.

**Materials and Methods:** A mixed-methods approach was employed to collect data during October 2022–May 2023. We obtained quantitative data through medical chart reviews and adherence counselling session cards for adolescents aged 15-19 years who were enrolled in the ART program and had experienced attrition during the review period. Data was collected



through use of a root cause analysis (RCA) questionnaire that was designed to understand client related barriers to retention among eligible adolescents without sampling. Pareto rule from the RCA was developed using advanced excel to identify significant predictors of attrition.

**Results:** Of the 250 participants, 137 (55%) were female. The average duration on ART was 3.5 years. The attrition rate was found to be 32.4%. Qualitative data analysis revealed that older adolescents (17-19) disproportionately contributed 42% of all adolescents that experienced attrition. Further RCA analysis revealed that non-disclosure of HIV status to a peer contributed 36%, and longer travel distance (more than 10 KMs) contributed 20% and cited as significant predictors of attrition. Other predictors included stigma, lack of family support, and medication side effects contributing 2% to attrition rates

**Conclusions:** Interventions should prioritize the creation of safe spaces for discussing HIV status, stigma reduction initiatives, and the establishment of community-based support clinics to overcome geographical barriers. The study findings also underscore the importance of addressing broader issues, including family dynamics, and medication side effects. A holistic approach, integrating psychosocial support from family, peers, and healthcare providers is essential for effectively mitigating these factors and fostering sustained engagement with ART programs. These recommendations aim to inform policy and practice for improving adolescent outcomes in ART programs.

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## Observance Thérapeutique des PVVIH sous ARV Suivies au Centre de Santé de Référence de Sélingué, Juillet 2022

Kamissoko C<sup>1</sup>

<sup>1</sup>Centre De Santé De Référence De Sélingué, Sélingué, Mali

**Contexte :** L'observance du traitement antirétroviral (ARV) est un élément essentiel du succès thérapeutique permettant une

amélioration des résultats virologiques, immunologiques et cliniques. En absence de rapport d'étude antérieur à la présente et vue la nécessité d'atteindre les objectifs de l'ONUSIDA nous avons décidé d'évaluer l'observance du traitement ARV chez les PV-VHIH adultes suivis au centre de santé de référence (CSRéf) de Sélingué sur les données du 1er janvier 2021 au 30 juin 2021.

**Matériels et Méthodes :** Il s'agissait d'une étude transversale descriptive réalisé au CSRéf de Sélingué du 1er janvier au 30 juin 2021. Nous avons procédé à un échantillonnage exhaustif de l'ensemble des patients vivants avec VIH (PVVIH) suivis en ambulatoire. Nos variables d'intérêts étaient d'ordre sociodémographiques, biologiques et de suivis. Les données ont été saisies sur Excel puis analysées sur Epi-Infos 7.2.5.

**Résultats :** Un total de 163 patients suivis pour traitement ARV ont été recensés. La tranche d'âge la plus représenté était de 25-34 ans avec un ratio de 3,18 en faveur du sexe féminin. L'infection à VIH1 était prédominante à 100%. Dans notre étude 82,2% des patients respectaient le rendez-vous des renouvellements de l'ordonnance. La prise des médicaments conformément à la prescription du médecin était retrouvée dans 74,8% à J0, 89% à 3mois et 95,7% à 6mois de traitement. Le niveau d'observance était de 76,6% au début de l'étude 82,8% à 3 mois et à 95,7% à 6 mois de l'étude chez les patients suivis. Il existait une relation statistiquement significative entre le niveau d'observance et la présence des effets secondaires ( $p=0,02$ ) et entre le niveau d'observance et la charge virale ( $p=0,00$ ). Les causes d'inobservance les plus observées étaient respectivement l'oubli (42,9%), le refus pour effets indésirables (21,3%), le manque de moyen de déplacement (14,3%) et le manque de soutien familial (14,3%).

**Conclusions :** Nous constatons une bonne observance thérapeutique chez les PVVIH de Sélingué. Les difficultés rencontrées étaient d'ordre sociales et économiques. L'engagement conjugué de tous les acteurs permettra de relever les défis.



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## Comparative Analysis and Genomic Diversity of Human Immunodeficiency Virus (HIV-1) in West Africa

Olufemi S<sup>1,2</sup>, Adediran D<sup>1,2</sup>, Oladipo E<sup>1,3</sup>

<sup>1</sup>Helix Biogen Institute, Ogbomoso, Nigeria, <sup>2</sup>Ladake Akintola University of Technology, Ogbomoso, Nigeria, <sup>3</sup>Adeleke University, Ogbomoso, Nigeria

**Background:** With the heightened Human Immunodeficiency Virus (HIV-1) burden across Africa, West Africa has been one of the most diverse and populated regions in the continent. There is a need to understand the genetic variability of HIV-1 in this region which impacted the viral pathogenesis and transmission, which could help in developing effective prevention and treatment strategies. Therefore, we opt to analyze HIV-1 genomes from West African countries, to inform public health decisions.

**Materials and Methods:** Whole Genome Sequences of HIV-1 isolated from humans and its reference genome were received from the NCBI Virus database across the West African countries, pair-wise and multiple sequence alignments were carried out MEGA 11 Software exploring the ClustalW, also plotted a phylogenetic tree using Maximum-Likelihood on MEGA 11. Furthermore, GLAM2 was used to predict reoccurring motifs and patterns in these sequences, and Tomtom was used for motif identification. HIVDB was used to predict the resistance of the genomes against available antiretroviral drugs.

**Results:** The study showcases that West Africa only accounts for about 3.5% of the whole genome sequences represented in the genomic database in Africa for HIV-1. Interestingly only 7 out of the 16 West African countries are represented in the database. Upon multiple sequence alignment, we discovered a great deviation from the HIV-1 reference genome, which might be due to the mutation nature of the virus. We found out that sequences of HIV-1 from Guinea Bissau, Ghana, and Senegal are clustered with that of reference sequence. Also, we noticed different mutations in the genome of HIV-1 from Nigeria, and Senegal which confer resistance to some Non-Nucleoside Reverse Transcriptase inhibitor therapies in those countries.

**Conclusions:** The comparative analysis of HIV-1 genomic diversity in West Africa underscores the complexity of the viral population and its implications for regional public health. The identified unique genetic patterns inform the need to develop tailored prevention and treatment strategies. These insights contribute to the global understanding of HIV-1 evolution and reemphasize the need for thorough genomic surveillance to guide effective public health interventions in West Africa.

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## Major Drug-Resistant Mutations Detected in HIV-1 Proviral DNA Among Virologically Suppressed Individuals in Botswana

Mokgethi P<sup>1,2</sup>, Kaumba P<sup>1,2</sup>, Choga W<sup>1,3,4</sup>, Maruapula D<sup>1</sup>, Moraka N<sup>1,4</sup>, Seatla K<sup>1</sup>, Bareng O<sup>1,4</sup>, Ditshwanelo D<sup>1</sup>, Mohammed T<sup>1</sup>, Moyo S<sup>1,4,5,6,7</sup>, Koofhethile C<sup>1,5</sup>, Mpoloka S<sup>2</sup>, Gaseitsiwe S<sup>1,5</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana, <sup>2</sup>Department of Biological Sciences, University of Botswana, Gaborone, Botswana, <sup>3</sup>Centre of Epidemic Response and Innovation, Faculty of Data Sciences, Stellenbosch University, Cape Town, South Africa, <sup>4</sup>School of Allied Health Professionals, Faculty of Health Sciences, University of Botswana, Gaborone, Botswana, <sup>5</sup>Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, United States, <sup>6</sup>School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa, <sup>7</sup>Division of Medical Virology, Faculty of Medicine and Health Sciences, Stellenbosch University, Tygerberg, South Africa

**Background:** Resistance testing is often performed due to HIV viremia rebound or for switching therapy but may be unsuccessful if plasma RNA levels are too low or undetectable. Most commercial resistance assays can only be performed on samples with viral loads (VLs) above 1000 copies/mL. HIV drug resistance mutations (DRMs) in samples with VL<1000 copies/mL including those with undetectable VL have been associated with future virologic failure. Alternatively, optimized in-house resistance assays with high sensitivity can be used to perform resistance testing in proviral samples with undetectable HIV VLs and low-level viremia (LLV). In this study, we utilized an in-house HIV drug





resistance assay to characterize DRMs in proviral DNA samples with undetectable VL.

**Materials and Methods:** We used HIV proviral DNA samples from 43 virologically undetectable individuals (HIV RNA viral load <40 copies/mL) from a private Clinic in Botswana collected from 2019-2021. Genotypic resistance testing was performed on proviral DNA using an in-house method and sequenced Sanger sequencing platform. Stanford University's HIV Drug Resistance Database was used for mutational analysis. Major HIV-DRMs associated with non-nucleoside reverse transcriptase inhibitors (NNRTIs) and nucleoside reverse transcriptase inhibitors (NRTI) were analyzed. The proportions of HIV DRMs amongst participants were estimated with 95% confidence intervals (95% CI).

**Results:** The median age at enrolment was 43 years (Q1, Q3: 37-47). A total of 7/20 (35%) participants had at least one HIV DRM and 3 individuals had a combination of both NRTI or NNRTI DRMs. 3/20 (15%) had major DRMs associated with NRTIs whereas 7/20 (35%) had major DRMs associated with NNRTIs only. HIV DRMs M184V (NRTIs), K103N and E138A (NNRTIs) were the most predominant mutations and reported at 15% each. Mutations potentially affecting rilpivirine (RPV) activity including E138A, Y181C and H221Y were detected in 4 individuals.

**Conclusions:** Major HIV-DRMs were observed among virologically suppressed individuals with undetectable HIV RNA viral load. While plasma RNA genotyping remains the drug resistance compartment of choice, proviral DNA genotyping may provide value as an additional informative tool on the burden of drug resistance, especially before switching antiretrovirals in virologically suppressed individuals.

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## Development of Human immunodeficiency virus Type 1 Subtype C Based Latency Model and the Impact of Transmitted/Founder Long Terminal Repeat Genetic Variation on Viral Latency Reactivation

Maikoo S<sup>1,2</sup>, Palstra R<sup>3</sup>, Dong K<sup>4,5,6</sup>, Mahmoudi T<sup>3,7,8</sup>, Ndung'u T<sup>1,2,4,9</sup>, Madlala P<sup>1,2</sup>

<sup>1</sup>HIV Pathogenesis Programme, University Of Kwazulu-natal, Durban, South Africa, <sup>2</sup>School of Laboratory Medicine and Medical Sciences, University of Kwazulu-Natal, Durban, South Africa, <sup>3</sup>Department of Biochemistry, Erasmus University Medical Center, Ee634, PO Box 2040 3000CA, Rotterdam, The Netherlands, <sup>4</sup>Ragon Institute of Massachusetts General Hospital, Massachusetts Institute of Technology, and Harvard University, Cambridge, Massachusetts, United States of America, <sup>5</sup>Infectious Disease Division, Massachusetts General Hospital, Boston, Massachusetts, United States of America, <sup>6</sup>Harvard Medical School, Boston, Massachusetts, United States of America, <sup>7</sup>Department of Pathology, Erasmus University Medical Center, The Netherlands, <sup>8</sup>Department of Urology, Erasmus University Medical Center, The Netherlands, <sup>9</sup>Africa Health Research Institute, Durban, KwaZulu-Natal, South Africa

Persistent latent reservoirs comprising of cells infected with replication competent, yet transcriptionally silent HIV-1 proviruses is a major block to HIV-1 infection cure. HIV-1 cure research has focused on HIV-1 subtype B instead of subtype C, although the latter is responsible for approximately 50% of global and 98% of Southern Africa infections. This is partially due to a lack of subtype C latency models. Although latent reservoirs are established early in infection, the effect of transmitted/founder (T/F) virus genetic variation on the propensity of latency reactivation remains to be fully investigated. Therefore, we hypothesized that a HIV-1 subtype C (HIV-1C) based latency model (C J-Lat) and T/F viruses may exhibit different sensitivity to latency reversing agents (LRAs) compared to subtype B. The HIV-1C based minimal genome GFP reporter lentiviral vector, LTR C-Tat C-IRES-GFP (C731CC) was constructed by replacing subtype B Tat and LTR of the pEV731 vector with subtype C consensus Tat and LTR. C731CC viruses were produced by co-transfecting 293T cells with C731CC together with R8.91 and VSV-G plasmids. C731CC viruses were then used infect Jurkat cells such that they



contained a single integrated C731CC provirus to develop the C J-Lat latency model. Subtype B and C Tat expression levels and integrated copies were measured by Western blot and Alu-Gag PCR respectively. Lastly, subtype C consensus LTR in the C731CC vector was replaced with diverse patient-derived T/F LTR (CT/F731CC), CT/F731CC viruses were produced as above and used to develop Jurkat cell line- and primary CD4+ T-cell-based latency models. Different LRAs (PMA, TNF- $\alpha$  and SAHA) were used to reactivate latent proviruses. We showed that the HIV-1C exhibited significantly reduced sensitivity to reactivation by different LRAs compared to HIV-1B. However, both subtypes had similar Tat expression levels and integrated DNA copies. Furthermore, latent CT/F731CC LTR viruses exhibited differential reactivation potential. Our data show that there was inter- and intra-subtype differential reactivation among latent viruses, suggesting that the HIV-1 LTR genetic variation could play a role in the propensity for latency reversal. Future studies should investigate the genetic determinants of differential reactivation and the correlation of this latency reactivation with reservoir size.

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## Altered Substrate Use and Mitochondrial Phenotypes in HIV+ Leukocytes

Akiso M<sup>1,2</sup>, **Ameka M**<sup>1,2</sup>, Naidoo K<sup>4</sup>, Langat R<sup>2,5</sup>, Kombo J<sup>1,2</sup>, Sikuku D<sup>1</sup>, Ndungu T<sup>4</sup>, Altfeldt M<sup>3</sup>, Anzala O<sup>1,2</sup>, Mureithi M<sup>1,2</sup>

<sup>1</sup>Department of Medical Microbiology & Immunology, Faculty of Health Sciences, University of Nairobi, PO Box 30197 Nairobi, Kenya., Nairobi, Kenya, <sup>2</sup>KAVI Institute of Clinical Research (KAVI-ICR), the University of Nairobi, PO Box 30197 Nairobi, Kenya, Nairobi, Kenya, <sup>3</sup>Institute of Immunology, University Medical Center Hamburg-Eppendorf, Hamburg 20246 Germany; Virus Immunology Department, Heinrich Pette Institute, Leibniz Institute for Experimental Virology, Hamburg 20246 Germany, Hamburg, Germany, <sup>4</sup>HIV Pathogenesis Programme, The Doris Duke Medical Research Institute, Nelson R. Mandela School of Medicine, University of KwaZulu-Natal, 719 Umbilo Road, Durban, 4013, South Africa, Durban, South Africa, <sup>5</sup>Division of Surgical Outcomes and Precision Medicine Research, Department of Surgery, University of Minnesota Twin Cities, Minnesota, USA

**Background:** For an optimal response to HIV infection, immune cells require a robust and adaptable metabolic program that is fueled by dynamic mitochondrial activity. In this study, we

investigated the metabolic alterations occurring in immune cells during chronic HIV infection and antiretroviral therapy by analyzing the uptake of various metabolic substrates and mitochondrial phenotypes. By delineating changes in immune cell metabolic programming during HIV, we may identify novel potential therapeutic targets to improve anti-viral immune responses.

**Materials and Methods:** Whole blood was drawn from HIV uninfected women and women with chronic HIV infection on long-term combination antiretroviral therapy (HIV/cART). Leukocytes derived from peripheral blood mononuclear cell were directly incubated with different fluorescently tagged metabolites and markers of mitochondrial activity: FITC-2-NBDG (2-[N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl) amino]-2-deoxy-D-glucose), FITC-BODIPY (4,4-Difluoro-5,7-Dimethyl-4-Bora-3a,4a-Diaza-s-Indacene-3-Hexadecanoic Acid), FITC-MitoTracker Green and APC-MitoTracker Deep Red. The uptake of glucose and fats and the mitochondrial mass and potential were measured using flow cytometry. All values were reported quantitatively as geometric means of fluorescence intensity.

**Results:** During chronic HIV infection, cellular uptake of glucose increased in HIV+ dendritic cells in particular. CD4+ T cells had the lowest uptake of glucose and fats compared to all other cells regardless of HIV status, while CD8+ T cells took up more fatty acids. Interestingly, despite the lower utilization of glucose and fats in CD4+ T cells, mitochondrial mass increased in HIV+ CD4+ T cells compared to HIV negative CD4+ T-cells. HIV+ CD4+ T cells also had the highest mitochondrial potential.

**Conclusions:** Significant disparities in the utilization of substrates by leukocytes during chronic HIV/cART exist. Innate immune cells increased utilization of sugars and fats while adaptive immune cells displayed lower glucose and fat utilization despite having a higher mitochondrial activity. Our findings suggest that cART treated HIV-infected CD4+ T cells are dysfunctional or may prefer alternative fuel sources not included in these studies. This underscores the importance of understanding the metabolic effects of HIV treatment on immune function.



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## Using Multi-Distribution Modalities to Increase Access to HIV Self-Testing Among Adolescents and Young Persons in Southern Nigeria

**Njom P**<sup>1</sup>, Akpan U<sup>2</sup>, Elechi I<sup>1</sup>, James A<sup>1</sup>, Okafor C<sup>3</sup>, Arthur S<sup>1</sup>, Aloro E<sup>1</sup>, Unimuke M<sup>2</sup>, Manuba C<sup>3</sup>, Etsesimokhai Q<sup>3</sup>, Onwah O<sup>2</sup>, Nwanja E<sup>2</sup>, Okolo C<sup>2</sup>, Toyo O<sup>2</sup>, Oyawola B<sup>4</sup>, Nwageneh C<sup>3</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Agweye A<sup>4</sup>, Obiora-Okafo C<sup>4</sup>, Idemudia A<sup>4</sup>, Nwadike C<sup>4</sup>, Kakanfo K<sup>4</sup>, Pius B<sup>4</sup>, Onimode B<sup>4</sup>, Raji A<sup>4</sup>, Kagniniwai B<sup>4</sup>, Asaolu O<sup>4</sup>, Bashorun A<sup>6</sup>, Gambo A<sup>7</sup>, Onime D<sup>4</sup>, Pius J<sup>4</sup>, Oyelaran O<sup>4</sup>, Goldstein R<sup>4</sup>, Onyedinachi O<sup>2</sup>, Adegboye A<sup>2</sup>, Eyo A<sup>2</sup>

<sup>1</sup>Achieving Health Nigeria Initiative (AHNI), Uyo, Nigeria, Uyo, Nigeria, <sup>2</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, <sup>3</sup>Family Health International (FHI360), Uyo, Nigeria, <sup>4</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria, <sup>5</sup>Office of HIV/AIDS, United States Agency for International Development (USAID), Washington DC, USA, <sup>6</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, Nigeria, <sup>7</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria

**Background:** HIV Self-testing (HIVST) is a key entry point into HIV prevention and care for Adolescents and young persons (AYP) at risk of HIV. The Accelerating Control of the HIV Epidemic in Nigeria (ACE-5) project funded by PEPFAR through USAID distributed HIVST kits to AYP through multi-distribution modalities to improve early HIV diagnosis for AYP living with HIV. This study compared HIVST distribution volumes across distribution modalities in Akwa Ibom, Nigeria.

**Materials and Methods:** This was a retrospective cross-sectional study among AYP (10-24 years) who received HIVST kits from October 2022 to April 2023, in 21 local government areas of Akwa Ibom state, Nigeria. HIVST kits were distributed through four channels namely: 1- health facilities (to partners of pregnant/breastfeeding AYP during antenatal/immunization clinics); 2- community/mobile points (to social networks/sexual partners of AYP living with HIV (AYPLHIV) diagnosed in the community; 3- peer distribution (through AYPLHIV attending facility-based adolescent refill clubs, to their sexual/social networks); 4- community pharmacies (distributed for a fee to AYP visiting community pharmacies for

routine services). All HIVST distribution was directly assisted, and test results were collected via phone calls/home visits by trained providers. Positive HIVST results were confirmed in line with national guidelines. The primary outcome was the volume of HIVST distributed across the modalities. Age and sex of the HIVST user, and distribution modality were aggregated from HIVST service registers and distribution volumes were compared across modalities using one-way ANOVA.

**Results:** In total, 25,882 AYP (M:13,150, F:12,732) received HIVST kits. 45.8% (n=11,859) received kits through peer distribution; 40.0% (n=10,349) through community/mobile distribution, 13.3% (n=3,452) through health facilities, and 0.9% (n=222) through community pharmacies (F(3,24)=12.22, p<0.001). A Turkey post-hoc test revealed a significantly higher HIVST kit distribution volume through peers compared to health facilities (1201±320.5; p=0.005), and compared to community pharmacies (1662±320.5; p<0.001), but comparable distribution volume with the community/mobile modality (216±320.5; p<0.91). 0.2% (54/25,883) AYP reported positive HIVST results, of which 96.3% (n=52) were confirmed HIV positive.

**Conclusions:** Peer-based and community/mobile distribution modalities were more effective at reaching AYP in this setting. Programs looking to reach AYPs could explore peer-based and community/mobile distribution models for HIVST.



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## Series of JOJO: Simplifying HIV Science into Plain Languages and Images for the Non-Scientific Community

Semakula D<sup>1</sup>

<sup>1</sup>MU-JHU Research Collaboration, Kampala, Uganda, <sup>2</sup>Miles of Smiles Foundation, Wakiso, Uganda

**Background:** Series of Jojo working group aims at simplifying HIV science into plain messages for the non-scientific community to easily understand especially adolescents and young people. Our primary focus is on HIV Cure and Vaccine and so far, we have developed 5 animated videos covering questions like Why do we need an HIV Cure, why it has been challenging to get a cure, what are the current HIV cure strategies, why is treatment interruption needed, what is the HIV life cycle and how ARVS work?

### Description:

Completed Series of Jojo work process;

- Identified common questions about HIV Cure among AYPLHIV.
- Researched about the questions and worked closely with researchers through the HIV Cure Academy and the CureRoar program.
- Simplified the scientific information while involving researcher to ensure that meaning is not lost.
- Created relevant images to express the meaning of the simplified information.
- Voicing.
- Disseminated the developed work on Series of Jojo social media platforms and health facilities.

**Lessons Learnt:** Series of Jojo have enhanced the knowledge capacity of HIV Cure and Vaccine advocates in Sub Saharan Africa. Over 7000 people have been reached with simplified HIV Cure information making it easy for participants in the Cure Academy and meetings to actively digest and engage in Cure related discussions because the series offered them an introductory overview about HIV Cure science.

**Conclusions:** Regional Equality and Equity in HIV Cure research is being accelerated by advocacy. Today, Series of Jojo members are part of the global team revising the CUREiculum, part of the

REACH - Research Enterprise to Advance Cure to HIV and big HIV Cure consortium in Netherlands which is leading a research project known as SPIRAL. The research will contribute to scientific findings which will help in finding an HIV Cure and part of its studies will take place in South Africa, Zambia and Uganda.

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## Strategies to Improve Enrolment and Retention of Male participants with a Low Likelihood of HIV acquisition in an HIV Prevention Study. Harare-Zimbabwe

Magada E<sup>1</sup>, Chasakara C<sup>1</sup>, Tauya T<sup>1</sup>, Murefu T<sup>1</sup>, Mukwekwerere P<sup>1</sup>, Samaneka W<sup>1</sup>, Muhlanga F<sup>1</sup>  
<sup>1</sup>University of Zimbabwe-Clinical Trials Research Centre (UZ-CTRC), Harare, Zimbabwe, Zimbabwe

**Background:** Cisgender male participation in HIV prevention studies in Africa is crucial for the development and implementation of effective interventions. We evaluated our male recruitment approach for the HVTN140/HPTN 101 phase 1 clinical trial of a monoclonal antibody combination in adults with low likelihood of acquiring HIV implemented at 3 sites in Zimbabwe.

**Materials and Methods:** After trial closure, personnel from the 3 sites met to outline recruitment and retention strategies used, quantify outcomes, and reflect on best practices. Recruitment strategies: (1) Trial ambassadors: We conducted 10 meetings where we trained participants enrolled in another HIV prevention clinical trial, Community Advisory Board Members (CAB), community health workers and male-focused groups representatives to promote the trial in their communities; (2) targeted social networks for peer referral: Former participants posted trial information through their University WhatsApp groups; (3) Snowballing by enrolled participants. Participant retention strategies: (1) Participant-friendly environment by providing free Wi-Fi, private working space, and extended clinic hours to accommodate work and academic schedules; (2) Courtesy calls, approximately 3 in-



person visits and several telephone calls per participant.

**Results:** Of the 36 participants screened, 21 were male: 5 (24%) came from trial ambassadors, 6 (29%) from social networks, and 10 (48%) through snowballing. Male screening to enrolment ratio was 2:1 (12 enrolled). All enrolled males completed scheduled visits until trial exit. Snowballing appeared most efficient, generating 9/20 (45%) males screened. On reflection, site personnel considered all the strategies to be effective. A distinct advantage of snowballing was that current participants could share their lived experiences with interested peers, building trust in the research process and directly answering questions about what to expect from the trial. Using targeted social networks required less involvement of study personnel than training trial ambassadors and it has got a wider reach, however, both approaches serve to raise research literacy among study communities which could benefit future recruitment efforts.

**Conclusions:** Future studies among males in this setting should use a multiple approaches. As observed, snowballing contributed most male participants, whilst the initial potential participants came through targeted social networks and trained ambassadors, CAB and appropriate male forums.

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## Suivi Dirigé par la Communauté sur la Participation des Adolescents et Jeunes Vivant avec le VIH (AJvVIH) aux Groupes de Parole au Cameroun

Monthe E<sup>1</sup>, Sonwa L<sup>1</sup>

<sup>1</sup>Réseau Camerounais Des Adolescents Et Jeunes Positifs, Yaoundé, Cameroon

**Contexte :** L'étude vise à évaluer la participation des Adolescents et Jeunes Vivant avec le VIH (AJvVIH) aux groupes de parole, conformément aux normes de qualité de service établies par l'OMS et l'ONUSIDA en 2016. Ces groupes de

parole fournissent un environnement sûr pour le partage d'expériences, un soutien émotionnel, et des informations sur les droits et les traitements des personnes vivant avec le VIH. Les études ont montré que, une participation accrue aux groupes est associée à une meilleure adhésion au traitement et un maintien de charge virale indétectable, ceci souligne leur importance dans l'objectif d'élimination de l'épidémie d'ici 2030.

**Matériels et Méthodes :** La méthodologie a consisté en une surveillance dirigée par la communauté sur la période de décembre 2022 à septembre 2023, avec 1034 AJvVIH interrogés et 565 questionnaires prestataires de santé dans 47 formations sanitaires (FOSA) dans les 10 régions du Cameroun. La fréquence de collecte dans les FOSA était trimestrielle. Les données ont été collectées par les AJvVIH auprès de leurs pairs. La collecte portait sur la connaissance de la tenue des groupes de parole et la participation des AJvVIH. Les données obtenues ont été saisies via l'application Kobo et analysées à l'aide des logiciels Excel et Tableau 2019. Les conclusions ont ainsi été partagé avec les FOSA et autre parties prenantes.

**Résultats :** Les résultats ont montré que, 16% des AJvVIH n'étaient pas informés de la tenue des groupes de parole dans leur FOSA, et parmi les 84% informés, 18% ne participaient pas à ces groupes, représentant un total de 34% (352 AJvVIH) qui n'y assistaient pas. Au niveau régional, l'Adamaoua, le Centre et le Nord affichaient les taux de participation les plus bas, inférieurs à 60%. De plus, l'on constate une baisse de +14 points de la participation des AJvVIH par rapport au trimestre de base.

**Conclusions :** Les données mettent en évidence la nécessité d'améliorer la participation des AJvVIH aux groupes de parole, les obstacles relevés sont le manque de financement, de salles adaptées, et les distances géographiques. La solution envisagée est la tenue de groupes de parole en communauté pour renforcer la participation des AJvVIH.



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## Contribution à la Réduction Des Obstacles Liés Aux Droits Humains D'Accès Aux Services ET Soins de Santé Contre Le VIH/TB AU Sud Cameroun

Sonwa Lontsi L<sup>1</sup>, Monthe E<sup>1</sup>, Lontsi Tsakou L<sup>1</sup>

<sup>1</sup>Réseau Camerounais Des Adolescents Et Jeunes Positifs, Yaoundé, Cameroon

**Contexte :** Les droits de l'homme sont inextricablement liés à la propagation et à l'incidence du VIH/Sida sur les individus et les communautés à travers le monde. Le non-respect des droits de l'homme contribue ainsi à propager la maladie et à en exacerber l'incidence. Compte tenu de la faible connaissance des populations sur leurs droits à la santé, la clinique juridique communautaire (CJC) du Réseau Camerounais des Adolescents et Jeunes Positifs (RéCAJ+) met en œuvre des interventions dans le but de réduire les obstacles liés aux droits humains qui entravent l'accès aux services et soins de santé contre le VIH et la tuberculose au bénéfice des populations les plus vulnérables dans la région du Sud Cameroun (Ebolowa, Ambam et Kribi). L'objectif ici est de partager les résultats obtenus de juillet à décembre 2023.

**Matériels et Méthodes :** La mission de la CJC-ReCAJ+-Sud est d'accompagner les bénéficiaires sur le plan juridique, judiciaire et psychosocial. Elle a mis en œuvre des interventions basées sur différentes approches : la sensibilisation en communauté sur les droits humains liés au VIH et à la tuberculose ; l'organisation des cafés juridiques ; l'accompagnement psychologique et social des personnes victimes de violations des droits humains via l'écoute et la médiation ; le référencement des cas de violations des droits humains vers les structures d'offres de services et l'assistance juridique.

**Résultats :** Au cours de juillet à décembre, 1560 personnes ont été sensibilisées en communauté avec 720 des adolescent.e.s et jeunes non scolarisés, 360 des travailleuses du sexe, 240 des hommes ayant des rapports sexuels avec d'autres hommes, 120 des usagers de drogue et 120 des personnes atteintes de tuberculose. De plus, 84 victimes de violation des droits humains ont

bénéficié d'un accompagnement psychosocial, 180 personnes ont été orientées vers les services qualifiés, 156 victimes ont bénéficié d'un service juridique et 30 ont participé aux cafés juridiques.

**Conclusions :** Les interventions mises en œuvre par la CJC-RéCAJ+-Sud et fondées sur les droits humains liés au VIH et à la tuberculose ont contribué à créer un environnement propice à la réussite de la riposte au VIH.

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## Using Community-Based Approaches to Accelerate the Uptake of HIV Testing Services Among Youth 15-24 in Njombe, Tanzania

Lugaila E<sup>1</sup>, Kapande O<sup>1</sup>, Mwanakulya G<sup>1</sup>, Rehani A<sup>1</sup>, Parreso C<sup>2</sup>, Christian B<sup>2</sup>, Bakari B<sup>3</sup>, Mzaga D<sup>3</sup>, Njelekela M<sup>3</sup>, Kalimunda J<sup>4</sup>, Nersi Z<sup>3</sup>, Fida N<sup>4</sup>

<sup>1</sup>Tanzania, Dar es Salaam, Tanzania, <sup>2</sup>Management development for health, Dar es Salaam, Tanzania, <sup>3</sup>Deloitte Consulting Limited, Dar es Salaam, Tanzania, <sup>4</sup>USAID Tanzania, Dar es Salaam, Tanzania

**Background:** The USAID Afya Yangu Southern Program is a PEPFAR/USAID-funded project offering facility-based comprehensive client-centered integrated HIV and TB services to improve health outcomes in six southern regions of Tanzania. UNAIDS 2023 report shows that every week 4000 adolescent girls and young women (AGYM), adolescent boys and young men (ABYM) aged 15-24 acquire new HIV infection worldwide, and sub-Saharan Africa contributes to 63% of these new infections. This age group also lags in attaining the first 95 goal for knowing their HIV status with less than 90% knowing their status.

**Materials and Methods:** In October 2023 the program accelerated the uptake of HIV youth-friendly services through community outreach programs: mobile testing, social network strategy (SNS) and community index testing to reach youth (15-24). AGYM and ABYM were reached by peer educators and health care providers at their hangouts, hotspots like boda-boda sites, plantations, timber places, construction sites, sports and games gatherings, also higher learning



institutions such as Universities and Colleges. Youth received health promotion education sessions, HIV testing and prevention services. Data was collected in Index and SNS counter books, HTS testing registers and later analyzed through Project Data Management Information System (PRODMIS). The program compared service uptake data collected in Q4FY23 to those in Q1FY24 collected through PRODMIS, data was cross tabulated and analyzed through an Excel sheet.

**Results:** Data shows that there was an increase in the uptake of HIV services received by AGYM and ABYM across months. From July to September 2023(Q4FY23), only 1017 received HIV testing services and 3 clients were linked to care compared to 1077, 2612 and 6,693 youth who received HTS in October, November, and December 2023 (Q1FY24) respectively. Furthermore, 15 youth aged 15-24 were identified to be HIV+ and linked to care. These youth also received HIV self-test kits and Pre-exposure prophylaxis services.

**Conclusions:** Engaging youth aged 15-24 through HIV-friendly services and community outreach programs has improved youth access to HIV testing and preventive services. The community outreach approach has yielded more robust results and must be adopted in other hard-to-reach areas where vulnerable youth exercise their activities.

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## Suivi Dirigé Par la Communauté Sur la Connaissance Des Protocoles Thérapeutiques Des Adolescents ET Jeunes Vivant Avec Le VIH AU Cameroun

Monthe E<sup>1</sup>, Sonwa L<sup>1</sup>

<sup>1</sup>Réseau Camerounais Des Adolescents Et Jeunes Positifs, Yaoundé, Cameroon

**Contexte :** La connaissance du protocole par les personnes vivant avec le VIH (PvVIH) est cruciale pour une gestion efficace de leur traitement. Elle permet d'identifier plus facilement les complications et les éventuels effets secondaires

associés au traitement. Cela permet aux PvVIH d'être plus alertes et de communiquer plus efficacement avec leur personnel médical pour une meilleure gestion des effets secondaires et une adaptation éventuelle du traitement en contribuant à l'adhérence au traitement. La connaissance des protocole ARV était de 38% chez les (PvVIH) au Cameroun au regard de ce faible taux, l'on s'interroge sur le niveau de connaissance du protocole ARV chez les adolescents et jeunes vivant avec le VIH (AJvVIH).

**Matériels et Méthodes :** Les données utilisées sont issues du suivi dirigé par la communauté menée sur 10 mois, auprès de 1169 AJvVIH interrogés dans 47 formations sanitaire (FOSA) réparties dans les 10 régions du pays. Elles ont été collectées par des AJvVIH qui ont préalablement été formés à l'administration des questionnaires auprès de leurs pairs ainsi que des prestataires de santé. Ces données ont ensuite été saisies sur la plate-forme kobo collect puis exporté et analysé à l'aide des logiciels Excel 2016 et Tableau 2019.

**Résultats :** Sur les 1169 AJvVIH interrogés, 44% (519) des AJvVIH n'ont pas connaissance de leur protocole de traitement ARV. Les régions du Grand-Nord à savoir l'extrêménord, le nord, et l'Adamaoua ainsi que l'est présentent les plus faibles taux de connaissance, avec moins de 30%. Les AJvVIH du nord ayant le déclaré majoritairement ne pas avoir connaissance de leurs protocoles ARV dans leurs FOSA soit 90%.

**Conclusions :** La connaissance du protocole ARV par les AJvVIH reste un défi majeur dans la prise en charge des AJvVIH au Cameroun et ceux principalement dans le nord du pays. Pour améliorer la connaissance il faut opter pour des approches éducatives ciblées, telles que l'utilisation d'outils visuels comme les boîtes à image ou flyers, la tenue des groupes de paroles en langue locale sur des thématiques tels que les effets secondaires ou les interactions médicamenteuses des protocoles et le renforcement des capacités des prestataires de soins sur cette thématique.



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## Offrir des Soins de Santé Sexuelle à des Travailleuses du Sexe en Côte d'Ivoire : entre Facteurs de Motivation et Obstacles Rencontrés par les Éducatrices de Paires du projet PRINCESSE ANRS 12381

Dedocoton D<sup>1,2</sup>, Kissi E<sup>1,2</sup>, Nouaman M<sup>1,2</sup>, Plazy M<sup>3,4,5,6</sup>, Coffie P<sup>1,2</sup>, Agoua A<sup>7</sup>, Larmarange J<sup>8,9,10,11</sup>, Becquet V<sup>12</sup>

<sup>1</sup>Pac-ci/site ANRS de Côte d'Ivoire, Abidjan, Côte d'Ivoire, <sup>2</sup>Université Félix Houphouët-Boigny, Abidjan, Côte d'Ivoire, <sup>3</sup>University of Bordeaux, Bordeaux, France, <sup>4</sup>INSERM UMR 1219, Bordeaux, France, <sup>5</sup>IRD EMR 273, Bordeaux, France, <sup>6</sup>Bordeaux Population Health Research Center, Bordeaux, France, <sup>7</sup>ONG Aprosam, San Pedro, Côte d'Ivoire, <sup>8</sup>Ceped, Paris, France, <sup>9</sup>Université Paris Cité, Paris, France, <sup>10</sup>IRD, Paris, France, <sup>11</sup>Inserm, Paris, France, <sup>12</sup>Ined, Aubervilliers, France

**Contexte :** Le dispositif PRINCESSE (11/2019–06/2023) était une offre de soins communautaires en santé sexuelle et reproductive en faveur des travailleuses du sexe (TS) dans la région de San Pedro, en Côte d'Ivoire. Elle a été mise en œuvre sur les sites prostitutionnels, via une clinique mobile et fixe, par une équipe incluant des professionnels de santé et des éducatrices de paires (EP).

L'objectif de cette communication est de décrire les facteurs de motivation ainsi que les obstacles rencontrés par les EP du projet.

**Matériel et Méthodes :** Une étude qualitative a été menée en janvier et novembre 2023, incluant un entretien collectif auprès des dix EP du projet et des entretiens individuels avec huit d'entre elles.

**Résultats :** Les EP étaient généralement motivées par le projet PRINCESSE : elles concevaient leur travail comme une relation d'aide envers les TS et elles étaient fières de l'évolution de leur métier, avec une offre de soins qui transcendait la simple distribution de préservatifs. La volonté de réduire la propagation du VIH et l'espoir d'être recrutées ensuite sur d'autres projets sont également des facteurs qui ont maintenu les EP sur le projet.

Cependant, elles ont relevé plusieurs obstacles liés aux conditions de travail (salaire jugé insuffisant,

inégalité entre EP francophones et anglophones dans la répartition des sites), et à leurs rapports avec l'équipe soignante et l'ONG Aprosam (besoin d'être accompagné par le personnel soignant à certains moments en dehors du camion). Elles considèrent la fonction d'EP comme le pilier de la réalisation du projet ce qui semble ne pas être perçu par la hiérarchie au regard de la rémunération.

**Conclusions :** La possibilité d'apporter une aide médicale et morale aux TS a motivé l'engagement sur le long terme des EP dans le projet PRINCESSE. Toutefois, elles ont rencontré des difficultés liées à l'organisation du travail, à leur relation avec l'ONG et à la mobilisation des TS.

La mobilisation des EP comme ressources humaines dans la mise en œuvre des interventions de santé est fondamentale pour mener une action de proximité dans la communauté. Néanmoins il conviendrait de définir explicitement leur rôle et de valoriser leurs actions.

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## Bien Vieillir avec le VIH au Sénégal : Une Dynamique Associative Inclusive

Gueye M<sup>1</sup>, Laborde-balen G<sup>2</sup>, Ndiaye S<sup>1</sup>, Diop E<sup>2</sup>, Sy S<sup>2</sup>, Diop K<sup>2</sup>, Coumé M<sup>4</sup>, Taverne B<sup>3</sup>, Ciaffi L<sup>3</sup>  
<sup>1</sup>Réseau national d'associations de PVVIH (RNP+), Dakar, Senegal, <sup>2</sup>Centre de recherche et de formation à la prise en charge de Fann (CRCF) CHU Fann, Dakar, Senegal, <sup>3</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France, <sup>4</sup>Service de gériatrie, CHNU de Fann, Dakar, Sénégal

**Contexte :** En Afrique, grâce au succès des antirétroviraux, les personnes vivant avec le VIH vieillissent, mais avec l'âge, surviennent des maladies chroniques qui détériorent leur qualité de vie. Au Sénégal et au Cameroun, le projet VIHeillir « Bien vieillir avec le VIH » (2020-2023), financé par Expertise France, vise à intégrer la prise en charge des cinq comorbidités les plus fréquentes (hypertension artérielle, diabète, cancer du col de l'utérus, hépatites virales) dans le suivi clinique et communautaire du VIH. Au Sénégal, le volet communautaire, porté par cinq associations a pour but de prévenir, dépister les comorbidités et promouvoir un vieillissement en bonne santé.





**Matériels et Méthodes :** A Dakar, le volet communautaire concerne 373 Personnes Âgées vivant avec le VIH (PAVVIH) de plus de 50 ans et des membres associatifs âgés atteints d'autres maladies chroniques. Cinq associations sont impliquées : associations de Personnes vivant avec le VIH (RNP+ et ABOYA), de personnes diabétiques (ASSAD), hypertendues et victimes d'AVC (ASP/AVC) et de personnes âgées (Conseil national des aînés du Sénégal). Elles développent diverses activités dans trois structures de santé de Dakar et en communauté.

**Résultats :** Depuis 2020, près de 200 activités communautaires ont été organisées auprès de 1000 participants. Elles permettent de prévenir, dépister les maladies chroniques et à accompagner les personnes pour un vieillissement sain, sur le plan physique et psychologique en proposant : des séances d'éducation nutritionnelle, thérapeutique, de sensibilisation, de dépistage en communauté de l'hypertension et du diabète, d'activités physiques, des soirées dansantes....

**Conclusions :** L'expérience du VIH a montré que les associations sont le lien essentiel entre les services cliniques et la communauté. Le projet VIHeillir a permis de créer pour la première fois un collectif associatif au-delà du VIH qui accompagne toutes les personnes âgées. La rencontre entre associations de différents domaines représente un enrichissement mutuel. Les associations non VIH ont bénéficié de la « culture militante » des associations VIH. Les activités communes de personnes âgées quelle que soit la pathologie permettent de promouvoir les comportements sains, de rompre l'isolement et de réduire le stigma lié au VIH.

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## Apport du dépistage par cas INDEX pour la réduction du taux de mortalité et de morbidité chez les populations clés (KP) en matière de VIH à Douala.

NKOMBOU TCHAPON J<sup>1</sup>

<sup>1</sup>Alcondoms Cameroun, Douala, Cameroon

Le VIH, défi de santé publique dans le monde, qui touche en majorité les KP, à savoir les hommes ayant des rapports sexuels avec des hommes (HSH) et les travailleuses du sexe (TS). Le Cameroun a une épidémie mixte du VIH, avec une prévalence (P) disproportionnellement de 24,5% chez les TS et 20,9% chez les HSH (IBBS 2016) contre 3,9 % (ONUSIDA 2016) dans la population générale.

Pour pallier à cela, le Cameroun a initié en 2022 le projet CHILL "Community HIV/AIDS Investments for Longer and Healthier Lives In Cameroon" financé par USAID, piloté par Care and Health Program (CHP) et mis en œuvre par les OBC parmi lesquelles Alcondoms Cameroun (ALC).

Le dépistage par cas index est l'une des stratégies utilisées par ALC pour réduire l'infection par le VIH. Il faut noter que l'index est un client nouvellement dépisté positif, un client avec une charge virale élevée ou qui a abandonné son traitement ; le dépistage par cas index est donc le fait de dépister les partenaires sexuels, les enfants biologiques de moins de 15 ans ou les partenaires utilisant la même seringue que l'index.

Avec cette stratégie, nous avons obtenu les résultats suivants durant le 1er octobre 2022 au 31 septembre 2023 :

nous avons recueilli chez les MSM 599 contacts, dépistés 335 (55,92%) avec 79 positifs (P : 23,58%). Chez les TS 198 contacts, dépistés 81 (40,09%) avec 13 positifs (P : 16,04 %) et chez les clients de TS 200 contacts, dépistés 126 (63%) avec 20 positifs (P : 15,87%)

Il faut savoir que le pourcentage de TS est bas parce qu'elles ont pour index leurs clients. La contribution du dépistage par cas index est vraiment remarquable, raison pour laquelle nous devons la vulgariser auprès des acteurs de la lutte.



La difficulté avec cette stratégie c'est la notification des contacts index tout en gardant la confidentialité du statut de l'index.

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## The Impact of Community Adolescents Treatment Supporters: A promising Strategy towards Ending AIDS by 2030

Dedza L<sup>1</sup>

<sup>1</sup>Community Based Organization, Wedza, Zimbabwe

The global battle against AIDS has made substantial strides, but there remains an urgent requirement to devise innovative approaches in order to accomplish the ambitious objective of ending AIDS by 2030. This study aimed to examine the effects of employing Community Adolescents Treatment Supporters as a strategy to combat AIDS among adolescent girls and young women. A mixed-methods approach was employed, utilizing quantitative data from structured surveys and qualitative data from focus group discussions. A diverse sample of 1,000 adolescent girls and young women, aged 15 to 24, living with HIV/AIDS was selected from various communities across 10 districts in Zimbabwe. Statistical analysis was conducted to ascertain the impact of Community Adolescents Treatment Supporters on key indicators, such as treatment adherence rates, viral suppression rates, and reduction in new HIV infections. The findings revealed a significant positive impact of the Community Adolescents Treatment Supporters strategy on the targeted outcomes. Treatment adherence rates among the participants increased by 20% compared to a control group without Community Adolescents Treatment Supporters intervention ( $p < 0.001$ ). Furthermore, there was a substantial improvement in viral suppression rates, with a 25% reduction in detectable viral loads among individuals supported by Community Adolescents Treatment Supporters ( $p < 0.001$ ). The incidence of new HIV infections decreased by 30% in communities where Community Adolescents Treatment Supporters were actively involved in providing education, counseling, and promoting safe sexual practices ( $p < 0.001$ ). Additionally, the

intervention group exhibited significant improvements in psychosocial well-being, with a 20% decrease in depressive symptoms ( $p < 0.05$ ) and a 15% increase in self-esteem scores ( $p < 0.05$ ). In conclusion, these findings underscored the crucial role of Community Adolescents Treatment Supporters in not only improving the health outcomes of individuals living with HIV/AIDS, but also in preventing new infections among vulnerable populations.

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## Improving Treatment Outcomes Among OVCs Through Enhanced OVC Clinical Partner Collaborations, a Lesson from the MUCOBADI ICARE and UPMB/LSDA Partnership at TASO Jinja

Mikago P<sup>1</sup>, Alima H<sup>1</sup>, Musiime F<sup>1</sup>, Asabawebwa A<sup>1</sup>, Binywerwa F<sup>2</sup>, Kasule G<sup>2</sup>, Namukose J<sup>2</sup>, Mafabi C<sup>3</sup>, Batwala H<sup>3</sup>

<sup>1</sup>Uganda Protestant Medical Bureau, Kampala, Uganda, <sup>2</sup>Multi Community Based Development Initiative, Bugiri, Uganda, <sup>3</sup>The Aids Support Organisation, Kampala, Uganda

**Background:** Children and Adolescent Living with HIV (CALHIV) have sub-optimal care and treatment indicators compared to the adults. Children and adolescents face significant risks and vulnerabilities as a result of HIV/AIDS and its socio-economic effects. Improving treatment outcomes of CALHIV requires a synergistic service provision approach where Clinical teams should work with the OVC and other community partners to provide a comprehensive service package.

**Materials and Methods:** UPMB-LSDA and MUCOBADI-ICARE signed a bilateral Memorandum of understanding indicating each partners' deliverables in CALHIV service provision. Joint work plans are developed quarterly, monthly and weekly. Para-social workers attached at TASO Jinja jointly review the CALHIV audit tool and clients' charts, attend case conferences and conduct integrated community and home visits to support the OVCs. Joint trainings and mentorships on the Integrated Community Service delivery Model



were conducted, bi-directional referrals were strengthened and reporting improved through bilateral sharing of data.

**Results:** A total of 173 OVCs were enrolled, 38 CALHIV reached jointly with drug refills, 28 with Index Client testing and Viral load and 2 linked for temporary support. Viral load suppression improved from 84% as of April 2023 to 90% as of August 2023 while the all services indicator improved from 32 % as of April to 72% as of August 2023.

**Discussion:** OVC-Clinical partner collaborations are vital in enabling a synergistic approach to service delivery and improved outcomes among the CALHIV. Joint planning, implementation and routine data review improve program efficiency, cross learning and comprehensive service provision.

**Conclusion:** OVC and Clinical partnerships improve program implementation efficiency and treatment outcomes among the CALHIV.

**Lessons Learnt:**

1. There is need to enhance facility clinical partner and OVC collaborations to ensure comprehensive service provision and better treatment outcomes among CALHIV.
2. Joint planning, cross learning and data reviews between partners improve efficiency during implementation.

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## How (Not) to Plan Sustainability: Lessons Learned from Developing Nigeria's HIV Financial Sustainability Plan

**Ghasi N<sup>1</sup>**, Ogbuabor D<sup>1</sup>

<sup>1</sup>University Of Nigeria, Enugu, Nigeria

**Background:** Evidence of the optimal conditions for developing financial sustainability plans for HIV response in low- and middle-income countries (LMICs) is scarce. This study explored Nigeria's experiences developing an HIV financial sustainability plan (FSP) and drew lessons to guide other LMICs facing similar approaches.

**Materials and Methods:** The study adopted a qualitative case study design. We conducted semi-structured, in-depth interviews with health stakeholders (n=16), purposively selected because of their roles in developing Nigeria's HIV FSP. Interviews were conducted in English language, audiotaped, and transcribed verbatim. We analyzed the data using content analysis.

**Results:** Using a health financing framework enabled a deep dive into the financing gaps, but the focus on financing neglected other areas of sustainability. The existence of a ministerial mandate and government-led planning improved political commitment to the FSP development. However, the lack of a clear transition plan and the low participation of bureaucrats undermined the FSP development. An advisory committee enabled effective planning coordination, and its regular meetings tracked the progress of sustainability planning. Conversely, there needs to be more stakeholder mapping and engagement, explicit steps for developing the plan, and prompt feedback on the draft plan from stakeholders. Public institutions lacked the capacity to update HIV program outputs and financial needs regularly. Development partners forecasted the revised HIV program outputs and resource needs estimates. Although joint planning with TB and Malaria could improve efficiency, the FSP's terms of reference did not incorporate cross-programmatic efficiency. Additionally, late engagement with Tuberculosis and Malaria control program managers constrained the cross-programmatic efficiency assessment.

**Conclusions:** The findings highlight a need for a shared definition and understanding of sustainability, the role of political commitment, the effective functioning of an advisory committee, explicit steps for developing the plan, broader stakeholder engagement, thorough baseline situation analysis, and cross-programmatic efficiency in developing HIV FSP.



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## Cost of Providing Optimized Antiretroviral Regimens to Children in Democratic Republic of Congo

**Songane M**<sup>1</sup>, Herrera N<sup>2</sup>, Dominique I<sup>3</sup>, Berthold B<sup>3</sup>, Mukherjee S<sup>2</sup>, Kabeya H<sup>3</sup>, Gill M<sup>2</sup>

<sup>1</sup>Elizabeth Glaser Pediatric Aids Foundation, Maputo, Mozambique, <sup>2</sup>Elizabeth Glaser Pediatric Aids Foundation, Washington D.C., United States of America, <sup>3</sup>Elizabeth Glaser Pediatric Aids Foundation, Kinshasa, Democratic Republic of Congo

**Background:** Children who transition to optimal antiretroviral therapy (ART) containing dolutegravir (DTG) or lopinavir/ritonavir (LPV/r) solid formulations have better virologic and clinical outcomes than those on non-nucleoside reverse transcriptase inhibitors (NNRTI). In May 2019, we started transitioning children in Democratic Republic of Congo to optimized regimens, and by 2021 this transition was almost complete.

**Materials and Methods:** All children living with HIV (0-14 years of age) newly or currently receiving HIV care and treatment services at 20 selected health facilities in 2021 in Kinshasa were enrolled. We enrolled 493 and 8 children >20Kg on DTG (98%) and non-DTG (2%) based regimens, respectively, and 226 children <20Kg on LPV/r-based regimen. We estimated the total annual costs (TC) of providing pediatric care and treatment from a health systems perspective using a micro-costing method. To calculate the cost per patient (PP) and patients virally suppressed (PS), we divided the TC by the number of patients receiving services and virally suppressed, respectively. One-way sensitivity was used to assess the effect of uncertainties in key parameters on PP.

**Results:** The TC in 2021 was US\$248,582, of which variable non-capital patient costs (drugs, viral load tests, and other consumables) comprised 33% (\$82,568), and the fixed costs (personnel, meetings, training, and travel) comprised 67% (\$166,014). Personnel was the largest cost, at 47% (\$116,468) of the TC, followed by drugs at 26% (\$65,850). Viral load test corresponded only to 3% (\$7,921) of the total cost, however, only 48% of children had an annual viral load test as per national guidelines. The costs PP and PS were

US\$342 and US\$911, respectively. Sensitivity analysis showed that a 10% increase in the personnel and drug costs caused 5% and 3% increases in cost PP, respectively.

**Conclusions:** Our estimated cost PP and PS would likely be higher if each patient received one viral load test per year. Personnel costs corresponded to 47% of the total cost, highlighting this category as one of the biggest barriers for expansion and improvement of HIV pediatric care and treatment in the country. Task-shifting from higher-to lower-cost personnel could be considered to lower the burden of personnel cost.

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## Effects of Financial Facilitation of Community Health Workers using Mobile Money Services: Experience from Teso Region, Eastern Uganda, 2017-2023

**Okech E**<sup>1</sup>, Opito R<sup>1</sup>, Bakashaba B<sup>1</sup>, Namulema M<sup>1</sup>, Miya Y<sup>1</sup>, Etukoit B<sup>1</sup>, Natumanya D<sup>2</sup>, Mugisha K<sup>1</sup>  
<sup>1</sup>The AIDS Support Organization, Kampala, Uganda, <sup>2</sup>US Centers for Disease Control and Prevention, Kampala, Uganda

**Background:** Uganda relies upon community health workers (CHWs) to reach the most remote communities with primary health care services such as HIV prevention, care, and treatment services. However, they are not routinely paid salaries and mainly receive monthly stipends, transport facilitation and lunch allowances when engaged in community health activities. These allowances have traditionally been paid using cash-based systems. This has been laborious and risky, especially where bulky cash is involved. The risks associated with bulky cash transactions include theft, fraud, delayed reporting, and non-accountability. To mitigate these risks in a US Center for Disease Control and Prevention (CDC)-funded health system strengthening project in Teso sub-region during 2017-2023, we introduced mobile money (cashless) payments of CHWs for all activities conducted in facilities and communities which required cash facilitation.

**Materials and Methods:** To introduce mobile money facilitation of activities, we conducted a



baseline sensitization of the beneficiaries on mobile money transactions, encouraged the CHWs to acquire registered mobile money numbers and provided a simplified attendance form to capture both mobile money number and registered names. The activity lead created a mobile money wallet based on attendance, accompanied with a simplified activity report, for entry into the online mobile money payment system. The online approvals of transactions were done by the project managers simultaneously, transferring the money to the beneficiaries in only a few minutes. The proof of payments and activity reports were generated and stored as part of accountability for the funds.

**Lessons Learnt:** More than 1,000 CHWs in rural areas were able to receive their monthly payments promptly without moving to banks. The risk of fraud was minimized as there was no physical cash handling. Mobile money minimized complaints from CHWs. The major challenges encountered included inadequate mobile money agents in rural areas, instances of mismatch of registered mobile money names with the actual names of beneficiaries, and high mobile money charges.

**Conclusions:** Use of mobile money transactions led to timely financial facilitation of CHWs, simplified instant accountability and reduction in fraud. Consideration could be given to adoption of mobile money transactions to facilitate health workers in similar settings.

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## Programming for Sustainability: Practical Lessons on Local Resource Mobilization for Achievement of UNAIDS 95:95:95 Goals on USAID funded ICHSSA 4 Project

**Sontyo J**<sup>1</sup>, Inyang J<sup>1</sup>, Usman K<sup>2</sup>, Bello A<sup>1</sup>, Magaji D<sup>3</sup>, Idaboh T<sup>3</sup>, Okediran W<sup>1</sup>, Katbi M<sup>3</sup>, Agia G<sup>2</sup>

<sup>1</sup>Pro-health International, Abuja, Nigeria, <sup>2</sup>Catholic Relief Services, Nigeria, <sup>3</sup>United States Agency for International Development (USAID), Nigeria

**Background:** Global financial support decline, challenges in response coordination, and

insufficient local government funding in Sub Saharan Africa have impacted the achievement of Joint United Nations Programme on HIV/AIDS (UNAIDS) 95:95:95 goals. The 5-year USAID funded Integrated Child Health and Social Services Award (ICHSSA 4) aims to improve the well-being of orphans and vulnerable children (OVC) and their households by mitigating the impact of HIV and other causes of vulnerability. Implemented by a consortium led by Pro-Health International, with Catholic Relief Services as a sub recipient, the project is implemented through Civil Society Organizations (CSO) in 6 Nigerian states: Adamawa, Bauchi, Taraba, Sokoto, Kebbi and Zamfara. This focus of the study was to mobilize funds and in-kind resources such as manpower, food materials, skills training opportunities and other resources to address HIV case finding and pediatric continuity in care, considering the associated costs and needs of OVC.

**Materials and Methods:** ICHSSA 4 conducted capacity building for CSOs, state actors and developed a referral pathway across the 6 implementation states. Coordination structures involving implementing partners and government agencies were leveraged. A tracker was used to monitor resources mobilized through the private sector and government agencies, documenting funds, and beneficiaries reached in year 2023. CSOs reached out to different individuals, stakeholders and private organizations soliciting for support cash and material support.

**Results:** The study successfully mobilized resources from 45 organizations (53% private sector, 47% government agencies), amounting to N27,776,630 million naira (\$27,137) in cash funds and in-kind donations. These resources reached 3023 households (caregivers), benefiting 10,739 children and adolescents. Age appropriate and need based services provided cover HIV testing services, care and treatment support, Cash grants, food support, vocational Skills training, hygiene and post GBV care kits and training.

**Conclusions:** Community resource mobilization is a viable strategy for diversifying funding for HIV prevention, care and treatment. Many Nigerians, private sector and diverse organizations are willing to support. Sustained efforts in advocacy, capacity building, needs assessment, leveraging community structures, establishment of referral pathways, and implementing accountability structures are recommended for sustained resource mobilization that support continuity in care in OVC programs and the attainment of UNAIDS goals.



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## Increasing Access to HIV Services Through the Private Laboratory Network; A Public Private Partnership Approach

**Ogunleye A**<sup>1</sup>, Okeneye M<sup>2</sup>, Ogungbade O<sup>5</sup>, Adesina A<sup>2</sup>, Etta Takim A<sup>3</sup>, Ezeadikwa A<sup>4</sup>, Mbah J<sup>5</sup>, Majekodunmi O<sup>5</sup>, Umeh C<sup>5</sup>, Durosinmi-Etti O<sup>1</sup>  
<sup>1</sup>John Snow International (JSI) Research & Training Institute, Inc., Benin, Nigeria, <sup>2</sup>John Snow International (JSI) Research & Training Institute, Inc., Ikeja, Nigeria, <sup>3</sup>John Snow International (JSI) Research & Training Institute, Inc., Yenegoa, Nigeria, <sup>4</sup>Heartland Alliance Limited by Guarantee (HALG), Yenegoa, Nigeria, <sup>5</sup>Heartland Alliance Limited by Guarantee (HALG), Ikeja, Nigeria, <sup>6</sup>West Africa Center for Public Health and Development (WACPHD), Ikeja, Nigeria

**Background:** The race to attain the UNAIDS target of 95% of persons living with HIV getting to know their status remains an echelon task. The public-private partnership explores harmonizing the comparative advantage of each sector for increased access to healthcare services by most of the population. Private laboratories have played a significant role in HIV case finding; however, consolidating their contribution towards the first 95 has not been a focus. This study aims to assess the effect of a Public-Private Partnership (PPP) with private laboratories on HIV case findings in the Accelerating the Control of HIV Epidemic-Cluster 6 (ACE6) project in Southern Nigeria.

**Materials and Methods:** Employing the use effective coverage framework, through collaboration with key stakeholders, the mapping of 108 laboratories owned by private individuals in Lagos (50), Edo (25) and Bayelsa State (33) was done. The project supported the laboratories with HIV test kits to increase case findings in the general population accessing services at their facility. The ACE-6 project developed the capacities of personnel in the laboratories, as well as providing consumables and test kits for them to increase HIV case findings and complement their current services.

**Results:** The total of 7142 Determine (Edo: 2700, Bayelsa: 4442) and 1100 HIV Self-Test kit (Lagos State) was distributed across the 108 Laboratories with positivity yield of 2% (41), 2% (98) and 1% (16) respectively. All clients tested positive were completely linked through the already established referral mechanism to the Antiretroviral Therapy

Centers of their choice after proper counselling had been done.

**Conclusions:** The private laboratory network provides a platform for access to skilled professionals in the private sector who encourage clients to present at their facility to screen for HIV. From the result of the collaboration, the PPP with the laboratories should be scaled up through resource mobilization to ensure all the opportunities are accessed. They can also be used to collect viral load samples from People Living with HIV (PLHIV) residing close to their laboratories.

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## Biomarkers of COVID-19 Disease Severity in Mozambican Cohort

**Guiliche O**<sup>1</sup>

<sup>1</sup>National Institute Of Health Mozambique, Maputo, Mozambique

**Background:** The identification of parameters that allow predicting the severity of COVID-19 disease is important for the adoption of measures aimed at reducing mortality rates. In this study we evaluated the biomarkers of disease severity in SARS-CoV-2 RT-PCR positive Mozambican individuals.

**Materials and Methods:** In a cross sectional study carried out from February 2021 to January 2022, individuals aged above 18 years were recruited on COVID-19 surveillance units and isolation centers in Maputo. Blood and nasopharyngeal samples were collected to perform cell blood count, biochemistry, antibodies and SARS-CoV-2 RT-PCR. The analysis of biomarkers severity was accessed using Kruskal Wallis analysis and Receiver Operator Curve (ROC), data was analyzed on Prisma version 9 with an  $\alpha$  of 0.05.

**Results:** 85 individuals were stratified in negative (n=22), asymptomatic (n=21), mild (n=16), moderate (n=5) and severe (n=21). In this study the level of SARS-CoV-2 antibodies, S-protein was high in asymptomatic compared with severe and mild group respectively (P= 0.0181; P= 0.0417), in the other hand, the level of N-protein was high in



severe compared with the mild group ( $P=0.0090$ ). Individuals with high level of SARS-CoV-2 antibodies, N and S protein presented high level of C Reactive Protein (PCR) and Cholesterol ( $P<0.0001$ ), and high level of Platelets and MCV parameters ( $P<0.0001$ ). SARS-CoV-2 positive cases showed a significant ( $p=0.0141$ ) lower EOS median count when compared to negative group. The Lymphocyte to Monocyte ratio (LMR) was significantly low in severe cases compared to mild and asymptomatic cases ( $P<0.0001$ ). Severe cases present significantly high rates of Neutrophile to lymphocyte ratio (NLR) ( $P<0.0001$ ) and Platelets lymphocyte rate (PLR) ( $P<0.0001$ ) compared to others. The best parameters to distinguish severe patients from asymptomatic cases was CRP (AUC=0.969;  $P<0.001$ ), lymphocytes (AUC=0.9399;  $P<0.0001$ ), neutrophils (AUC=0.9116;  $P<0.0001$ ) and eosinophiles (AUC=0.9351,  $P<0.0001$ ).

**Conclusions:** Our study demonstrate that the best biomarkers to distinguish severe patients from asymptomatic cases in COVID-19 patients was, NLR, PLR, CRP, lymphocytes, neutrophils and eosinophiles. Those biomarkers reflect the metabolic state of individuals and are associated with COVID-19 prognosis and to have potential use for case management, therapy development.

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## Poor Induction of CCL2 Chemokine after Two Doses of the Inactivated BBIBP-CorV Vaccine (Sinopharm)

Enosse M<sup>1</sup>, Castiano C<sup>1</sup>, Kwatra G<sup>2</sup>, Ramgi P<sup>1</sup>, Sigaúque A<sup>1</sup>, Namalango E<sup>1</sup>, Rendição S<sup>1</sup>, Maphossa V<sup>1</sup>, Khosa C<sup>1</sup>, Viegas E<sup>1</sup>, Bule O<sup>1</sup>, Madhi S<sup>2</sup>, Jani I<sup>1,3</sup>, Matavele Chisumba R<sup>1</sup>

<sup>1</sup>Instituto Nacional de Saúde, Marracuene, Mozambique, <sup>2</sup>University of the Witwatersrand, Johannesburg, South Africa, <sup>3</sup>Ministério da Saúde, Maputo, Mozambique

**Background:** Lower efficacy of inactivated COVID-19 vaccines, against other platforms, has been reported elsewhere. The migration of leukocytes to the site of infection is critical for the induction of effective host immunity. The chemokine (C-C motif) ligand 2 (CCL2) has been shown to be

critical for leukocyte recruitment to the lung during vaccination with recombinant modified vaccinia virus Ankara and by the Oxford-AstraZeneca COVID-19 vaccine. Here we assessed the ability of the Sinopharm BBIBP-CorV vaccine to induce changes in cytokine profile, including the CCL2 chemokine, and the impact of exposure to SARS-CoV-2 prior vaccination.

**Materials and Methods:** From a cohort of 252 healthcare professionals, 51 blood samples were selected, TDR for SARS-CoV-2 antibodies was performed before the first (D0) and second dose (D21) of BBIBP-CorV and two weeks then (D35). IgG-binding antibody titers against the full-length spike (anti-S) and receptor binding domain (anti-RBD) of SARS-CoV-2 were performed on D0, D21, and D35. From these, 31 samples were selected and performed the plasma levels (IL-2, IL-4, IL-6, IL-7, IL-21, IL-18, IL-10, IL-17/IL17A, TNF- $\alpha$ , IL-22, IFN- $\gamma$ , IL-8, IL-1b, CCL2/MDC, CCL2/MCP1, CCL3, CCL4, CCL28, CCL22, CXCL10) using Luminex.

**Results:** Overall, the CCL2/MDC chemokine levels decreased significantly at D21, from the baseline levels ( $p=0.0475$ ). These levels remained lower at D35 compared to D0 ( $p=0.033$ ). At D21 the levels of CCL2/MCP were lower in exposed to anti-S ( $p=0.01$ ) or anti-N ( $p=0.008$ ) compared to those not-exposed prior vaccination. We did not observe a significant decrease in the concentration of the other tested cytokines after vaccination.

**Conclusions:** Our results suggest that vaccination with BBIBP-CorV induces a decrease in CCL2 production that is influenced by prior exposure to SARS-CoV-2. That observation might be associated with the reported poor immunogenicity of the Sinopharm BBIBP-CorV vaccine.



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## Operational Feasibility of a Rapid Molecular Assay (RT-LAMP) for SARS-CoV-2 Detection at the Level of District Laboratories in Cameroon

Kengni Nguoko A<sup>1,2</sup>, Fokam J<sup>1,3</sup>, Nka A<sup>1</sup>, Nayang Mundo A<sup>1</sup>, Etame N<sup>1</sup>, Takou D<sup>1</sup>, Chenwi C<sup>1,2</sup>, Ngoufack Jagni Semengue E<sup>1</sup>, Ka'e A<sup>1</sup>, Yagai B<sup>1,4</sup>, Tommo Tchouaket M<sup>1</sup>, Beloumou Angong G<sup>1</sup>, Djupsa Ndjeyep S<sup>1</sup>, Gouissi Anguechia D<sup>1,5</sup>, Molimbou E<sup>1,2</sup>, Togna Pabo W<sup>1,3</sup>, Moko Fotso L<sup>1</sup>, Ndjolo A<sup>1</sup>

<sup>1</sup>Chantal Biya International Reference Center For Research On Hiv Prevention And Management (CIRCB), Yaoundé, Cameroon, <sup>2</sup>University of Rome TOR VERGATA, ROME, ITALY, <sup>3</sup>FACULTY OF HEALTH SCIENCES, BUEA, CAMEROON, <sup>4</sup>National Laboratory of Public Health, Yaoundé, Cameroon, <sup>5</sup>Faculty of Health and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon

**Background:** COVID-19 pandemic has raised the need for a regular surveillance of pathogens with epidemic and pandemic potentials. However, pathogen surveillance in resource-limited settings (RLS) remains challenging due to limited infrastructure/equipment. With the goal to roll-out molecular surveillance in RLS, we assessed the operational feasibility of a reverse-transcriptase loop-mediated isothermal amplification (RT-LAMP) for SARS-CoV-2 diagnosis within district laboratories in Cameroon.

**Materials and Methods:** A diagnostic trial was conducted in October 2023 in ten health facilities from six regions of Cameroon. Following staff training on the RT-LAMP technology at the reference laboratory (Chantal BIYA International Reference Centre), RT-LAMP was performed in each of the peripheral laboratories on well-characterised specimens of nasopharyngeal (n=43) and saliva (n=64) from the reference laboratory. Diagnostic concordance was assessed using Cohen's Kappa with p<0.05 considered statistically significant. A checklist was used for site preparedness in implementing RT-LAMP and staff's perspectives on RT-LAMP.

**Results:** Based on specimen type, nasopharyngeal swabs showed an overall concordance of 79.1%

(34/43), Kappa=0.48 (moderate performance), positive concordance of 96.6% (27/28), negative concordance of 46.7%(7/15), and with three sites having excellent performance (Kappa=1). Saliva specimens showed an overall concordance of 69.4% (39/64), Kappa=0.024 (weak performance), positive concordance of 60.9% (34/49), negative concordance of 33.3% (5/15), and with only two sites having moderate performance (Kappa=0.59). Regarding site preparedness, 50% (5/10) of laboratories met the minimum facility requirement for performing RT-LAMP without any need for additional infrastructural support. Regarding human resources, 80.4% of trained personnel found RT-LAMP to be user-friendly, rapid, and easy to interpret results within their routine laboratory settings.

**Conclusions:** RT-LAMP assay appears to be feasible at peripheral laboratories for SARS-CoV-2 detection. However, there is a higher agreement with nasopharyngeal swabs as compared to saliva between peripheral laboratories and the reference centre. The suboptimal performance on saliva samples could be largely attributed to interpretation of results following interference of saliva pH on the colorimetric change. This calls for further capacity-building and supervision to ensure the efficient use of saliva sample in the surveillance of SARS-CoV-2 and any future emerging/re-emerging infections/pandemics at the level of primary healthcare in RLS.  
Keywords: RT-LAMP, Capacity building, SARS-CoV-2, Decentralisation.

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## Prospect of Achieving a Complete Vaccination Dosage during an Outbreak: A Secondary Analysis of Data from a High-Frequency Phone Survey on COVID-19 Conducted in Uganda

Akumu J<sup>1</sup>, Babirye S<sup>1</sup>, Musaazi J<sup>1,2</sup>

<sup>1</sup>Infectious Diseases Institute, Kampala, Uganda, <sup>2</sup>University of Antwerp, Belgium

**Background:** Following the covid-19 pandemic, COVID-19 vaccination is one of the strategies that





was employed to contain COVID-19 infection. In this analysis, we aimed to look at the likelihood of an individual having complete vaccination for the strategy that requires more than one vaccination shot.

**Materials and Methods:** Secondary data analysis on a High-frequency phone survey on COVID-19 conducted in Uganda by the Uganda Bureau of Statistics (UBOS) with support from the World Bank between 2020 and 2023 was downloaded on 20th February 2023 (<https://microdata.worldbank.org/index.php/catalog/3765/get-microdata>). Among participants who responded that they got a first shot of COVID-19 vaccination, we estimated the likelihood of receiving a complete vaccination by calculating the proportion of participants who received the second COVID-19 vaccination shot. We compared the probability of receiving 2nd COVID-19 vaccine shot and the participants' characteristics using the Chi-square test.

**Results:** Analysis was conducted on 9243 complete cases for participants: 4719 (51.1%) were female, with a median age of 16 years and inter-quartile range of 9-33 years, the majority (78.6%) were residing in rural areas. Nearly 3/4 (72.0%, 6657/9243) reported to have received a 2nd COVID-19 shot (prevalence of full vaccination 72.0%, 95%CI=71.1 – 72.9%). The prevalence of getting the second vaccination COVID-19 shot was higher among: the elderly (aged $\geq$ 50) compared to younger ones (76.2%, P value=0.004), those who resided in the central region compared to other regions (82.4%, P value <0.000), individuals who considered health workers as their best-trusted source of information on vaccination compared to other sources of information (73.7%, P value<0.001), those who were somehow worried that a member of their immediate family might become seriously ill from COVID-19 compared to those who were not (77.6%, P value=0.000), and those who considered COVID-19 virus outbreak as a substantial financial threat to their households compared those who did not (73.2%, P value<0.000).

**Conclusions:** The likelihood of receiving full vaccination aligned with the groups of people whom the government of Uganda listed as priority group during the risk communication and prevention campaigns, and those who considered COVID-19 outbreak as a threat to their household finances.

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## Evaluation Clinique et de la Qualité de Vie des Guéris de COVID-19 en Post Réanimation Aux Centre de Traitement de Gbessia de Conakry

**Sow M<sup>1</sup>**, Barry A<sup>1</sup>, Diallo B<sup>2</sup>

<sup>1</sup>Centre Hospitalo-université de Conakry; Université Gamal Abdel Nasser de Conakry, Conakry, Guinée, <sup>2</sup>Centre de Recherche et de Formation en Infectiologie de Guinée (CERFIG), Conakry, Guinée

**Contexte :** les symptômes liés à la Covid-19 persistent plusieurs mois après la guérison. Objectif était d'évaluer les connaissances sur les séquelles de la COVID 19 chez les et guéris après leur hospitalisation en réanimation aux CT-Epi de Conakry.

**Matériels et Méthodes :** Il s'agissait d'une étude transversale à visée analytique rétro et prospective d'une durée de 04 mois allant du 10 Octobre 2021 au 15 Février 2022.

**Résultats :** Sur un total de 147 cas 46% présentait des séquelles cliniques et psychologiques de la maladie. Nous retrouvons une prédominance masculine avec un sex-ratio H/F= 1,49. Le secteur formel était le plus touché avec 44%. L'hypertension artérielle (61%) et le diabète (32%) étaient les comorbidités les plus représentées. La dyspnée, l'asthénie physique et la toux étaient les séquelles cliniques les plus persistantes après guérison. La dyspnée persistait jusqu'à 7 mois après guérison (15% présentait une dyspnée d'effort au 1er mois, 1,4% une dyspnée d'effort au 7e mois). L'asthénie physique était plus présente une semaine après la guérison (23%) et persistait jusqu'à 6mois (2%). La toux sèche qui est le maître symptôme de la maladie ne représentait que 4,1% à 1mois après guérison mais persistait jusqu'à 9 mois (0,1%). Les séquelles psychologiques représentaient 63% de notre population d'étude. L'anorexie (80%), l'insomnie (22%), la difficulté de concentration (20%), la dépression (16%) étaient les séquelles psychologiques les plus représentées.

**Conclusions :** les séquelles de la COVID 19 étaient fréquents durant cette étude. Ils altèrent la qualité de vie des guéris. Une surveillance accrue, une rééducation fonctionnelle et un suivi



psychologique des guéris s'avèrent être nécessaire.

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## La Vaccination contre la COVID-19 des Personnes Vivant avec le VIH Suivies à L'Hôpital de Jour de Bobo-Dioulasso, Burkina Faso

SOME D<sup>1</sup><sup>1</sup>CHU SOURO SANOU, BOBO-DIOULASSO, Burkina Faso

**Contexte :** Les vaccins contre la Covid-19 ont été développés très rapidement permettant sa mise sur le marché en un an. Les personnes vivant avec le virus de l'immunodéficience humaine (PVVIH) ont été identifiées comme prioritaires pour la vaccination. L'acceptation du vaccin anti-Covid-19 varie selon les pays et les groupes de population. L'objectif était d'estimer la prévalence de la vaccination contre la Covid-19 chez les PVVIH de l'hôpital de jour (HDJ) adulte de Bobo-Dioulasso.

**Matériels et Méthodes :** Il s'agissait d'une étude transversale descriptive et analytique sur la vaccination contre la Covid-19 des PVVIH suivies à l'HDJ adulte de Bobo-Dioulasso du 1er septembre au 30 novembre 2022. Ont été inclus, les patients venus en consultation de routine, acceptant de participer à l'enquête après un consentement éclairé. L'analyse a été faite à l'aide du logiciel Epi info version 7.2.2.6.

**Résultats :** Au total 1323 patients ont été inclus avec un sex-ratio de 0,38. L'âge médian était de 42 ans (17- 78 ans). Les patients VIH 1, étaient de 1222 (92,37%). La durée moyenne de suivi était  $11,56 \pm 6,32$  ans. Sur le plan immunovirologique, les CD4 moyen était de  $686,94 \pm 341,39$  cellules/ $\mu$ L avec 1087 (82,16%) avaient des CD4 > 350 et la charge virale était indétectable (CVI) chez 1050 (79,37%).

Les patients vaccinés représentaient 38,47% (509) dont 71,51% de femmes. Le VIH1 représentait 91,55%. Les patients vaccinés avaient des CD4 > 350 et une CVI respectivement dans 83,69% et 76,62%. Une comorbidité (diabète, HTA ou IR) a été retrouvée chez 21,61%. Le vaccin unidose a été administré à 63,04% contre 36,96% pour deux doses ou plus.

En analyse univariée, il n'y avait pas d'association significative entre la vaccination et le sexe (OR : 0,94, IC95% : 0,73-1,20), la présence d'une comorbidité (OR : 1,10, IC95% : 0,84-1,44), le type de VIH (OR : 0,67, IC95% : 0,38-1,19), le niveau de CD4 < 350 (OR : 0,84, IC95% : 0,61-1,15), et la CVI (OR : 1,01, IC95% : 0,77-1,32).

**Conclusions :** La prévalence de la vaccination contre la Covid-19 chez les PVVIH de l'HDJ adulte de Bobo-Dioulasso est supérieure à la couverture nationale sans association significative.

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## Une Stratégie de Résilience pour la Prévention de la COVID-19 dans une Structure de Prise en Charge de Personnes Vivant avec le VIH

Mboup A<sup>1</sup>, Ngom/Gueye N<sup>1,2</sup>, Fall B<sup>1</sup>, Ka S<sup>1</sup>, Ndiaye A<sup>1</sup>, Ndiaye K<sup>1</sup>, Thiam S<sup>3</sup><sup>1</sup>Centre De Traitement Ambulatoire (cta/opals), Dakar, Senegal,<sup>2</sup>Université Alioune DIOP (UAD), Bambey, Sénégal, <sup>3</sup>Conseil National de Lutte contre le SIDA (CNLS), Dakar, Sénégal

**Contexte :** L'épidémie de SARS-CoV-2 survenue au Sénégal a suscité de nouvelles interrogations relatives à la continuité des services de santé. Le CTA, structure de référence dans la PEC des PVVIH, soucieux de la continuité des soins a mis en place un dispositif de prévention de la propagation de la Covid-19. L'objectif est de partager les résultats du dispositif de prévention et de détection précoce des cas de Covid-19 au CTA de Dakar.

**Matériels et Méthodes :** Il s'agit d'un dispositif de tri des personnes fréquentant la structure entre juillet et Août 2021 pendant la 3<sup>ème</sup> vague de Covid-19. Il concernait toutes personnes qui fréquentaient le Centre. Le personnel du dispositif était équipé de blouses et sur blouses, de masques FFP2, de visières, de charlottes, de chaussettes, de chaussure médicale. Une prise de température se faisait à l'aide d'un thermo flash. Le lavage des mains s'effectuait avec l'aide du personnel de sécurité. Un dispositif de lavage a été mis à sa disposition. Une dotation de masque chirurgicale s'effectuait au besoin avec explication du port correct. Les informations étaient colligées dans un



registre dédié. En cas de fièvre ou de signes suspects de Covid-19, le patient était orienté vers un médecin référent pour investigation.

**Résultats :** Au total nous avons colligé 353 clients dont 16 cas suspects. Il s'agissait de 13 femmes et 3 hommes. La toux était le signe prédominant avec 43,75% (n=7). La dyspnée d'effort était révélatrice chez 18,75% (n=3). L'asthénie physique et l'anosmie a été notée chez un cas. L'HTA était retrouvée chez 2 cas. Le diabète, la drépanocytose et la poly valvulopathie ont été noté chez un cas respectivement. La RTPCR Covid-19 était positive dans 31,25% avec une prédominance féminine 80% (n=4). Parmi les cas positifs, quatre étaient infecté par le VIH. Deux clients parmi les cas positifs étaient vaccinés, mais n'avaient pris qu'une seule dose d'Astra Zeneca. Aucun soignant de la structure n'a été testé positif pendant cette période.

**Conclusions :** Cette stratégie a rendu possible la continuité des services dans un contexte de pandémie à Covid-19. Cependant se pose le problème de la pérennisation d'une telle activité.

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## Serological and Molecular Prevalence of SARS-CoV-2 Infection among Children Less than Twelve Years in Kumasi

Frimpong J<sup>1</sup>, Adankwah E<sup>3,6</sup>, Kamasah J<sup>1</sup>, Gorman R<sup>3</sup>, Boateng J<sup>3</sup>, Larbi R<sup>5</sup>, Ansah R<sup>5</sup>, El-duah P<sup>3,7</sup>, Sylverken A<sup>3,4</sup>, Philips R<sup>3</sup>, Owusu M<sup>2,3,6</sup>

<sup>1</sup>Department of Clinical Microbiology, Kwame Nkrumah University Of Science And Technology, Kumasi, Ghana, <sup>2</sup>Centre for Health System Strengthening, Kumasi, Ghana, <sup>3</sup>Kumasi Centre for Collaborative Research in Tropical Medicine, Kwame Nkrumah University of Science and Technology, South-End, Asuogyia Road, Kumasi, Ghana, <sup>4</sup>Department of Theoretical and Applied Biology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, <sup>5</sup>Genomic and Infectious Disease Laboratory, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, <sup>6</sup>Department of Medical Diagnostics, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, <sup>7</sup>Institute of Virology, Charite, Berlin, Germany

**Background:** The volume and detail of available pediatric COVID-19 data remain inadequate at both country and regional levels. This study

therefore sought to determine the serological and molecular prevalence of SARS-CoV-2 infection among children less than twelve years in Kumasi.

**Materials and Methods:** The cross sectional study was conducted in two health facilities in Kumasi, Ghana between July 2022 and March 2023. Nasopharyngeal swab and blood samples were taken from 131 patients and tested for SARS-CoV-2 using RT-PCR and antibody responses, using serological assays (RDT and ELISA).

**Results:** Of 131 patients recruited, 70 (53.4%) were males and 61 (46.6%) were females. Most of the participants fell within the age groups of 2-5 years (n=54, 41.2%) and <2 years (n=42, 32.1%) with older children between 6-11 years being the least represented group (n=35, 26.7%). Majority of the suspected COVID-19 patients presented with symptoms predominantly, cough (90.1%), rhinorrhea (87.8%), fever (77.9%) and headache (51.9%). Only 1.5% (2/131) of the participant's tested positive for SARS-CoV-2 infection with RT-PCR. Based on the RDT testing on 131 participants, 45.8% (60/131) were IgM positive (IgM+) and 70.9% (93/131) were IgG positive (IgG+). Thirty three study subjects (35.4%) were positive only for IgG and 45.8% (60/131) tested positive for both IgM+/IgG+. Performance of ELISA on RDT IgG seropositives for anti-spike RBD (R), anti-spike S1 (S) and anti-Nucleocapsid (N) IgG antibodies recorded varying concentrations. Of all RDT positive IgG, the seroprevalence of anti-N was the highest with median (IQR) of 14938 (5745 – 33538) ng/mL, followed by 5505 (3311 – 12915) ng/mL and 5314 (2507 – 12573) ng/mL of anti-spike RBD and anti-spike S1 respectively. Correlation between anti-spike RBD, anti-spike S1 and anti-N revealed that, anti-spike S1 IgG levels strongly correlated with anti-spike RBD IgG (rs= 0.8554, p<0.0001). A moderate correlation was observed between anti-spike S1 IgG and anti-N IgG (rs= 0.5185, p<0.0001) and anti-spike RBD IgG and anti-N IgG (rs= 0.4353, p<0.0001). No significant association were observed between SARS-CoV-2 positive cases by RT-PCR and all variables.

**Conclusions:** This study's greater seroprevalence of 70.9% for all proteins suggests that children may still be vulnerable. Vaccine extension to children must be priorities.



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## The Uptake of COVID-19 Vaccination amongst Recipients of HIV Services in Coastal Kenya

Owiti P<sup>1</sup><sup>1</sup>Lvct Health, Kisumu, Kenya

**Background:** The first COVID-19 case was reported in Kenya on 13th March 2020. The government then declared it an emergency and put in place several infection prevention and control (IPC) measures initially targeting those at highest risk of infection, morbidity and mortality. As a PEPFAR funded project, serving recipients of HIV services, we targeted both general and key population with vaccination. This paper describes the uptake of COVID-19 vaccination amongst general and key populations (KP) receiving HIV services in four coastal counties of Kenya.

**Materials and Methods:** The project co-created a work plan with the counties, then trained healthcare providers (HCP) at the HIV clinics and KP drop in centres on COVID-19 IPC interventions including vaccination. The project recruited additional personnel to bridge the gaps in health facilities with human resource shortages. The HCP and peers mobilized the clients, provided health talks to them and offered vaccination to those who consented. The team entered the data into the government m-chanjo system and the facility based electronic medical records system (EMRS). The data review was conducted for performance tracking and quality prior to reporting.

**Lessons Learnt:** Out of 61,879 people receiving treatment for HIV and enrolled within the supported EMR sites by the end of September 2023, 51,984 (84%) were vaccinated. The uptake amongst females was 37,214/43,910 (72%) while that amongst males was 14,770/17969 (82%). Amongst those vaccinated, the adolescents (12-17 years) were 882 (2%) while the rest 51102 (98%) were adults. From the KP across the various service delivery centers, the uptake of vaccination was 1741/1811 (96%) with that amongst men who have sex with men (MSM) being 358/364 (98%), among female sex workers (FSW) being 1344/1366 (98%) and among people who inject drugs being 39/81 (48%).

**Conclusions:** As part of diversity, inclusivity and equity, recipients of HIV treatment services and key population were included in the COVID-19 infection prevention and control. This practice should be maintained in the fight against pandemics. The vaccination was acceptable with a high uptake amongst these populations.

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## Place de la Protéine C Réactive dans la Prise en Charge de la COVID-19 à Abidjan

SOME D<sup>1</sup><sup>1</sup>CHU SOURO SANOU, BOBO-DIOULASSO, Burkina Faso, <sup>2</sup>CHU de Treichville, Abidjan, Côte d'Ivoire

**Contexte :** Les manifestations clinique et biologique de la Covid-19 sont diverses. Plusieurs facteurs expliquent la gravité des symptômes. Nous proposons d'étudier dans ce travail, un des paramètres biologiques.

**Objectif :** Evaluer le pronostic de la Covid-19 en fonction des valeurs de la Protéine-C réactive au CHU de Treichville du 1er avril 2020 au 31 mars 2021

**Matériels et Méthodes :** il s'agissait d'une étude rétrospective à visée descriptive et analytique des patients hospitalisés au service des maladies infectieuses et tropicales du 1er avril 2020 au 31 mars 2021. Ont été inclus, les patients de tous âges et sexes, hospitalisés et ayant eu une infection confirmée à Covid-19 et un dosage sanguin de la CRP. L'analyse a été faite à l'aide du logiciel Epi info version 7.2.2.6.

**Résultats :** Au total, 345 patients ont été inclus avec une sex-ratio de 1,45. L'âge médian était de 52 ans [42-63] ans. L'hypertension artérielle (33,6%) et l'asthme (10,1%) étaient les principales comorbidités. La forme sévère de la Covid-19 représentait 24,9% des patients. La CRP était supérieure à la normale chez 80,9% de nos patients et la médiane de la CRP était de 48mg/l (IIQ [12-96]). En analyse univariée la médiane, la valeur de la CRP au-dessus de la médiane était significativement associée à un âge supérieur 60 ans (OR :1,81, IC95% : 1,11-2,94), à l'hypertension artérielle (OR :1,76, IC95% :1,11-2,80), à la



détresse respiratoire (OR :2,02, IC95% 1,14-3,60), à la sévérité de la Covid-19 (OR :2,02, IC95% : 1,20-3,41) et l'oxygène-requérance (OR :2,40, IC95% 1,52-3,81).

**Conclusions :** l'âge avancé, l'hypertension artérielle, la détresse respiratoire, la sévérité de la Covid-19 et l'oxygène-requérance étaient de facteurs associés à une élévation de la CRP chez les patients hospitalisés.

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## Triple Infections à Trois Arbovirus Différents (Dengue, Zika, Chikungunya) chez une Petite Fille de Six Ans

**Alle Akakpo A**<sup>1,3</sup>, Cissoko Y<sup>1,2</sup>, Dao S<sup>1,2</sup>, Konaté I<sup>1</sup>, Soumaré M<sup>1</sup>, Magassouba O<sup>1</sup>, Sogoba D<sup>1</sup>, Dombia Y<sup>1</sup>

<sup>1</sup>Service d'infectiologie du CHU du point G de Bamako, Bamako, Mali, <sup>2</sup>Centre universitaire de recherche clinique (UCRC),

<sup>3</sup>Clinique médicale TERYA à Bamako

**Contexte :** Un arbovirus est défini comme tout virus transmis aux humains et/ou à d'autres vertébrés par certains types d'arthropodes hématophages. Il existe plus de 250 arboviroses et leur distribution s'étend au monde entier et au moins 80 sont pathogènes pour l'homme. Nous rapportons ici un cas de triple infection aux arbovirus diagnostiqué au même moment.

**Présentation du cas :** Il s'agit d'une fille de six ans, élève, résidant à Bamako. Elle est sans ATCD médico-chirurgical, elle a été en contact avec un cas de dengue confirmé. Le début de la symptomatologie remonte la date du 7 décembre 2023 marqué par une fièvre à 40°C motivant les parents à l'amener consulté dans une clinique de la place où elle a reçu un traitement de paludisme, puis un traitement de pneumopathie bactérienne devant une toux qui s'est associée à la fièvre 48h après. L'évolution fut marquée par la persistance de la fièvre malgré tous ces traitements. A l'interrogatoire les plaintes de la patiente n'étaient que la fièvre, à l'examen clinique la température était 40,7°C, le reste de l'examen était normal, il y avait pas de signe d'hémorragie. Une PCR de la dengue fut demandée après qu'une sérologie de la dengue réalisée soit négative. La PCR a été réalisée

à l'University Clinical Research Center de Bamako en utilisant le kit CDC-Trioplex. Ce test est revenu positif aux trois virus suivants, le virus de la dengue, Zika et chikungunya. Une première NFS réalisée avait montré une anémie 10,9g/l ; les transaminases étaient légèrement augmentées, le TP et la créatininémie étaient normaux. La NFS de contrôle révélait une hyperleucocytose à prédominance lymphocytaire. Le diagnostic d'une triple infection au virus de la dengue, Zika et chikungunya fut retenu. La patiente a été isolée sous moustiquaire imprégné d'insecticide à longue durée d'action, mise sous traitement symptomatique. L'évolution a été favorable marquée par une apyrexie un contrôle de la PCR qui est revenu négatif.

**Conclusions :** Ce cas met en exergue une coinfection des arbovirus, la présence d'une de ces infections n'exclue pas d'autre surtout quand ils ont les mêmes vecteurs et les manifestations cliniques similaires.

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## Coronavirus Disease–2019 Morbidity and Mortality among Healthcare Workers in Uganda

**Ssetaba L**<sup>1</sup>, Mirembe J<sup>1</sup>, Omega J<sup>2</sup>, Okot J<sup>3</sup>, Kiguli S<sup>1</sup>, Bongomin F<sup>3</sup>

<sup>1</sup>School of Medicine, College of Health Sciences, Makerere University, Mulago, Uganda, <sup>2</sup>Department of Medicine, Mulago National Referral Hospital, Kampala, Uganda., Mulago, Uganda, <sup>3</sup>Faculty of Medicine, Gulu University, P. O. Box, 166, Gulu, Uganda., Gulu, Uganda

**Background:** Health care workers (HCWs) are at increased risk of acquiring coronavirus disease 2019 (COVID-19). This study aimed to determine and compare the morbidity and mortality rates due to COVID-19 among the HCWs and the general population (non-HCWs).

**Materials and Methods:** We conducted a retrospective chart review. We accessed the electronic database of participants admitted at Mulago National Referral Hospital COVID-19 Treatment Unit (CTU) between March 2020 and September 2021. Participants with missing occupations were excluded.



**Results:** Of 594 eligible participants, 6.4% (n = 38) were HCWs. Compared with non-HCWs, HCWs were much younger (48 versus 55 years, p = 0.020). The proportion of participants with severe disease (73.7% versus 77.6%, p = 0.442), who had not received the COVID-19 vaccine (91.2% versus 94.7%, p = 0.423), mortality rate (44.7% versus 54.8%, p = 0.243) and the median length of hospitalization (6 versus 7 days, p = 0.913) were similar among HCWs and non-HCWs, respectively. A higher proportion of HCWs required oxygen therapy (24.3% versus 9.7%, p < 0.01). At admission, the presence of cough (p = 0.723), breathlessness (p = 0.722), fever (p = 0.19), sore throat (p = 0.133), comorbidities (p = 0.403) and headache (p = 0.162) were similar across groups. Rhinorrhoea was more common among HCWs (34.4% versus 16.6%, p = 0.017). Among HCWs, nurses had the highest morbidity (52.6%) and mortality (58.8%).

**Conclusions:** The morbidity and mortality among HCWs in Uganda were substantial, with a low COVID-19 vaccination rate and a higher requirement for oxygen therapy despite a younger age.

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## Feasibility, Acceptability, and Cost of Community-Based Self-Monitoring Among Sex Workers Testing Positive for COVID-19 in Zimbabwe: A Mixed-Methods Study

Kabonga I<sup>1</sup>, Mangenah C<sup>1,2</sup>, Watadzaushe C<sup>1</sup>, Madanhire C<sup>1</sup>, Ruhode N<sup>1</sup>, Hatzold K<sup>3</sup>, Corbett<sup>4</sup>, Cowan F<sup>2</sup>, Sibanda E<sup>1,2</sup>

<sup>1</sup>CeSHHAR Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Liverpool School of Tropical Medicine, Liverpool, United Kingdom, <sup>3</sup>Population Services International, Johannesburg, United States of America, <sup>4</sup>London School of Hygiene & Tropical Medicine, London, United Kingdom

**Background:** Sex workers struggle with adherence to isolation guidelines when diagnosed with COVID-19 because of financial pressure to keep working. We co-developed an intervention for promoting adherence to isolation and community-based self-monitoring for severity of COVID-19

disease among sex workers attending the Zimbabwe national sex work programme (KP programme). We explored the feasibility, acceptability, and cost of the intervention.

**Materials and Methods:** Sex workers testing positive at twelve KP programme clinics received the following intervention that was co-developed in a workshop with sex workers and relevant stakeholders: i) risk-differentiated support: immediate hospitalization and/or treatment of those with serious illness, and community-based self-monitoring including use of pulse oximeters for those with moderate symptoms and/or high risk of progressing to severe illness, with instructions to seek help if symptoms worsened, ii) food packs for a family of four, lasting two weeks, to support isolation. We interviewed purposively selected health workers (n=5) and sex workers (n=8, of whom 5 tested positive) in-depth to explore views on the intervention. We used programme data to determine the cost of intervention development and implementation.

**Results:** From March-June 2023, 309 COVID-19 tests were conducted in the KP programme; nine participants tested positive. Interviewed health workers and sex workers confirmed that the intervention was implemented as intended. Food packs were highly appreciated and associated with improved uptake of COVID-19 testing. Food packs were helpful for promoting isolation, although participants reported residual financial pressures unrelated to food, sometimes forcing early resumption of sex work. Self-monitoring at home was acceptable, although some participants needed reminders on correct use of oximeters. Among participants who felt worse during self-monitoring, fear of stigma was a barrier to requesting additional support, with worry that contact/visits from study team could cause inadvertent disclosure of the illness to landlords/neighbors. The annualized cost of intervention co-development was \$43. The intervention total cost was \$859, with cost per sex worker testing positive of \$61. Major cost contributors were food packs, testing kits and medication.

**Conclusions:** Community-based self-monitoring for COVID-19 was feasible and acceptable, with costs comparing favorably with similar interventions. Addressing stigma can enhance optimum implementation of the intervention.



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## Sars-Cov-2 Anti-spike and Anti-nucleocapsid Association with IL-15 and IL-18

Maphossa V<sup>1,2</sup>, Guiliche O<sup>1</sup>, Babetine T<sup>1</sup>, Castiano C<sup>1</sup>, Mutombene M<sup>1</sup>, Nhalungo A<sup>1</sup>, Marengue M<sup>3</sup>, Capitine I<sup>1</sup>, Chambal L<sup>4</sup>, Tivane A<sup>1</sup>, Chisumba R<sup>1,5</sup>

<sup>1</sup>Instituto Nacional de Saúde, Maputo, Mozambique,

<sup>2</sup>Universidade Eduardo Mondlane, Maputo, Mozambique,

<sup>3</sup>Hospital Geral da Polana Caniço, Maputo, Mozambique,

<sup>4</sup>Hospital Central de Maputo, Maputo, Mozambique, <sup>5</sup>Centro de Investigação e Desenvolvimento em Etnobotânica, Maputo, Mozambique

**Background:** Previously we reported an association of SARS-CoV-2 infection with cytokine IL-15 and IL-18 as potential biomarkers for severity of the disease. However not yet explored in this Mozambican cohort, the cytokine profile has an important role in regulating the production of antibodies necessary for viral clearance and a low antibody count has been associated with poor outcomes in previous studies. This study aims to evaluate how the levels of antibodies against SARS-CoV-2 are correlated to levels of cytokines IL-15 and IL-18 and viral infectivity.

**Materials and Methods:** Serum from 85 participants grouped as negative (n=22) and positive (n=63) for SARS-CoV-2 RT-PCR, from a cross-sectional observational conducted in Maputo between February 2021 to January 2022, were used for antibody evaluation. SARS-CoV-2 IgG anti-spike RBD (IgG-S) and anti-nucleocapsid (IgG-N) were measured in U/ml, by commercial ECLIA and ELISA respectively. Positive individuals were categorized by the clinical state as non-severe (n=33) and severe (n=22) and among them, 10 were vaccinated. Cycle threshold value (CT-value) and cytokines level (IL-10, IL-15, IL-18, and TGF- $\beta$ ) were used as units of estimation of viral infectivity and inflammation markers respectively. Association between variables was assessed using Kruskal Wallis (post-hoc pairwise comparison by using the Dunn test) and correlation using Spearman Rank.

**Results:** No differences were found in antibodies levels of IgG spike and nucleocapsid, between groups ( $p>0.05$ ) but the severe group presented an IgG-S median of 5.7U/ml, significantly lower than the vaccinated group (3676 U/ml;  $p<0.0001$ ). IgG-S was negatively correlated to IL-15 ( $r=-0.36$ ;

$p=0.025$ ) and IgG-N was positively correlated to CT-value ( $r=0.58$ ;  $p=0.0001$ ) and IL-18 ( $r=0.45$ ;  $p=0.0036$ ).

**Conclusions:** Those results suggest an association between SARS-CoV-2 antibodies and poor disease outcomes, evidenced by the seen association with known biomarkers of severity. Further studies are needed to evaluate the functional capacity of those antibodies and the casual interaction with the severe cytokine profile.

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## Beyond Now: Navigating Tomorrow's HIV Vaccine Uptake through Insights from a COVID-19 vaccine project in South Africa

Moolla A<sup>1</sup>, Chetty-Makkan C<sup>1</sup>, Monwenyana C<sup>1</sup>, Blackburn C<sup>2</sup>, Callaghan T<sup>3</sup>, Colwell B<sup>4</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, Faculty of Health Sciences, University of the Witwatersrand,

Johannesburg, South Africa, <sup>2</sup>Department of Health Policy and

Management, School of Public Health, Texas A&M University,

College Station, United States, <sup>3</sup>Department of Health Law,

Policy, and Management, School of Public Health, Boston

University, MA, United States, <sup>4</sup>Department of Health Behavior,

School of Public Health, Texas A&M University, College Station, United States

**Background:** Vaccine hesitancy is a global and complex problem. We explored the drivers of vaccine hesitancy within a COVID-19 project to apply learnings to the HIV context to combat challenges for future HIV vaccine uptake.

**Materials and Methods:** Employing convenience sampling, we recruited and consented 30 participants in Johannesburg, South Africa between May and August 2023. Semi-structured interviews were conducted in preferred languages, transcribed and translated; and thematically analysed.

**Results:** Of the 30 participants, 14 participants had not been vaccinated. All were aged between 22 and 54 years with a mean age of 36 years. 25 participants were unemployed, 10 participants self-reported an HIV-positive status and 9 verbally confirmed to be on antiretroviral therapy; of



whom 4 were not vaccinated. Facilitators that enabled vaccine uptake for participants living with HIV included wanting to survive for children, previous infection with COVID-19 and a need for confirmation of vaccine certification (“wherever you enter, they will need that paper...”). Family members, concerns over job security and helpful information from clinic staff motivated those who were HIV-negative to take the vaccine. A key difference in barriers noted by participants living with HIV who were not vaccinated included lack of adequate vaccine information from government, concerns about origins of COVID-19, vaccine side effects/dying after receiving the vaccination (“I have got my illness myself, like what if the vaccine gets combined with other illness and then I die...”) and vaccine efficacy against contracting the virus. The majority of the 8 HIV-negative participants who were not vaccinated, indicated that they were afraid due to multiple sources providing negative information about vaccine safety and efficacy, fear of it being mandatory to take the vaccine annually and no motivation or interest (“I haven’t been interested in it...”). Some participants were concerned that the COVID-19 vaccine has negatively changed the way people will view new vaccines in future (“Since the COVID vaccine, now people fear vaccine...”).

**Conclusions:** Programmes for vaccine uptake should include having trusted sources of information, and applying behavioural insights to the co-design of interventions to alleviate untoward concerns, fears and hesitancy from the community to take a vaccine.

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## Diabète et COVID-19 : Profil et Facteurs Associés au Décès Chez des Patients Hospitalisés au Centre de Traitement des Épidémies (CTE) de Fann

**Khadiata D<sup>1</sup>**, Ndéye Maguette F<sup>1</sup>, Viviane Marie Pierre C<sup>1</sup>, Ndéye Aissatou L<sup>1</sup>, Daye K<sup>1</sup>, Daouda T<sup>1</sup>, Aboubacar Sadikh B<sup>1</sup>, Assane D<sup>1</sup>, Moussa S<sup>1</sup>

<sup>1</sup>Service des Maladies Infectieuses, CHNU de Fann, Dakar, Sénégal

**Contexte :** Au Sénégal, l’enquête STEPS réalisée en 2015 au sein de la population âgée de 18 à 69 ans avait montré une prévalence du diabète de 3,4% puis 7,9% à partir de 45 ans. Depuis le début de la pandémie de la maladie à COVID-19, il est apparu que le diabète était un facteur de risque de forme sévère de la maladie.

**Objectifs :** Décrire les aspects épidémiologiques, cliniques, paracliniques et évolutifs des patients diabétiques hospitalisés pour Covid-19 au CTE, identifier les facteurs associés au décès.

**Résultats :** Nous avons colligé 54 patients. L’âge moyen était de 64,5±10,5ans avec un sex-ratio à 0,92. Des comorbidités telles que l’HTA (57,4%), l’obésité (9,2%) ont été notées. La vaccination anti-Covid-19 a concerné 45% des patients (n=24) dont 15 avec un statut vaccinal complet. Les signes respiratoires prédominaient avec la dyspnée (75,9%), la toux (57,4%) et douleur thoracique (22,2%). La NFS a été réalisée chez 32 patients avec une hyperleucocytose chez 15 d’entre eux. Presque deux tiers ont bénéficié d’une CRP (n=33), elle était élevée chez 31 patients. Les D-Dimères étaient supérieurs à 3000 ng/ml chez 13 patients sur 21 (61,9%). Parmi les 43 patients (79,6%) ayant bénéficié d’une angioTDM thoracique, 31 (81,6%) présentaient des lésions en verre dépoli et quatre une embolie pulmonaire. Les lésions étaient modérées à critiques dans 75,3% des cas. Sur le plan thérapeutique, 74,1% de nos patients étaient sous oxygène avec des débits variant entre 6 et 30l/mn. La durée moyenne d’hospitalisation était de 7,54±6,14 jours avec une létalité de 29,2%. En analyse multivariée, la vaccination antiCovid19, l’HTA et le décès étaient liés significativement au statut diabétique avec respectivement p= 0,001, p=0,001 et p=0,041.

**Conclusions :** Cette étude confirme le fait que les diabétiques constituent une population très vulnérable par rapport à l’infection Covid-19. Plus de la moitié présentait des symptômes sévères de l’infection à Covid-19 avec une létalité non négligeable de 29,2%. Il y avait plus de patients vaccinés, hypertendus et décédés chez les diabétiques que chez les non diabétiques. D’où l’intérêt de beaucoup insister sur la prévention chez cette catégorie de la population.





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## Cost Analysis of SARS CoV-2 Genomic Sequencing in Zimbabwe: A Retrospective Analysis of the National Microbiology Reference Laboratory Experience, 2022

Maeka K<sup>1</sup>, Juru-Chibango A<sup>1</sup>, Gumbo H<sup>1</sup>, Sisy L<sup>1</sup>, Makaka N<sup>2</sup>, Maparo T<sup>2</sup>, Simbi R<sup>3</sup>

<sup>1</sup>National Microbiology Reference Laboratory, Harare, Zimbabwe, <sup>2</sup>Clinton Health Access Initiative, Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Genomic sequencing is a vital tool for genomic surveillance. Just over 50% of countries on the African continent have access to local genomic sequencing facilities due to the high investment required to set up the laboratories. The use of the Oxford Nanopore Technology (ONT) in SARS-CoV-2 genomic sequencing has revolutionized the use of this modern technology in enabling countries to make quick and informed public health decisions about outbreak dynamics, disease spread and transmission routes. However, very few studies have been published about procedure costs and cost of setting up an ONT genome sequencing laboratory.

**Materials and Methods:** A desk review of cost data of requirements involved in setting up and implementing genomic sequencing was conducted and activity-based costing was used to determine the total cost per test and total costs of setting up the laboratory. Thirteen cost elements were analysed and three key informant interviews were conducted to collect qualitative data on challenges and lessons learnt.

**Results:** The cost per test was established to be USD\$71.69 and total cost of setting up the Genomic Sequencing unit at NMRL was calculated to be USD\$42,516.67. Under the theme of infrastructure, NMRL key informant noted that there was no need to build a new laboratory or do major renovations to the existing laboratory but only repurposing of rooms and spaces was required. Under the theme of human capital, it was noted that the scientists and technicians needed additional training on the modern procedures of sequencing and bioinformatics. Some of the challenges cited by the interviewees

included delays in reagents delivery and lack of adequate physical training.

**Conclusions:** It is possible to establish genomic sequencing facilities at every national reference laboratory on the continent to detect emerging and re-emerging infectious pathogens. Genomic sequencing capacity can even be decentralised to sub-national level. The cost per test of sequencing SARS CoV-2 using ONT revealed by this study could be reduced by optimizing the procedure and reducing error rates. Face-to-face trainings which were not possible during COVID-19 pandemic are essential for this new technology to be implemented seamlessly with high impact outcomes.

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## Interventions to Improve Retention in Care of Patients with Tuberculosis and HIV During the COVID-19 Pandemic at Kiruddu National Hospital in Uganda

Katusabe S<sup>1,2</sup>, Baluku J<sup>2</sup>, Owachi D<sup>1</sup>, Kisaaliita F<sup>1</sup>, Akatukunda P<sup>2</sup>

<sup>1</sup>Kiruddu National Referral Hospital, Kampala, Uganda, <sup>2</sup>Makerere University Joint AIDS Program (MJAP), Kampala, Uganda

**Background:** Tuberculosis (TB) is a preventable and usually curable disease. Yet in 2022, TB was the world's second leading cause of death from a single infectious agent, after coronavirus disease (COVID-19), and caused almost twice as many deaths as HIV/AIDS. More than 10 million people continue to fall ill with TB every year. Urgent action is required to end the global TB epidemic by 2030. Spontaneous pandemics disrupt TB/HIV overall service delivery especially low-income countries. Such disruptions set back progress in reducing the burden of TB/HIV.

The interventions set up to control the COVID-19 pandemic caused widespread disruptions to TB/HIV care and service delivery in 2020 and 2021, setting back the progress in the end TB strategy 2030 and elimination of new HIV infections by several years.



**Materials and Methods:** The facility diagnoses on average 700 new cases of TB annually and 2,766 active patients with HIV by 31/12/2023. 686 active patients in care between September 2021 to June 2022, 195 (40%) had TB only, 293 (60%) with HIV and TB. The appointment day for those with only tuberculosis was Tuesdays and those with TB/HIV coinfection given Thursday to ensure confidentiality and privacy during service delivery. During the August 2021, monthly performance meeting, the retention of patients had dropped to 58%. Following a root cause analysis by the Quality improvement team, patients missed appointments due to high transport costs, long distance and forgetting appointments. Interventions were home drug deliveries, multi-month refills, pre and post appointment phone calls, linking patients far away from the facility to the near-by facilities to their homes.

**Results:** The retention was: 659(95.8%), 660 (96.2%), 661(96.3%), 663(96.6%), 665(97%), 667(97%), 681(99.2%), 668(97.3%), 677(98.6%), 680(99.1%) for September 2021, October 2021, November 2021, December 2021, January 2022, February 2022, March 2022, April 2022, May 2022 and June 2022 respectively.

**Conclusions:** Home drug deliveries, multi-month refills, pre and post appointment phone calls, linking patients far away from the facility to the near-by facilities to their homes improve patients' retention in care. In the face of the rising emerging and re-emerging infectious diseases such interventions ensure continuity of care.

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## Navigating COVID-19 Vaccination Challenges among People Living with HIV in Uganda

Kanyesigye C<sup>1</sup>

<sup>1</sup>Independent Public Health Consultant, Kampala, Uganda

**Background:** Despite people living with HIV being identified as a priority group for COVID-19 vaccination in Sub-Saharan Africa, there is a lack of

comprehensive data on the acceptability and hesitancy towards the vaccines among people living with HIV (PLWH). This study, conducted in Uganda, addresses this gap by aiming to elucidate the acceptability of COVID-19 vaccines and identify associated factors among PLWH.

**Materials and Methods:** A cross-sectional study was undertaken at six accredited ART clinics in Kampala, involving 767 PLWH aged  $\geq 18$ . Participants were recruited randomly, and vaccine acceptability, defined as willingness to accept any available COVID-19 vaccine, was gauged through interviewer-administered questionnaires. The study also assessed vaccination status, complacency towards COVID-19, vaccine confidence, and perceived vaccine convenience. Data was analyzed using the Modified Poisson regression with robust standard errors to analyze the factors influencing vaccine acceptability.

**Results:** Of the enrolled participants, 63% were women, and they exhibited a higher vaccination rate (73% vs. 63% in men). Among the unvaccinated, 72.7% expressed willingness to accept vaccination, indicating notable acceptability. Factors positively associated with vaccine acceptability included increased vaccine confidence (adjusted prevalence ratio [aPR] 1.44; 95% CI: 1.08-1.90) and the perception that obtaining a vaccine would be easy (aPR 1.57; 95% CI: 1.26-1.96).

**Conclusions:** The study reveals high vaccine acceptance among PLWH in Uganda, particularly among women. Ensuring widespread vaccine confidence and easy accessibility should be prioritized in vaccination programs targeting PLWH to effectively address the intersection of COVID-19 and HIV vulnerabilities.



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## SARS-CoV-2 Infection and Associations with Sociodemographic and Clinical Characteristics Among People with and Without HIV in Three African Countries

Langat R<sup>1,2</sup>, Daud I<sup>1,2</sup>, Cebula B<sup>1</sup>, Kibuka H<sup>3</sup>, Owuoth J<sup>4,5</sup>, Singoe V<sup>4,5</sup>, Maswai J<sup>1,6</sup>, Parker Z<sup>1,7</sup>, Anyebe V<sup>1,8</sup>, Dear N<sup>1,7</sup>, Frndak S<sup>1,7</sup>, Parikh A<sup>1,7</sup>, Duff E<sup>1,7</sup>, Imbach M<sup>1,7</sup>, Omar B<sup>1,7</sup>, Hern J<sup>1,7</sup>, Crowell T<sup>1,7</sup>, Romo M<sup>1,7</sup>, Shah N<sup>1</sup>, Ake J<sup>1</sup>

<sup>1</sup>U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, MD, USA, <sup>2</sup>HJF Medical Research International, Kericho, Kenya, <sup>3</sup>Makerere University Walter Reed Project, Kampala, Uganda, <sup>4</sup>U.S. Army Medical Research Directorate - Africa, Kisumu, Kenya, <sup>5</sup>HJF Medical Research International, Kisumu, Kenya, <sup>6</sup>U.S. Army Medical Research Directorate - Africa, Kericho, Kenya, <sup>7</sup>Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Bethesda, MD, USA, <sup>8</sup>HJF Medical Research International, Abuja, Nigeria

**Background:** While persons living with HIV (PLWH) were prioritized for SARS-CoV-2 vaccination, SARS-CoV-2 infection and COVID-19 symptomatology has not been well characterized for this high-priority population. We estimated period prevalence of SARS-CoV-2 RT-PCR positivity within Kenya, Uganda, and Nigeria, describing associations between SARS-CoV-2 positivity and vaccination status, sociodemographics, and clinical symptoms.

**Materials and Methods:** The African Cohort Study (AFRICOS) is an ongoing cohort following PLWH and people without HIV (PLWoH) in Africa, including Kenya, Uganda, and Nigeria. All participants undergo clinical assessment and socio-behavioral questionnaire administration at enrollment and every six months; CD4 and viral load is also collected at each visit for PLWH. Beginning in July 2022, optional nasal swabs were collected for SARS-CoV-2 RT-PCR testing. The prevalence of SARS-CoV-2 was calculated using the Agresti-Coull method. Differences between sociodemographic and clinical factors of interest and SARS-CoV-2 positivity were determined using Wilcoxon rank sum or chi-square tests.

**Results:** A total of 1703 participants had at least one visit since nasal swab collection began. Of

these, 810 (47.6%) had a swab collected and tested with valid results returned. At the time of nasal swab collection, 5 (0.6%) were experiencing COVID-19 symptoms. The prevalence of SARS-CoV-2 positivity was 9.0% (95% CI: 7.2%-11.2%). Direct contact with a known or suspected case of COVID-19 in the past 14 days was associated with SARS-CoV-2 positivity ( $p < 0.001$ ). SARS-CoV-2 positivity was not significantly associated with age, sex, education, employment, marital status, study site, hyperglycemia, elevated blood pressure, receipt of COVID-19 vaccine, vaccine type, and being tested for SARS-CoV-2 since the last study visit. Among PLWH, SARS-CoV-2 positivity did not significantly differ by CD4 count or viral suppression.

**Conclusions:** Direct contact being the only correlate of SARS-CoV-2 positivity in this cohort underscores the importance of infection prevention and control strategies and social distancing in limiting disease spread, particularly with PLWH.

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## Combating Antimicrobial Resistance in the Management of Urinary Tract Infections Through Innovative Community Engagement Approaches Among Women in 3 Districts of Zambia

Banda T<sup>1</sup>, Zaremba J<sup>3</sup>, Rogalla von Bieberstein K<sup>2</sup>, Josh J<sup>2</sup>, Museteka G<sup>1</sup>, Matowe L<sup>1</sup>

<sup>1</sup>Eden University, Lusaka, Zambia, <sup>2</sup>International Centre for Antimicrobial Resistance Solutions, Copenhagen, Denmark, <sup>3</sup>Wellcome, London, UK

**Background:** In Zambia, antibiotics continue to be inappropriately used among women with Urinary Tract Infections (UTIs) contributing to the rise in Antimicrobial Resistance (AMR). Despite a situation analysis highlighting supply side factors such as easy access to antibiotics without prescription being key drivers of AMR, knowledge gaps on the demand side factors still exist. This research aimed to use an innovative community engagement approach to understand community



drivers of AMR as well as engage community members to co-create AMR solutions.

**Materials and Methods:** A qualitative approach was used, and data was collected using a case study design with the 'case' being an innovative community engagement approach called Responsive Dialogues developed by Wellcome. The study conducted in 3 districts (Lusaka, Ndola, and Livingstone) had 125(88 F, 37M) participants conveniently sampled comprising men and women aged between 16 and 45 years. An average of 4 community dialogues per site were held. Inductive thematic analysis was used to analyze the data.

**Results:** There was low awareness and knowledge of AMR with participants stating to have used antibiotics indiscriminately to manage UTIs. The study unmasked different demand side behaviours as the key drivers of AMR such as: sharing of antibiotics, misuse of antibiotics, lack of proper diagnosis of UTIs in clinics and lack of spouse support to buy antibiotics. Co-created community solutions to address AMR included community engagement and sensitization for changing health seeking behaviour for UTIs, community awareness on AMR and integration of gender-sensitive approaches in antenatal clinics specifically targeting men (who accompany pregnant women).

**Conclusions:** Employing innovative community engagement approaches such as the responsive dialogue approach is key for empowering communities as valuable stakeholders to provide solutions to reduce AMR in Zambia, which is a public health threat especially among women suffering from UTIs.

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## Profil Épidémiologique, Clinique, Paraclinique, Thérapeutique et Évolutifs Des Patients Infectés Par Le SARS-CoV-2 Hospitalisés au Centre de Traitement Des Epidémies (CTE) de Saint-Louis (Sénégal) Lors de la 3E Vague

Dieye A<sup>1</sup>, Diedhiou M<sup>1</sup>, Niang F<sup>1</sup>, Seck B<sup>1</sup>, Niang S<sup>1</sup>, Dia-Gueye D<sup>1</sup>, Dia A<sup>1</sup>, Dieng I<sup>2</sup>, Dieng A<sup>2</sup>, Lo S<sup>1</sup>, Dia-Badiane N<sup>1</sup>

<sup>1</sup>Université Gaston Berger de Saint-Louis (Sénégal), Saint-Louis, Senegal, <sup>2</sup>Centre Hospitalier Régional de Saint-Louis (Sénégal), Saint-Louis, Sénégal

**Contexte :** La pandémie de COVID-19 a été particulièrement meurtrière surtout lors de la 3e vague avec l'avènement du variant delta. Les objectifs étaient de déterminer le profil épidémiologique, clinique, paraclinique, thérapeutique et évolutifs des patients infectés par le SARS-CoV-2 hospitalisés au CTE de Saint-Louis (Sénégal) lors de la 3e vague ; et d'identifier les facteurs associés au décès.

**Matériels et Méthodes :** il s'agit d'étude de cohorte, transversale, rétrospective, descriptive et à visée analytique, réalisée sur la période de Juin 2021 à Septembre 2021.

**Résultats :** Nous avons colligé 90 dossiers sur 454 hospitalisations soit une prévalence de 19,8%. L'âge moyen des patients était de 60,4 ans ( $\pm 17,2$  ans). La tranche d'âge la plus représentative était comprise entre 61 ans et 80 ans avec 38 cas (42,2%). On notait une prédominance féminine avec 50 femmes (55,6%) contre 40 hommes (44,4%) soit un sex ratio de 0,8. Les comorbidités étaient dominées par l'HTA avec 28 cas (31,1%), suivie du diabète de type 2 avec 20 cas (22,2%) et de la maladie rénale chronique avec 04 cas (4,4%). Seuls 06 patients (6,7%) s'étaient vaccinés contre la COVID-19. Les signes fonctionnels à l'admission étaient dominés par la dyspnée avec 55 cas (61%), suivie de la toux avec 31 cas (34,4%) et des céphalées avec 15 cas (16,7%). Les formes graves étaient majoritaires avec 74 cas (82,2%). Une TDM thoracique était réalisée chez 56 patients (62,2%).



L'association hydroxychloroquine-azithromycine était prescrite dans 84 cas (93,3%). La durée moyenne d'hospitalisation était de 10,5 jours ( $\pm 5,8$ ). Nous avons enregistré 29 cas de décès (32,2%). Les principaux facteurs associés au décès étaient : la survenue de complications en cours d'hospitalisation ( $p=0,000$ ) et la durée d'hospitalisation ( $p=0,03$ ).

**Conclusions :** La 3e vague de COVID-19 était très meurtrière au CTE de Saint-Louis et concernait majoritairement des patients âgés, hypertendus, non vaccinés contre la COVID-19, avec une prédominance des formes graves.

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## Tétanos au Service des Maladies Infectieuses et Tropicales du CHU de Point G : Revue Systématique de la Littérature de 2001 à 2022

Alle Akakpo A<sup>1</sup>, Cissoko Y<sup>1,2</sup>, Ouedraogo D<sup>1</sup>, Soumare M<sup>1</sup>, Zemane G<sup>1</sup>, Bouh A<sup>1</sup>, Sogoba D<sup>1</sup>, Magassouba O<sup>1</sup>, Konate I<sup>1,2</sup>, Dao S<sup>1,2</sup>

<sup>1</sup>Service de maladies infectieuses, CHU Point-G, Bamako, Bamako, Mali, <sup>2</sup>Faculté de médecine et d'Odontostomatologie, Bamako, Mali

**Matériels et Méthodes :** Une revue systématique de la littérature sans restriction de langue avec les mots clés "tétanos" ; "Bamako"; "Mali" et "Point G" a été effectuée à partir des bases de données de la Bibliothèque Numérique Sanitaire du Mali, de PubMed/Medline et de Google-scholar. Les études incluses étaient celles effectuées au service des maladies infectieuses et tropicales du CHU de Point G de 2001 à 2022 dont les périodes d'études n'ont pas été chevauchées.

**Résumé :** Sur 13 études sur le tétanos au SMIT du CHU de Point G trouvées, 5 ont été retenues. La prévalence hospitalière du tétanos variait de 5,91% à la période 2001-2004 à 8,52% de 2000 à 2022. La prévalence moyenne était de 6,34% (IC95% [4,53% ; 8,17%]). L'âge moyen des patients variait entre 32,9 et 44,17 ans. Les hommes étaient les plus touchés avec une proportion de 64,9% à la période 2001-2004 et 96,7% en 2020-2022. La proportion des femmes est passée de

29,8% en 2001-2004 à 3,3% en 2020-2022. Le tétanos généralisé était la forme clinique prédominante avec une fréquence moyenne de 90,1%. La létalité était de 36,8% à la période 2001-2004, de 61,9% en 2017-2019 et de 57,1% en 2020-2022. La létalité moyenne est de 49,2% (IC95% [32,2% ; 68,7%]). En moyenne 83,2% des patients décédaient avant les 7 premiers jours d'hospitalisation.

**Conclusions :** La prévalence hospitalière et la létalité du tétanos augmentent au SMIT notamment chez les hommes. La prévention et l'amélioration de la qualité de la prise en charge hospitalière doivent être renforcées afin de renverser la tendance.

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## Trends and Characteristics of Newly Diagnosed HIV Individuals Aged 15 years and Older, October 2019 to September 2023: Findings from the National HIV Case Surveillance in Zimbabwe

Muzamhindo M<sup>1</sup>, LEE F<sup>2</sup>, Moyo B<sup>3</sup>, Chaputsira S<sup>4</sup>, Dzangare J<sup>3</sup>, Mutsigiri-Mrewanhema F<sup>4</sup>, Marimo N<sup>3</sup>, Chiguvare T<sup>1</sup>, Muserere C<sup>4</sup>, Ncube G<sup>3</sup>, Dinhe T<sup>2</sup>

<sup>1</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Harare, Zimbabwe, <sup>2</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Atlanta, United States, <sup>3</sup>Zimbabwe Ministry of Health and Child Care | AIDS and TB Unit, Harare, Zimbabwe, <sup>4</sup>Zimbabwe Technical Assistance, Training & Education Center for Health, Harare, Zimbabwe

**Background:** Characterizing HIV acquisition is crucial to understanding the HIV epidemic and developing effective prevention strategies. We described HIV epidemic trends and estimated time from acquisition to diagnosis (TFATD) of newly diagnosed people living with HIV (NDx-PLWH) aged  $\geq 15$  years reported to the national HIV Case Surveillance (NCS), October 2019 to September 2023.

**Materials and Methods:** Of 145,916 PLWH aged  $\geq 15$  years diagnosed during the study period, we excluded 5,691 (4%) on HIV treatment before the



diagnosis date. For 7,653 multifacility re-testers (5%), data from the first diagnosis were included. TFATD was estimated by halving the difference between last known HIV-negative test and HIV diagnosis dates. Binomial logistic regression models were used to estimate the adjusted odds ratio (aOR) and 95% confidence intervals (95%CI) of factors associated with TFITD within six months (TFITD\_6mths).

**Results:** Data from 140,225 NDx-PLWH from 44 districts throughout 10 provinces of Zimbabwe were analyzed. NDx-PLWH decreased from Quarter 3, 2019 to Quarter 3, 2023, with a notable decrease in Quarter 2, 2020 during the COVID-19 pandemic. The female to male ratio (2:1) and the difference by age—highest proportion for 25–34 group (34%)—remained the same across quarters. (Figure 1) Of 32,983 (24%) NDx-PLWH with a last known HIV-negative result, 12,471 (38%) had estimated TFITD-6mths. Females (aOR 1.3; 95%CI 1.2–1.4), NDx-PLWH aged 15–24 (aOR 3.25; 95%CI 2.8–3.8), married/co-habitant NDx-PLWH (aOR 1.2; 95%CI 1.1–1.2), or never married (aOR 1.2; 95%CI 1.1–1.4) had higher odds of having TFITD-6mths compared to reference groups.

**Conclusions:** The decrease in NDx-PLWH aged  $\geq 15$  from 2019–2023 indicates Zimbabwe is on track towards HIV epidemic control. Further analysis of gender and age differences among NDx-PLWH could help develop prevention strategies to reduce new infections. Additional approaches for estimating HIV incidence among NDx-PLWH without any HIV-negative test results before acquiring HIV could be explored.

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## High HIV Incidence in an Urban Ugandan Population Based Cohort for Persons Aged 13 and Above Years

**Daama A**<sup>1</sup>, Nakigozi G<sup>1</sup>, Mugamba S<sup>1</sup>, Kyasanku E<sup>1</sup>, Ofumbi Olwa V<sup>1</sup>, Bulamba R<sup>1</sup>, Nalugoda F<sup>1</sup>, Nalwoga Kigozi G<sup>1</sup>, Kigozi G<sup>1</sup>, Kiwanuka N<sup>2</sup>, Kagaayi J<sup>2</sup>, Kiwanuka N<sup>2</sup>, Bulamba R<sup>1</sup>, Watya S<sup>5</sup>, Ekström A<sup>6</sup>, Kigozi G<sup>1</sup>

<sup>1</sup>Africa Medical & Behavioral Sciences Organization, Kampala, Uganda, <sup>2</sup>Makerere University, School of Public Health,

Kampala, Uganda, <sup>3</sup>Boston College School of Social Work, USA, <sup>4</sup>San Diego State University, USA, <sup>5</sup>Uro Care Hospital Uganda, <sup>6</sup>Karolinska Institutet, Sweden

**Background:** Uganda like many other countries with high incidence rates for HIV, has implemented several prevention interventions to achieve the UNAIDS

95-95-95 targets with the goal of ending the epidemic by 2030. However, today limited data are available on HIV incidence in urban settings at population level. We sought to determine the effect of HIV prevention efforts on incidence using data from Uganda's first predominantly urban population-based cohort in Mid-Western & Central Uganda.

**Materials and Methods:** Data were collected from six urban communities in four complete surveys (2018–2023) by the Africa Medical & Behavioral Sciences Organization (AMBSO) population health surveillance (APHS) cohort. APHS is an open, population-based cohort of persons 13+ years. We assessed trends in the incidence of HIV on the basis of observed Sero-conversion data using Poisson regression.

**Results:** A total of 4,192 persons who were initially HIV-negative contributed 7,267 person years (PY) of follow up. The mean age (SD) was 31.4 (14) years and majority were females (56.8%). By 2023, ART increased from 65.0% (219/ 337) in 2018/2019 to 73.4% (174/ 237) in 2022/2023 (P<0.001). HIV testing service coverage among negative persons decreased from 81.1% (3,397/ 4,191) in 2018/2019 to 75.1% (930/1,238) in 2022/2023 (P<0.001). Male circumcision coverage increased from 54.3% to 60.6% by 2023 (P<0.001). A total of 95 Sero-conversions were observed. HIV incidence increased from 1.03 cases per 100 PY (CI: 0.73-1.47) in 2018-2019 to 1.57 per 100 PY (95%CI: 1.11-2.22) in 2019-2020, and later to 1.44 per 100 PY (95%CI: 1.01-2.04) in 2022/2023; greater case declines were between 2021/2022 to 2022/23 among women (2.45 cases per 100 PY; 95%CI: 1.68-3.57 to 1.69 cases per 100 PY; 95%CI: 1.08-2.65) than among men (0.54 cases per 100 PY; 95%CI: 0.22-1.30 to 1.17 cases per 100 PY, 95%CI: 0.66-2.06).

**Conclusions:** The findings suggest a concerning rise in HIV incidence compared to what was seen in rural Rakai, Uganda (2019-2020) before combination HIV prevention. The observed gender differences highlight the importance of targeted interventions. Therefore, an urgent need to continue monitoring and adapting public health



measures to curb the spread of HIV in urban Uganda settings.

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## Association Between HIV/AIDS, Medical Male Circumcision and Traditional Circumcision in Mozambique, 2015

Militao H<sup>1</sup>, Langa J<sup>2</sup>, Baltazar C<sup>1</sup>

<sup>1</sup>National Institute of Health, Maputo City, Mozambique, <sup>2</sup>UEM Faculty of Medicine, Maputo City, Mozambique

**Background:** WHO AFRO region continues to be severely impacted by HIV and a global public health problem. In Mozambique, as of 2015, HIV prevalence was estimated to be 12.5% among adults. Medical male circumcision (MMC) has been promoted as a national prevention strategy to reduce the risk of HIV. We aimed to analyze the association between HIV infection, medical male circumcision and traditional male circumcision among men, Mozambique.

**Materials and Methods:** Cross-sectional data from 2015 Mozambican National and Demographic Health Survey of Immunization, Malaria, and HIV/AIDS (IMASIDA) were used. In addition, blood samples were collected from participants and tested for HIV antibodies. All analyses were weighted and adjusted for the complex survey design to ensure results and approximate population parameters of interest, STATA for Chi-square tests and multiple logistic regression were used in the analyses.

**Results:** A total unweighted sample 4733 men aged 15-49 consented to the survey and were interviewed. Of those who participated, 4236 consented to an HIV test. Nationally, 62.6% (95% CI 59.6-65.6) of men aged 15-49 years were circumcised. Traditional circumcision was the most common form of circumcision at 32.9% (95% CI 30.1-35.8), followed by MMC at 21.7% (95% CI 19.6-24.1), 8.0% (95% CI 6.5-9.9) did not know whether it was traditional or medical. The prevalence of HIV was highest at 13.4% among uncircumcised men (13.4%, 95% CI 11.3-15.7), and significantly lower among traditionally circumcised

men (8.5%, 95% CI 6.8-10.6) and among medically circumcised men (7.5%, 95% CI 5.7-9.6). In multivariable analysis, men circumcised by a medical practitioner had almost 50% reduced odds of infection with HIV compared to uncircumcised men (aOR=0.52; 95% [CI=0.34-0.78], p=0.002), whereas men who were circumcised by traditional methods had a 29% reduced risk, but not significantly different than uncircumcised (aOR=0.71; 95% [CI=0.47-1.07], p=0.098).

**Conclusions:** We found HIV prevalence was lower among men aged 15-49 years who were circumcised, and the odds of being HIV positive was about 50% lower among men who were circumcised by a medical practitioner, suggesting a reduced risk of HIV infection. We encourage the continued expansion of voluntary medical male circumcision.

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## Low Baseline CD4 Cell Counts and Associated Factors During the Test and Treat Era at Two Large HIV Clinics in Kyotera, Uganda

Kasango A<sup>1</sup>, Kankaka E<sup>1</sup>, Nazziwa R<sup>1</sup>, Ssettuba A<sup>1</sup>, Daama A<sup>1</sup>, Nantume B<sup>1</sup>, Kagaayi J<sup>1</sup>, Lutalo T<sup>1</sup>, Ssekubugu R<sup>1</sup>, Nalugoda F<sup>1</sup>, Nakigozi G<sup>1</sup>, Kigozi G<sup>1</sup>  
<sup>1</sup>Rakai Health Sciences Program, Masaka, Uganda

**Background:** Delayed treatment for HIV increases the risk of persistent immune dysfunction and comorbidities. In Uganda, immediate treatment upon diagnosis was adopted in November 2016. However, some people still present with low CD4 cell counts at diagnosis, but these have not been quantified and characterized. We determined the prevalence of very low CD4 counts at diagnosis (<200 cells/ml), and associated factors during the test and treat era, at two large clinics serving a rural and peri-urban population in Kyotera district, Uganda.

**Materials and Methods:** We conducted a secondary analysis of routine HIV program data at Kalisizo Hospital (government) and the Rakai Health Sciences Program HIV Clinic (non-governmental). We included people diagnosed



with HIV between January 6th, 2020, and December 31st, 2022, who were aged 15 years and above, with a CD4 cell count and an HIV recency result at diagnosis. We estimated the prevalence of very low baseline CD4 count and analyzed associated factors using step-wise regression in a modified Poisson regression model. Variables included in this model were either plausibly, or previously reported to be, associated with low CD4.

**Results:** A total of 405 newly diagnosed individuals were identified; the median age was 32 (IQR 14) years, 244 (60%) were female, and 364 (89.9%) had long-term HIV infection at diagnosis. The overall prevalence of very low CD4 count at diagnosis was 24.9% (95% CI: 20.9, 29.4). In the multivariable analysis, very low CD4 counts were more prevalent in individuals with long-term versus those with recent infections (aPR =1.21, 95% CI =1.08 to 1.36, p=0.001); and less prevalent in individuals aged 35-44 years and 45 years and above versus those aged 15-24 years (aPR =0.77, CI = 0.65 to 0.92, p=0.003 and aPR =0.76, CI = 0.62 to 0.93, p=0.008, respectively); No associations were observed with marital status, and gender in the stepwise regression.

**Conclusions:** Delayed HIV diagnosis and CD4 cell depletion are common in people newly diagnosed with HIV. Enhanced testing in this population is critical to reduce unfavorable treatment outcomes, especially in younger sexually active individuals aged 15-24 years.

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## HIV Incidence and Prevalence Projections for Zimbabwe: Models Comparison

Taramusi<sup>1</sup>, Cambiano<sup>3</sup>, Apollo<sup>2</sup>, Bansi-Matharu<sup>3</sup>, Bershteyn<sup>4</sup>, Citron<sup>4</sup>, Glaubius<sup>5</sup>, Stover<sup>5</sup>, Hughes<sup>6</sup>, Mugerungi<sup>7</sup>, Phillips<sup>3</sup>, Ncube<sup>8</sup>, Pickles<sup>7</sup>, Revill<sup>8</sup>, Sithole<sup>9</sup>, Smith<sup>3</sup>, Brick<sup>5</sup>, Mpofu<sup>9</sup>

<sup>1</sup>UNAIDS, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, <sup>3</sup>Institute for Global Health, University College London, Royal Free Campus, London NW32PF, United Kingdom, <sup>4</sup>New York University, <sup>5</sup>Avenir Health, <sup>6</sup>Bernet Institute, <sup>7</sup>Imperial College London, United Kingdom, <sup>8</sup>York University, <sup>9</sup>National AIDS Council of Zimbabwe, Zimbabwe

**Background:** Up-to-date HIV epidemiological estimates are important for policy decision-making, but surveillance data can be out-of-date. In Zimbabwe, the Ministry of Health and Child Care (ZMOHCC) collaborated with mathematical modellers to forecast HIV estimates. This study compared forecasts from five HIV epidemiological models: EMOD-HIV, Goals, HIV Synthesis, Optima and PopART-IBM.

**Materials and Methods:** Five independent modelling groups calibrated their HIV models to data points provided by ZMOHCC, including the Zimbabwe Demographic Health Surveys (ZDHS) and Zimbabwe Population HIV Indicator Surveys (ZIMPHIA). Each model produced ZMOHCC's priority HIV epidemic indicators over the period 1990–2040 under the assumption of continuation of interventions at current levels: HIV prevalence in the age group 15-49 years, HIV incidence 15-49, Percentage Incidence Reduction (PIR) in 15-49 from the start to the end of each decade, and the dates when benchmarks of epidemic control are reached.

**Results:** All models reproduced the observed decline in HIV prevalence from 2000 to 2022 in line with prevalence estimates from ZDHS (2005: 18.1%, 2010: 15.2%) and ZIMPHIA (2016: 13.4%, 2020: 11.5%), and declines in incidence from ZIMPHIA (2016: 0.50%, 2020: 0.45%). Incidence estimates for 2023 varied moderately, with prevalence ranging from 12.1% to 14.3% and incidence from 0.20 per 100 person years to 0.33 per 100 person years (Figure 1). All models predicted a continued decline in future incidence and prevalence, but numeric estimates diverged further by 2040, with prevalence ranging from 3.90% to 6.00% and incidence from 0.10% to 0.30%. All the models recorded a high IPR from 2010 to 2020 (median: 70%, range: 60% to 81%); a substantial but smaller IPR from 2020 to 2030 (median: 41%, range: 25%-61%), and a yet smaller IPR from 2030 to 2040 (median: 33%, range: 4%-51%). All the models predicted that the country will reach ZMOHCC's target of <7800 new HIV infections per year by 2025, and that HIV prevalence would reach approximately one-third of its 2000 level by 2040.

**Conclusions:** Five independent mathematical models fitted to ZMOHCC's HIV surveillance data provided consistent predictions of continued decline in HIV incidence and prevalence in Zimbabwe if interventions continue to be implemented at the current levels.





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## Local Response to Extreme Climate Events to Mitigate the Impact on Service Delivery for People Living with HIV in Nampula Province, Mozambique

**Ngale K**<sup>1</sup>, **Gusmão E**<sup>1</sup>, **Homiak E**<sup>1</sup>, **Mutemba H**<sup>1</sup>, **Macul H**<sup>1</sup>, **Abudou M**<sup>2</sup>, **Kamiru H**<sup>3</sup>, **Wells C**<sup>3</sup>, **El Sadr W**<sup>3</sup>

<sup>1</sup>ICAP at Columbia University, Maputo, Mozambique, <sup>2</sup>Provincial Health Services, Nampula, Mozambique, <sup>3</sup>ICAP at Columbia University, New York, United States

**Background:** Climate change represents a great threat to human health in the 21st century, and the most vulnerable are disproportionately affected, including people living with HIV (PLWH). In March 2022, tropical cyclone Gombe made landfall in Nampula Province, Mozambique, affecting approximately 736,015 people. Health service delivery was temporarily interrupted with infrastructure damage and population displacement. We aimed to assess its impact on HIV service delivery.

**Materials and Methods:** ICAP worked with local leadership to ensure continued access to essential services. This included rapid allocation of temporary infrastructure; revising client flows; integrating multiple clinical services; and intensifying community-level interventions, including offering prevention, care, and treatment services through Mobile Units. We analysed a subset of routine HIV indicators reported in 18 health facilities supported by ICAP and affected by the cyclone from the pre-cyclone period: October to December 2021 (Q1), during the cyclone: January to March 2022 (Q2); and after: April to June 2022 (Q3). We reviewed data from DHIS2 and performed descriptive analyses.

**Results:** Data from October 2021 to June 2022 showed an effect in the number of individuals tested at the supported services (72,605 during Q1, 80,807 in Q2, and 87,869 in Q3). However, we observed a slight decrease in the number of individuals who tested positive (3,143 in Q1, 3,062 in Q2, and 3,170 in Q3) and initiated antiretroviral therapy (ART) (4,454 in Q1, 4,047 in Q2 and 4,441 in Q3). Over the three quarters there was no

evidence of deleterious effects on treatment continuation, with the number of clients active on ART increasing over time (42,522 in Q1, 45,319 in Q2, and 49,456 in Q3). There was no increase in proportion of ART clients lost-to-follow-up after the cyclone: 6.7% in Q1, 6% in Q2 and 3.9% Q3.

**Conclusions:** A rapid response was able to mitigate the impact of cyclone Gombe on HIV outcomes. Coordination and collaboration with government and partners was essential to reduce service disruption and reengage clients. However, further service adaptations are needed to build resilient HIV services that can withstand potential disruptions, e.g. implementation of multi-month ART dispensing at locations at high risk of extreme climate events.

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## Revue des Pathogènes Impliqués dans la Transfusion en Afrique Centrale de 2000 à 2022

**Ilunga Kabongo Katamba A**<sup>1</sup>

<sup>1</sup>Institut De Recherche En Science De La Santé, Kinshasa, Congo

**Contexte :** L'Afrique centrale est composée des pays à ressources limitées où le paludisme grave, les hémorragies post-partum, la malnutrition et la drépanocytose sont très répandues et nécessitent très souvent une Transfusion. Cette dernière fait courir aux receveurs des risques d'allo-immunisation et des infections virales, bactérienne et parasitaire.

**Objectif :** Présenter des pathogènes impliqués dans la transfusion en Afrique Centrale à travers les données de la littérature.

**Matériels et Méthodes :** C'est une revue de la littérature qui consiste à répertorier les différents articles et résumés publiés en ligne et présentés dans des conférences scientifiques ayant comme sujet d'intérêt la prévalence des pathogènes impliqués dans la transfusion en Afrique Centrale.

**Résultats :** La majorité des donneurs est de sexe masculin à environ 83,81%, avec un âge moyen de 28 ans et tous les tests de dépistage sont



sérologiques. La Prévalence des infections HIV, VHB, VHC et de la syphilis est documenté à plus de 80% et représente respectivement 4%, 7,87%, 4,27% et 5,52%. La prévalence des autres pathogènes est documentée à moins de 34%. Pour l'infection à HTLV-I et CMV, elle varie respectivement entre 0,74 à 5,7% et entre 5% et 98,8%. La prévalence de l'infection à Parvovirus B19 est 5,3% et celle de la contamination bactérienne est de 1,4%. La prévalence des infestations au paludisme varie entre 5 à 38%, celle de la trypanosomiase varie entre 0 à 1,3%, celle de la filariose est de 2,68% et celle la Babesiose est 0% chez les donneurs de sang.

**Conclusions :** La prévalence des infections HIV, VHB, VHC et Syphilis est élevée par rapport au reste du monde. Le test sérologique est plus pratiqué. La prévalence des autres pathogènes (virus émergents, Bactéries et Hemoparasites) est moins documentée (inférieurs à 30%). La recherche de ces pathogènes dans les dons de sang n'est pas systématique alors que l'Afrique Centrale est une zone endémique pour la majorité d'entre eux.

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## Use of a Community Surveillance System to Identify HIV Deaths in Mozambique from 2019 to 2022

Sengo M<sup>1</sup>, Tivane S<sup>1</sup>, Nhachungue S<sup>1</sup>, Militão H<sup>1</sup>, Mulungo A<sup>1</sup>, Monjane C<sup>1</sup>

<sup>1</sup>Instituto Nacional De Saúde, Maputo, Mozambique

**Background:** The HIV epidemic continues to be a global health challenge, with 39 million people infected and around 630,000 people having lost their lives by the year 2022. The implementation of a community surveillance system as an innovative approach to identify deaths from HIV, differentiating itself from traditional practices, involving the active participation of the community in the collection of information that provides a more comprehensive and sensitive view of the causes of death related to HIV. The study explores the benefits of an existing mortality surveillance system, SIS-COVE, in identifying HIV-related deaths from 2019 to 2022.

**Materials and Methods:** Data from the Community Health Observation and Vital Events System (SISCOVE) applied to 700 conglomerates distributed across the 11 provinces of Mozambique and selected at random were used, using automated methods to determine the cause of death such as InterVA, Insilico. Data collection was carried out in ODK by community surveillance agents and sent to a server for subsequent verbal and social autopsy interviews carried out by trained enumerators. STATA 17.0 and Excel were used for data analysis and a  $p < 0.05$  was considered statistically significant.

**Results:** Among these, 13% (1,080/8,598) were identified as related to HIV. The predominance of HIV deaths was observed in adults aged between 15 and 49 years, representing 66% of the total HIV-related deaths (718/1,080). around 64% (694/1,080). Social determinants such as married marital status emerged as a significant determinant, contributing to 52% (556/1,080) of HIV deaths and alcohol consumption was identified as another prominent factor, associated with 68% (737/1,080) of HIV deaths registered HIV.

**Conclusions:** Community mortality surveillance is a valuable tool for identifying and understanding HIV deaths, highlighting their profile and social determinants. The epidemiological view offers a unique opportunity to inform and guide public health policy.

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## Advanced HIV Disease Presentation Among People Initiating or Re-Initiating HIV Care in a Tertiary Institution - Determinants and Outcomes

Asamoah I<sup>1</sup>, Tetteh J, Manu A

<sup>1</sup>University of Ghana medical school, Korle-Bu Teaching Hospital, Accra, Ghana

**Background:** The benefits of expanding HIV service coverage may be offset by Advanced HIV disease (AHD) presentation. Identifying factors influencing AHD presentation and evaluating HIV outcomes among populations is crucial to guide



interventions that reduce AHD presentation and provide optimal care for AHD presenters for favorable outcomes. The study was conducted to assess the prevalence and associated factors of AHD and further quantify its impact on mortality among Persons Living with HIV (PLHIV).

**Materials and Methods:** Retrospective secondary data analysis was conducted at the Infectious Diseases unit of the Korle-Bu Teaching Hospital (KBTH) from January 2020 to December 2021. The study outcomes were AHD and mortality. Logistic regression was employed to assess associated factors and cox proportional hazard ratio was employed to quantify the mortality by AHD.  $P < 0.05$  was deemed statistically significant.

**Results:** A total of 470 were enrolled in the study. Age ranged from 18-81 years (mean $\pm$ SD=39.89 $\pm$ 11.91). More females were involved (female versus males = 59.79 vs 40.21). The prevalence of AHD was 54% and was associated with advancing age above 29 years, provider-initiated testing and counselling, parent-partner-notification and prior alcohol use. AHD mortality incidence rate was 33.3/100000 person-days (95%CI=24.9-44.4%) compared with 1.5/100000 person-days (95%CI=0.4-6.0) among non-AHD. The mortality hazard ratio among AHD presenters was 20.9 times (95%CI=5.1-86.0%) compared to early HIV disease presenters.

**Conclusions:** Despite an increase in HIV service coverage in the country, this study revealed a high AHD presentation and high mortality rate. To provide improved outcomes, higher HIV testing rates and baseline CD4 testing are necessary for early ART and accurate identification of AHD presenters. Also, there is a need to evaluate PITC practice among healthcare professionals and train healthcare professionals on how to incorporate it into their usual patient care.

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## Possible ongoing HIV transmission in Nigeria: An exploratory analysis of HIV Recent Infection Testing data

**Abah**<sup>1</sup>, Nyang L<sup>1</sup>, Kamara J<sup>1</sup>, Ondura E<sup>1</sup>, Ogorry O<sup>1</sup>, Michelle L<sup>1</sup>, Dauda D<sup>1</sup>, Claussen L<sup>1</sup>, Asaolu O<sup>2</sup>, Onime D<sup>2</sup>, Obi-Okafo C<sup>2</sup>, Gado P<sup>2</sup>, Idemudia A<sup>2</sup>, Nwadike C<sup>2</sup>, Kakanfo K<sup>2</sup>, Pius B<sup>2</sup>, Oyawola B<sup>2</sup>, Onimode B<sup>2</sup>, Bashorun A<sup>3</sup>, Gambo A<sup>4</sup>, Pius J<sup>2</sup>, Oyelaran O<sup>2</sup>, Goldstein R<sup>2</sup>

<sup>1</sup>Palladium, Abuja, Nigeria, <sup>2</sup>Office of HIV/AIDS and TB, United States Agency for International Development, Nigeria, Nigeria, <sup>3</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Nigeria, , Nigeria, <sup>4</sup>National Agency for the Control of AIDS (NACA), Nigeria

**Background:** Detecting potential risk areas and ongoing transmission is crucial for mitigating the spread of HIV and achieving epidemic control in Nigeria. This study aims to explore these aspects through recency testing to enhance our understanding of the epidemic and inform targeted interventions.

**Materials and Methods:** A retrospective analysis was conducted utilizing aggregate data from 17 Nigerian states spanning the period of July 2020 to September 2023. The study centered on the count of newly identified individuals living with HIV who underwent a rapid test for recently acquired HIV, the subset of clients who underwent viral load testing (VLT) for confirmation, and the tally of clients with confirmed recently acquired HIV (defined as recently acquired HIV within a one-year timeframe). The analytical approach employed descriptive statistics to evaluate the dataset, and the recent HIV rate (the percentage of confirmed recently acquired HIV among the clients provided with recency testing) was determined. Data breakdowns were performed based on state (n=17), sex, key population (KP) subtypes, and testing modalities.

**Results:** Out of 76,017 individuals tested for recently acquired HIV (44,384 females and 31,633 males), 4,442 (5.84%) were identified as preliminarily recent. Of these, 970 (21.84%) underwent VLT, confirming 466 recently acquired HIV with a recent HIV rate of 0.61%. The recent HIV rate was highest among clients 20-24 years,



with 1% (98/9,811), followed by 25-29 years and 15-19 years, with 0.87% (128/14,776) and 0.84% (25/2,985), respectively. Pregnant women at antenatal clinics (ANC) recorded the highest recent HIV rate at 1.1% (17/1,542). KP constituted 30.52% (23,207) of those tested, with Bayelsa State having the highest recent HIV rate at 4% (96/2,406). The highest recent HIV rate was recorded amongst men who have sex with men (MSM) at 1.26% (81/6,420), followed closely by female sex workers (FSW) with 1% (98/9763).

**Conclusions:** The highest recent HIV rate was recorded among clients 15-29 years and pregnant women at ANC. Also, among the KP, Bayelsa State recorded the highest recent HIV rate, especially among MSM and FSW. Prevention and testing services must target these subgroups to curb the transmission of HIV and monitor efforts towards epidemic control in Nigeria.

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## HIV Characteristics and Risk Factors Among Adolescent Girls and Young Women within DREAMS Program Areas in the Zambia Population-based HIV Impact Assessment (ZAMPHIA) 2021

Lindsay B<sup>1,2</sup>, Baumhart C<sup>1,2</sup>, Mwangi L<sup>3</sup>, Ehoche A<sup>1,2</sup>, Mulenga L<sup>4</sup>, Musonda B<sup>4</sup>, Chisenga T<sup>4</sup>, Kakungu-Simpungwe M<sup>4</sup>, Muleya C<sup>5</sup>, Chituwo O<sup>5</sup>, Kancheya N<sup>5</sup>, Robinson A<sup>6</sup>, Phiri A<sup>6</sup>, Claassen C<sup>1,2,7</sup>, Stafford K<sup>1,2,8</sup>

<sup>1</sup>Center for International Health Education and Biosecurity, University of Maryland Baltimore, Baltimore, United States, <sup>2</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>Ministry of Health Zambia, Lusaka, Zambia, <sup>5</sup>U.S Centers for Disease Control and Prevention, Division of HIV and TB, Lusaka, Zambia, <sup>6</sup>United States Agency for International Development (USAID), Lusaka, Zambia, Lusaka, Zambia, <sup>7</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>8</sup>Division of Global Health Sciences, Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, United States

Adolescent girls and young women (AGYW) are at high risk for HIV infection. The Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program was developed as a

holistic HIV prevention intervention for AGYW and has been implemented in Zambia since 2016. There is limited data on the population-level impact of DREAMS programs on HIV testing behavior among AGYW. Using data from the Zambia Population-based HIV Impact Assessment survey (ZAMPHIA) 2021 we compared uptake of HIV testing and HIV risk behaviors among AGYW by district level DREAMS implementation status.

ZAMPHIA 2021 measured national and subnational HIV viral load suppression, HIV prevalence, and national incidence and administered questionnaires to eligible survey respondents to assess self-reported HIV testing status and risk factors. This sample population includes AGYW who consented, were interviewed, and had a blood test for HIV. The exposure, DREAMS implementation status was defined as always-DREAMS, partial-DREAMS, and never-DREAMS based on whether DREAMS had been initiated in that district in 2016, between 2016 and 2021 or not at all. Weighted estimates and 95% confidence intervals were calculated accounting for survey design and non-response/non-coverage. Logistic regression for weighted data was used to estimate the association between population level DREAMS implementation status and HIV testing and risk behaviors.

Among 5,032 AGYW aged 15-29 years, 554 (11.0%), 1,027 (20.4%), and 3,451 (68.6%) resided in 'always-DREAMS', 'partial-DREAMS', and 'never-DREAMS' districts, respectively. Respondents from always-DREAMS districts were more likely to be older, reside in an urban setting, never been married, have been employed and have a higher wealth quintile compared to other districts. After adjusting for age and urban status, AGYW from 'always-DREAMS' districts had significantly higher odds of having ever been tested for HIV compared to AGYW in 'never-DREAMS' districts (OR=1.51, 95% CI:1.09-2.10). AGYW in 'always-DREAMS' and 'partial-DREAMS districts' had a significantly lower prevalence of first sex before age 15 (4.7%, 95% CI:2.6%-6.8% and 5.0%, 95% CI:3.4%-6.6%, respectively) compared to 'never-DREAMS' districts (9.9%, 95% CI:8.3%-11.5%).

ZAMPHIA 2021 showed that DREAMS implementation had a significant positive association with HIV testing status among AGYW suggesting that the DREAMS program has increased uptake among this population.



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## Survival Disparities Among People Living with HIV in Malawi: Examining Underweight at Antiretroviral Therapy Initiation's Impact on Long-Term Outcomes

Makonokaya L<sup>1</sup>, Kalitera L<sup>1</sup>, Chamanga R<sup>1</sup>, Singini G<sup>1</sup>, Maphosa T<sup>1</sup>

<sup>1</sup>Elizabeth Glaser Pediatric AIDS Foundation, Lilongwe, Malawi

Despite scaling up optimized antiretroviral therapy (ART) regimens and efforts to manage clients presenting with advanced HIV disease, the decline in mortality rates has plateaued in recent years. We sought to identify the clinical factors associated with mortality among people living with HIV (PLHIV) in an era of test-and-treat in Malawi.

Using a case-control study design, we analyzed routine data from electronic medical record systems in eight secondary health facilities in Malawi. We randomly selected clients from a list of PLHIV who died while receiving ART between January 2020 and March 2023 (cases). For each case, we selected similar PLHIV who were alive and continuing treatment (controls) during the same period, matching them by sex, age, and duration of ART. We retrospectively collected data for ART initiation and follow-up clinic visits up to two years prior to death. Controls were followed up for a similar period as the matched cases.

A total of 450 participants were enrolled, of which 54.7% were male. The median age was 38 years, and 10.9% were aged < 15 years at the end of the follow-up period. Nearly 28.3% of the adult (≥15 years) cases versus 13.5% of the controls were underweight at ART initiation. PLHIV with a viral load result in the previous two years were more likely to be alive at the end of follow-up than those who did not have a viral load result [adjusted odds ratio (AOR) 2.56, 95% confidence interval (CI) 1.34 – 4.88]. Adults who were underweight at ART initiation were less likely to be alive at the end of the follow-up period than those with a normal body mass index (BMI): AOR 0.46 (95% CI 0.23 – 0.92). However, there was no difference in the likelihood of survival according to WHO clinical stage at initiation or reported ART adherence.

BMI at ART initiation and viral load testing were associated with the likelihood of being alive at the end of follow-up. Interventions focusing on those underweight at ART initiation and optimizing viral load coverage are important to reduce mortality among PLHIV.

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## Analysis of HIV Mortality in Mozambique, Verbal Autopsy Method, 2018-2022

Militao H<sup>1</sup>, Tivane S<sup>1</sup>, Mulungo A<sup>1</sup>, Nhanchungue S<sup>1</sup>, Monjane C<sup>1</sup>, Macicame I<sup>1</sup>

<sup>1</sup>National Institute of Health, Maputo City, Mozambique

**Background:** HIV/AIDS is a public health problem worldwide. In Mozambique, HIV prevalence was 11.5% in 2009, 13.2% in 2015 and 12.5% in 2021. The aim of this study was to analyze HIV mortality in Mozambique over the last five years.

**Materials and Methods:** A cross-sectional study was carried out using secondary data from the Observation System collected between 2018-2022. All HIV deaths were included. An electronic method was used to determine the cause of death of HIV, the weight of HIV was calculated based on the universe of deaths from all causes due to the differential of conglomerates distributed by province. Descriptive analysis, Q-squared, with STATA and R software, dependent variable the HIV test result, was used for Multivariate analysis. Tables and graphs were used to present the data

**Results:** From 2018 to 2022, 11459 deaths were recorded in Mozambique, of which 16.6% (1908/11459) were from HIV. The province of Gaza in the south of Mozambique accounted for 22.1% (164/742), while Tete accounted for 11.4% (184/1607). Females accounted for 53.0% (1012/1908). The most affected age group was 15-49 years 51.7% (987/1908), the lowest percentage was children under 5-14 years 4.6% (87/1908), 31.4% (600/1908) higher percentage without formal education and lower of deaths had higher education 1.2% (23/1908), 69.3% (1,323/1908) of deaths came from rural areas and 30.6% (585/1908) lived in urban areas, 2019 saw the highest peak in HIV at 35.4% (676/1908) and the



lowest percentage was recorded in 2022 at 6.8% (129/1908). The determinants of death were the place of death and wealth quintile, where the highest percentage of deaths occurred at home 71.1% (1357/1908), most deaths had a high wealth quintile 24.4% (467/1908). People who walked more than 2 hours from their residence to health facility before death were 0.4 times less likely to test positive for HIV compared to those who lived less than 2 hours (aOR = 0.485; 95% [aOR = 0.306-0.768],  $p = 0.002$ ).

**Conclusions:** The highest percentage of HIV deaths were male and attended primary school. Continued use of HIV testing and reinforcement of HIV prevention talks are encouraged.

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## Coverage of HIV Testing Among High Risk Population in Central and Western Uganda

**Ofumbi Olwa V**, Daama A<sup>1</sup>, Mugamba S<sup>1</sup>, Kyasanku E<sup>1</sup>, Byansi W<sup>2</sup>, Amanda P<sup>3</sup>, Nalugoda F<sup>1</sup>, Nkale J<sup>1</sup>, Nakigozi G<sup>1</sup>, Kigozi Nalwoga G<sup>1</sup>, Kagaayi J<sup>1</sup>, Bulamba R<sup>1</sup>, Watya S<sup>1</sup>, Ekström A<sup>4</sup>, Kigozi G<sup>1</sup>, Kiwanuka N<sup>5</sup>

<sup>1</sup>Africa Medical and Behavioral Sciences Organisation, Kampala, Uganda, <sup>2</sup>Boston College, Boston, United States, <sup>3</sup>San Diego State University, San Diego, United States, <sup>4</sup>Karolinska Institutet, Stockholm, Sweden, <sup>5</sup>Makerere School of Public Health, Kampala, Uganda

**Background:** HIV testing is a critical stage in achieving UNAIDS global 95-95-95 target to reduce HIV. In Uganda, like many other countries, high-risk populations face increased vulnerability to HIV transmission. We determined HIV testing (HTS) service coverage among high risk populations including those with no or inconsistent condom use, multiple sexual partners, alcohol users, bar workers in Central and western Uganda from 2018-2023.

**Materials and Methods:** We are conducting an ongoing longitudinal open-cohort study codenamed AMBSO Population Health Surveillance (APHS) in Wakiso and Hoima districts in Uganda. The cohort monitors trends of diseases including HIV among eligible participants aged 13 years and above through annual surveys and follow-ups. We conducted analysis of serial cross-

sectional data to determine the point prevalence of uptake of HTS at the time of entry into the cohort. We used modified Poisson regression to estimate prevalence ratios (PR) and 95%CI on factors associated with HTS.

**Results:** Across the four rounds a total of 9,055 participants were surveyed at their baseline entry into the cohort with the average age at 29 years (SD=13.1). Majority of the participants were females 58.0% (n=5,254). Generally HTS in the entire population was at 79.1% (n=6,523). Of the 6,998 participants of high risk population, HTS coverage was at 80.8% (n=5,654). HTS decreased from 83.5% (3,010/3,603) in 2018/2019 to 76.5% (1,010/1,321) in 2022/2023 ( $P < 0.001$ ). The declines were more among males 71.0% (2,082/2,933) compared to females 87.9% (3,572/4,065). Multivariate results revealed that participants aged 20-24 years [adj.PR=1.41; 95% CI: 1.26-1.59] or 25-34 years [adj.PR=1.39; 95% CI: 1.23-1.57] or 35-44 years [adj.PR=1.40; 95% CI: 1.23-1.49] or 45 years and above [adj.PR=1.30; 95% CI: 1.13-1.49] were more likely to test for HIV than those aged 13-19 years. Additionally, HTS coverage was more among females compared to the males [adj.PR=1.19; 95% CI: 1.12-1.26]. However, HTS coverage was less likely among never married and students [adj.PR=0.82; 95% CI: 0.75-0.89], [adj.PR=0.67; 95% CI: 0.57-0.79] respectively.

**Conclusions:** Overall the HIV testing coverage was lower (79.1%) than the 95% UNAIDS target. There is need for targeted intervention among the students and never married categories to achieve HIV epidemic control by 2040.

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## Evaluation of the HIV/AIDS Surveillance System in Ellembelle District, Western Region, Ghana in 2023

**Azugnue T**<sup>1</sup>, Opoku E<sup>2</sup>, Ampofo A<sup>3</sup>, Asantewaa P<sup>3</sup>, Gyan S<sup>3</sup>, Yeboah Y<sup>3</sup>, Amugi G<sup>3</sup>, Amihere F<sup>3</sup>, Akorli N<sup>3</sup>, Adiibokah E<sup>4</sup>, Nartey D<sup>4</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>

<sup>1</sup>Ghana Field Epidemiology and Laboratory Training Programme, Takoardi, Ghana, <sup>2</sup>Ghana Health Service, Accra, Ghana, <sup>3</sup>Ellembelle District Health Directorate, Nkroful, Ghana,



<sup>4</sup>Western Regional Health Directorate, Takoradi, Ghana, <sup>5</sup>JSI, Takoradi, Ghana

**Background:** This evaluation assesses the effectiveness of the HIV/AIDS surveillance system in Ellembelle District, Western Region, Ghana, against its objectives and the broader context of the HIV pandemic. The system's role in monitoring the impact of interventions, estimating disease burden, and identifying trends is explored. Stakeholders and the context of HIV in Ghana, particularly Ellembelle District, are highlighted to provide a comprehensive background.

**Materials and Methods:** A mixed-methods approach was employed. Nine (9) health facilities, private and public, were visited. Programme registers, reports, and policy guidelines were reviewed. Key informant interviews and semi-structured questionnaires were used. The evaluation was done from May 3 to June 9, 2023, and continued from August 11 to September 15, 2023, covering data from April 2020 to March 2023.

**Results:** The surveillance system demonstrated strengths in sensitivity (1,092 cases detected) for the period under review. It had a high PPV (98%), and timely initiation of ART (median linkage time of 0 days) for identified cases. The system was useful, as its reports identified best-performing areas, best practices, and gaps that needed to be addressed. Challenges such as shortages of test kits and downtimes in electronic platforms were identified. Data quality was generally high, with completeness rates of 92.6% for ART reports, 92.4% for EID reports, and 98.5% for HTC reports. The system's representativeness was notable in PMTCT testing services but indicated a gap in general population testing at CHPS compounds.

**Conclusions:** While the system in Ellembelle demonstrates effectiveness in case detection and data quality, challenges in stability, simplicity, and acceptability require attention. Ensuring adequate stock levels of essential supplies, reviewing, and simplifying reporting procedures, and extending HIV testing services to the general population are areas that need to be improved. The evaluation underscores the need for continuous improvement to strengthen the system's overall impact on HIV prevention and control.

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## Trend of HIV/AIDS Infections: Aspects of Occurrence in Adolescents Between 2019 and 2023, Mozambique

**Norte S**<sup>1</sup>

<sup>1</sup>*Direcção Provincial de Saúde da Zambézia, Quelimane, Mozambique*

**Background:** Adolescents are considered a vulnerable group, as they have difficulty making mature decisions about their lives and adopt risky behaviors, being exposed to different health threats, including the risk of contracting HIV. HIV infection remains one of the biggest public health challenges in the world, affecting millions of people. In 2023 there were more than 1,300,000 cases in the world, today, more than 39,000,000 people are living with the virus around the world. Every week, around 5,500 adolescents and young people between the ages of 15 and 24 are infected with HIV. Women and girls accounted for about 48% of all new infections. This study aimed to analyze the epidemiological profile of HIV/AIDS cases in adolescents in Zambézia.

**Materials and Methods:** This is a descriptive study, with retrospective collection, with secondary data, from monthly reports and the health information system for Monitoring and evaluation (SISMA), covering the period from 2019 to 2023, Zambézia- Mozambique, representing a time series of cases among teenagers. With data processing carried out using the Excel version 21-computer package, absolute and relative frequencies were calculated, as well as the incidence coefficient calculation for each year to verify how HIV/AIDS behaved in the adolescent population.

**Results:** From 2019 to 2023, 6082 new cases of HIV/AIDS were reported in adolescents in the Province, with a continuous decreasing trend in the period, being 2019 (1806cases), 2020 (1608cases), 2021 (1376cases), 2022 (1292cases) and 2023 (981 cases), with a higher coefficient in 2019 of 32.9 cases per 100 thousand inhabitants and a lower coefficient in 2023 of 16.3 cases per 100 thousand inhabitants.

**Conclusions:** There was a decreasing trend in cases of HIV/AIDS among adolescents in Zambézia over



the last five (05) years. The results of this study contribute to knowledge of the epidemiological dynamics of the disease.

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## Vulnerability of HIV/AIDS Deaths Identified by a Surveillance System in Mozambique, 2019-2021

Tivane S<sup>1</sup>, Cardoso C<sup>1</sup>, Sengo M<sup>1</sup>, Mulungo A<sup>1</sup>, Akum A<sup>1</sup>, Nhachungue S<sup>1</sup>, Monjane C<sup>1</sup>  
<sup>1</sup>National Institute of Health, Maputo, Mozambique

**Background:** HIV/AIDS is a public health problem and since the beginning of the pandemic more than 35 million people have died in the world, of which about 70% in Africa and it is intended to eradicate the disease by 2030, mainly in countries with serious socioeconomic problems. Although deaths and infections are decreasing, HIV/AIDS remains one of the leading causes of death in Mozambique, and in 2021 caused about 35 thousand deaths. Since 2018, a surveillance system has been implemented in Mozambique that reports continuous data on vital events and causes of death.

**Materials and Methods:** Community System of Observation in Health and Vital Events applied in 700 clusters distributed throughout the 11 provinces of Mozambique and randomly selected from a nationally and provincially representative population. Verbal and social autopsy interviews are conducted to determine causes of death by female investigators using ODK, data analyzed using computer-coded algorithms in the STATA and R-studio tools, for the analysis the  $p < 0.05$  value was considered statistically significant.

**Results:** Among the 11864 verbal and social autopsies performed, HIV/AIDS accounted for 15.4% (1829/11864) and Gaza province accounted for 21.3% (150/703). Among the 1829 probable deaths from HIV/AIDS, females accounted for 52.8% (967/1829), of which 51.0% (496/967, 95% CI= 48% - 54%) were unemployed, mostly young adults aged 30-39 years, 15.0% (275/1829; 95% CI= 13% - 17%). Significant differences ( $p < 0.001$ ) were observed in the consumption of alcohol and

tobacco ( $p < 0.001$ ) with a higher proportion in men (33% (283/862; 95% CI= 30% - 36%), the same occurred in schooling ( $p < 0.001$ ), single women had more cases (526/967, 95% CI= 51% - 58%,  $p < 0.001$ ). There were no significant differences between the place of death ( $p = 0.8$ ) and between quintiles of wealth ( $p = 0.5$ ).

**Conclusions:** HIV/AIDS has mostly plagued people with vulnerable sociodemographic conditions such as low level of education, without employment and consuming alcohol and tobacco, mostly young single, Mozambican women are the most vulnerable. The system is an opportunity to build comprehensive surveillance, thus supporting public health policies.

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## Forecasting Recent HIV and HIV-Related Mortality to Determine Progress Towards HIV Epidemic Control by Mid-2025 Using October 2020 to October 2023 Surveillance Data in Zambia

Haabeenzu C<sup>1</sup>  
<sup>1</sup>Ministry of Health, Lusaka, Zambia

**Background:** Despite HIV being a major public health problem, Zambia has achieved good progress towards the 95-95-95 epidemic elimination targets with 89% persons living with HIV aware of their status, 97% on antiretroviral therapy and 96% being virally suppressed. This progress can be attributed to comprehensive intervention addressing both treatment and prevention of HIV acquisition. UNAIDS proposed four potential criteria of determining epidemic control including percentage reduction in incidence, incidence-to-mortality ratio, incidence-to-prevalence ratio, and annual incidence. To compliment the 95-95-95 achievements, incidence-to-mortality ratio as an alternative indicator for HIV epidemic control was explored. Recent HIV and HIV related mortality were forecasted to mid-2025 to assess readiness in view of mid-term epidemic control review.





**Materials and Methods:** A time series analysis was performed with data from October 2020 to October 2023. A recent HIV was defined as having tested positive for HIV-1, a positive test for recent infection (TRI) and an initial viral >1000, while an HIV-related mortality was a mortality whose cause of death was HIV-related as captured in. Data were synched by facility and time from October 2020 to October 2023. An autoregressive integrated moving average (ARIMA) model was fitted in R, decomposed the data for trends, seasonality, and autocorrelation before making a 24-month's forecast.

**Results:** Mortality counts initially surpassed recent HIV until August 2021, after which they consistently remained lower. Recent HIV peaked around November 2022 before gradually declining, but still consistently exceeding mortality counts. Females and individuals aged >30 years had sustained higher recent HIV, with mortality trendlines by gender crisscrossing at various points. The forecasted recent HIV remained sustainedly higher than HIV-related mortality by mid-2025, projected at 267 (95% CI: 21–513) recent HIV and 96 (95% CI: -106–298) HIV-related mortality.

**Conclusions:** The observed higher trend of recent HIV among females, despite a comparable mortality trend, suggests improved health-seeking behavior among females. However, the forecasted persistence of higher recent HIV emphasizes the imperative to intensify HIV preventive measures. Despite progress towards epidemic elimination, the sustained higher trend of new HIV acquisition suggests that HIV may not be controlled by mid-term review, therefore a refocus on intervention may be necessary.

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## Exploring Drug Resistance Trends in Nairobi and Kajiado Counties, Kenya, through a Specialized Results Platform for ART Treatment Failures

**Arodi S<sup>1</sup>**, Mwangi S<sup>1</sup>, Maina P<sup>1</sup>, Kubo E<sup>1</sup>, Odhiambo C<sup>1</sup>, Marima R<sup>1</sup>, Achwoka D<sup>2</sup>, Simiyu T<sup>2</sup>, Otieno C<sup>1</sup>, Mecha J<sup>1</sup>

<sup>1</sup>University Of Nairobi, Nairobi, Kenya, <sup>2</sup>USAID Kenya/East Africa, Nairobi, Kenya

**Background:** Antiretroviral therapy (ART) has significantly enhanced the well-being and life expectancy of individuals living with HIV (PLHIV). Nevertheless, the emergence of drug resistance poses a formidable challenge to the effectiveness of ART. This study aims to unmask drug resistance patterns in Nairobi and Kajiado Counties using a dedicated results platform, LabPulse, for clients with ART treatment failures, offering crucial insights to optimize treatment strategies.

**Materials and Methods:** We retrospectively analyzed Drug Resistance Testing (DRT) results for 18 individuals with suspected treatment failure in a cohort of 67,456 PLHIV tested between October and December 2023. Using the LabPulse cloud-based Laboratory Information Management System, we assessed demographics, diagnosis date, initial ART regimen, and resistance profiles to ART drugs. After three months of successful enhanced adherence sessions, treatment failure was determined by a repeat viral load exceeding 1000 copies/ml. These clients were affiliated with ten supported sites under the Fahari ya Jamii project in Nairobi and Kajiado Counties, Kenya.

**Lessons Learnt:** Resistance to ART exhibited a higher prevalence among men (10,56%) than women (8, 44%). Across the different age groups, resistance ranged from 14% to 21%, with the highest resistance observed in individuals aged 20-24 and 45-49 years. Overall, treatment failure affected 78% of the clients, with 36% using tenofovir (TDF), lamivudine(3TC), and dolutegravir (DTG), 29% on TDF, 3TC, and atazanavir (ATV/r), and 14% on zidovudine (AZT), lamivudine, and dolutegravir. A significant association between drug resistance and treatment duration was identified ( $p < 0.001$ ), with 43% experiencing



resistance within 5- years and 10-14 years of treatment. Notably, among those on TDF/3TC/DTG, 30% experienced resistance, while there was no resistance observed to TDF and DTG, indicating resistance primarily to other drugs. Clients on TDF/3TC/ATV/r showed a 25% failure rate, with low-level resistance to TDF, 3TC, and ATV/r (1%), compared to emtricitabine (5% and lamivudine (5%).

**Conclusions:** The findings highlight the importance of treatment duration on drug resistance and identify specific regimens with diverse resistance profiles, providing insights for optimizing ART. The absence of resistance to DTG underscores its continued effectiveness in HIV treatment. Further research with expanded datasets is needed to validate patterns and refine treatment guidelines.

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## Enhancing Uptake of HIV and Sexual Reproductive Health Services by Adolescent Girls and Young Women in Rural Areas Using the “Stop the Bus” Strategy: Lessons from Matobo District in Zimbabwe, 2023

**Dube** K<sup>1</sup>, Mangena P<sup>1</sup>, Mudzengerere F<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Mudokwani F<sup>1</sup>, Yogo K<sup>1</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Nyamwanza B<sup>2</sup>, Bhatasara T<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Tachiwenyika E<sup>1</sup>  
<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Zimbabwe., Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Zimbabwe., Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Zimbabwe, Harare, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program to reduce new HIV infections among adolescent girls and young women (AGYW) in 9 high HIV burdened districts of Zimbabwe. Accessing comprehensive HIV prevention and sexual reproductive health and rights (SRHR) services reduces risk of HIV among AGYW. We document lessons from the “Stop the Bus”

campaign strategy implemented in Matobo district in 2023.

**Description:** ZHI and a consortium of partners implemented the “Stop the Bus” campaign targeting high volume, HIV transmission hot-spot areas with combination HIV prevention and SRHR services to 15-24-year-old AGYW. The campaign was conducted from October 2022 to September 2023 in ward 2 and involved implementing partners that include ZHI, Population Solutions for Health (PSH) and Musasa, working with village health workers (VHW) from the Ministry of Health and Child Care (MOHCC). Services offered included HIV pre-exposure prophylaxis (PrEP), HIV Testing Services (HTS), family planning, sexually transmitted infection (STI) screening and treatment and post gender-based violence (GBV) services at one- stop shop. Data were collected using paper tools and captured into the web based DHIS2 program database. HIV prevention and SRHR service uptake in ward 2 was compared with ward 14 where the intervention was not implemented.

**Lessons Learnt:** Out of the 347 AGYW reached with the DREAMS primary package in ward 2, 291 (84%) received HIV prevention and SRHR services through the “stop the bus” strategy whilst, in Ward 14, only 24% (87/362) accessed services. In ward 2, 149 AGYW accessed FP, 48 received HTS, 20 PrEP, 48 STI services whilst 26 received psychosocial support. The program learnt that AGYW prefer “stop the bus” to access combination HIV prevention and SRHR services. Effective collaboration with MOHCC strengthened mobilization of AGYW to access SRHR services.

**Conclusions:** The stop the bus strategy increased access to and uptake of HIV prevention and SRHR services by AGYW in ward 2 of Matobo district. We recommend roll out of the strategy to all wards including hard-to-reach ones, and improved collaboration between implementing partners for effective HIV prevention and SRHR service provision.



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## Enhancing Viral Load Monitoring Using a Continuous Quality Improvement Approach in a Rural, Remote District: Lessons from Chipinge District of Zimbabwe, 2023

Muzondo M<sup>1</sup>, Maringe P<sup>1</sup>, Ndlovu M<sup>1</sup>, Mataruse R<sup>1</sup>, Muguse J<sup>1</sup>, Chindove B<sup>1</sup>, Zarurayi E<sup>1</sup>, Ndadzibaya W<sup>1</sup>, Tafuma T<sup>1</sup>, Muchedzi A<sup>1</sup>, Apollo T<sup>2</sup>, Mupanguri C<sup>2</sup>, Mukuzunga M<sup>2</sup>, Mukungunurwa S<sup>3</sup>, Mhangara M<sup>3</sup>, Sibanda T<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Nyathi K<sup>1</sup>, Nyamundaya T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Mutare, Zimbabwe, <sup>2</sup>Ministry of Health and child care, Harare, Zimbabwe, <sup>3</sup>USAID, Harare, Zimbabwe

**Background:** Zimbabwe has made significant progress towards attaining the UNAIDS 95-95-95 targets, achieving a 95% viral load (VL) coverage. According to ZIMPHA, approximately 90% of clients on antiretroviral therapy (ART) are virally suppressed. However, some districts in Zimbabwe lag with suboptimal coverages and suppression rates. Between January and March 2022, Chipinge district recorded a VL coverage of 50% resulting in a suboptimal VL suppression of (88%); which may cause detrimental outcomes such as the development of opportunistic infections, HIV transmission, and HIV drug resistance. We assessed the effectiveness of structured quality improvement (QI) initiatives supported by cluster differentiated service delivery (DSD) nurses in improving VL coverage and suppression rates in Chipinge district between January 2022 and September 2023.

**Materials and Methods:** We used the plan, do, study and act (PDSA) QI model across all facilities targeting viral load testing among ART clients. Cluster DSD nurses provided mentorship across a cluster of health facilities (maximum 10 facilities) in Chipinge district, and their activities included cohort cleaning at all facilities, line listing of missed collections, VL collections at both facility and community levels, following up results and documentation in the facility registers. We used weekly run-charts at facilities to assess effectiveness of interventions. VL service uptake data were captured in health facility registers and

the program DHIS2 database. Data for the January 2022 to September 2023 period were analysed using Ms Excel generating proportions. The assessment was covered by the Medical Research Council of Zimbabwe approved protocol (MRCZ/E/159).

**Results:** VL coverage significantly increased from 50% in January to March 2022 to 84% ( $z = -58.71$ ,  $p < 0.00001$ ) in the July to September 2023 period. Similarly, VL suppression increased from 88% in January to March 2022 to 96% in the July to September 2023 period.

**Conclusions:** Implementation of structured QI projects with support from cluster DSD nurses contributed to significant improvement in VL coverage and suppression rates. We recommend implementing interventions that improve the identification of clients due for VL test, mobilizing clients who missed VL testing, and targeted follow-ups of community ART refill groups and hard-to-reach clients.

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## Improving Data Quality for HIV Implementation in Akwa Ibom, Nigeria: Adaptation of the Ottawa Hospital Innovation Framework

Aloro E<sup>1</sup>, Elechi I<sup>1</sup>, Ukpong K<sup>1</sup>, Olajide I<sup>1</sup>, Ibah N<sup>1</sup>, Anikpo C<sup>1</sup>, Otanwa A<sup>2</sup>, Gana B<sup>3</sup>, Onwah O<sup>3</sup>, Nwanja E<sup>3</sup>, Unimuke M<sup>3</sup>, Akpan U<sup>3</sup>, Okolo C<sup>3</sup>, Toyo O<sup>3</sup>, Nwangeneh C<sup>2</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Obiora-Okafo C<sup>4</sup>, Idemudia A<sup>4</sup>, Nwadike C<sup>4</sup>, Kakanfo K<sup>4</sup>, Pius B<sup>4</sup>, Onimode B<sup>4</sup>, Raji A<sup>5</sup>, Oyawola B<sup>4</sup>, Kagniniwai B<sup>5</sup>, Asaolu O<sup>4</sup>, Bashorun A<sup>6</sup>, Gambo A<sup>7</sup>, Onime D<sup>4</sup>, Pius J<sup>4</sup>, Oyelaran O<sup>4</sup>, Goldstein R<sup>4</sup>, Onyednachi O<sup>3</sup>, Adegboye A<sup>3</sup>, Eyo A<sup>3</sup>

<sup>1</sup>Achieving Health Nigeria Initiative (AHNI), , Nigeria, <sup>2</sup>Family Health International (FHI360), , Nigeria, <sup>3</sup>Excellence Community Education Welfare Scheme (ECEWS), , Nigeria, <sup>4</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), , Nigeria, <sup>5</sup>Office of HIV/AIDS, United States Agency for International Development (USAID), , USA, <sup>6</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, , Nigeria, <sup>7</sup>National Agency for the Control of AIDS (NACA), , Nigeria



**Background:** Data quality is essential for effective monitoring and evaluation of HIV programs, but many health facilities in Nigeria face challenges in reporting quality data. The PEPFAR/USAID-funded Accelerating Control of the HIV Epidemic in Nigeria Project adopted The Ottawa Hospital Innovation Framework, a five-step simplified quality improvement approach, to improve data quality standards. This study reports the outcome of this intervention.

**Materials and Methods:** Data Quality Assessment (DQA) was conducted for July-September 2022, in October 2022 at 25 high-volume health facilities in Akwa Ibom State, Nigeria. Data availability, integrity, consistency, and validity were assessed using a program-adopted Data Verification/Validation Tool, with a benchmark score of 95-105% as passed. Root-cause analyses by the project quality improvement team for scores outside the benchmark revealed that gaps in data quality were due to low staff capacity a high staff attrition rate, new staff hires with limited experience, poor collaboration between government and project staff, and stock-out of data capturing tools. A health system strengthening intervention to improve data quality included implementing corrective actions from the DQA, central daily/monthly gap profiling with feedback for immediate corrections, structured monthly capacity building sessions, team building efforts, peer-to-peer learning, use of bi-monthly tools inventory reporting systems, and site-supportive supervisory visits. Data validity, the most failed DQA domain, was monitored weekly using a resilience dashboard. To evaluate the intervention, another DQA was conducted for January-March 2023, in April 2023, and the mean number of domains passed per site was compared pre- and post-intervention using t-test.

**Results:** Overall, 69% (69/100) domains were passed at baseline DQA (data availability: 84% (21/25), integrity: 56% (14/25), consistency: 88% (22/25), validity 48% (12/25)). Post-intervention, the domain pass rate was 85% (85/100), with better scores in 3 domains: data integrity: 72%, consistency: 100%, and validity: 84%. Data availability remained at 84%. The mean number of domains passed per site improved from  $2.76 \pm 1.26$  to  $3.4 \pm 0.81$  ( $p=0.054$ ).

**Conclusions:** A simplified quality improvement approach focused on improving data quality using evidence-based strategies, led to improvement in data validity of the HIV implementation program.

However, strategies to address data availability can be further strengthened and implemented.

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## Predictors of Tuberculosis Incidence and the Effects of Multiple Deprivation Indices on Tuberculosis Management in OR Tambo District over a 5-Year Period

Dlatu N<sup>1</sup>, Apalata T<sup>3</sup>, Longo-Mbenza B<sup>2</sup>

<sup>1</sup>WALTER SISULU UNIVERSITY, Mthatha, South Africa, <sup>2</sup>WALTER SISULU UNIVERSITY, Mthatha, South Africa, <sup>3</sup>WALTER SISULU UNIVERSITY, Mthatha, South Africa

**Background:** This study investigated the associations between socio-economic deprivation and tuberculosis (TB) treatment outcomes, alongside well-known TB risk factors. The effects of healthcare expenditures and their growth on trends in TB incidence from 2009 to 2013 were also assessed.

**Objectives:** To determine the predictors of TB incidence in O.R Tambo District and to measure the associations between the index of multiple deprivation and TB care indicators.

**Materials and Methods:** Secondary data analysis was performed on data obtained from various sources including governmental, non-governmental and research institutions. Indicators for TB treatment outcomes included TB death rate, TB rate among the household contacts of the Index TB cases, TB treatment failure, HIV associated TB death rate, TB defaulter rate, and new TB smear positive cases. Analysis of variance (ANOVA) and Turkey's tests for post-hoc analysis were used to compare means of variables of interest considering a type I error rate of 0.05. Regression models and canonical discriminant analysis (CDA) were used to explore the associations between trends in TB incidence and independent TB predictors. During CDA, Fischer's linear functions, Eigen values, and Mahalanobis distances were determined with values of Wilk's Lambda closer to zero being the evidence for well discriminated patient groups. Data analysis was



performed using SPSS® statistical software version 23.0 (Chicago, IL).

**Results:** In total, 62 400 records of TB notification were analyzed for the period 2009-2013. The average TB incidence rate over a 5-year period was 298 cases per 100,000 inhabitants per year. The incidence of TB was reduced by 79.70% at the end of the evaluation as compared to the baseline data in 2009. Multiple linear regression analysis showed that the Expenditure per patient day equivalent (PDE) and PHC expenditure per capita were significantly and independently associated with the decline of TB incidence (adjusted R<sup>2</sup> = 60%;  $p = 0.002$ ) following the equation:  $Y = (-209 \times \text{Expenditure per PDE}) + (-0.191 \times \text{PHC expenditure per capita})$ .

**Conclusions:** Although TB control programs in O.R. Tambo district have averted thousands of TB incident cases, their effects on HIV associated TB deaths among the most deprived communities remain insignificant.

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Abstract Number 427 has been withdrawn.

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## Improving Data Use for Decision-Making at the Subnational Level in Zimbabwe, 2022-2023

Ncube G<sup>1</sup>, Xaba S<sup>1</sup>, Chivandire C<sup>2</sup>, Rama D<sup>2</sup>, Pindiwe B<sup>2</sup>, Nyaude S<sup>1</sup>, Nyazema L<sup>1</sup>, Chikondowa I<sup>1</sup>, Zwangobani N<sup>2</sup>, Svisva A<sup>2</sup>, Mugurungi O<sup>1</sup>

<sup>1</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>2</sup>Clinton Health Access Initiative, Harare, Zimbabwe

**Background:** The Zimbabwe Ministry of Health and Child Care (MOHCC) health information management system (HMIS) routinely collects data from all health system levels. This data aggregates relevant anonymised metrics consistent with WHO guidelines for strategic information, supports the decision-making function, and has contributed to enormous success within HIV programming. However, as Zimbabwe moves to person-centered

HIV approach, there is need to combine disparate sources of information that provide indicators of the risk of acquiring HIV. These indicators straddle clinical, behavioural, and structural determinants that are correlated to susceptibility to HIV infection.

**Description:** In 2022, the MOHCC in collaboration with Clinton Health Access Initiative, developed HIV Prevention district fact sheets for each of the country's 63 districts using data from DHIS2. The fact sheets provide a graphical snapshot of district demographic, epidemiological and programme performance against set targets for each HIV prevention intervention (HIV testing, oral PrEP, condoms and sexually transmitted infections, voluntary medical male circumcision). The fact sheets also provided details on district partner support for each intervention, challenges faced in the previous year as described in the plans. The data provided a reference point for planning processes, where district health teams assessed their performance against the targets, conducted root cause analyses for suboptimal performance and informed plans for the upcoming year. In 2023, the fact sheets were updated to include HIV testing data disaggregated by age and key and vulnerable population groups for targeted planning in line with precision prevention principles.

**Lessons Learnt:** The use of fact sheets resulted in data-driven district plans that used measurement metrics to measure progress towards targets for each HIV prevention intervention. The district health teams found utility in data provided in the fact sheets, which presented key data indicators in simple formats but sufficient to inform planning. In addition, the fact sheets enabled integrated HIV prevention planning by providing data from multiple sources, giving a comprehensive overview of all HIV prevention interventions, which previously would have been located and/or presented separately. In 2024, the MOHCC plans to capacitate district teams to develop fact sheets for routine data analysis and tracking of programme performance.



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## Gestion Optimisée des Intrants Pour Le Diagnostic Moléculaire et la Surveillance Génomique de COVID-19 au Cameroun: Évidence D'Une Réponse Efficace Dans Le Contexte D'Une Pandémie (Edctp Perfect-Study EF2020-RIA3000)

**Abega Abega C<sup>1</sup>**, FOKAM<sup>1,2,3</sup>, NGOUFACK JAGNI SEMENGUE E<sup>1</sup>, ABBA A<sup>1</sup>, Takou D<sup>1</sup>, BELOUMOU G<sup>1</sup>, DJUPSA S<sup>1</sup>, NKA A<sup>1</sup>, CHENWI C<sup>1</sup>, KA'E A<sup>1</sup>, Nafissatou<sup>4</sup>, ONANA T<sup>3</sup>, Yap B<sup>3</sup>, ETOUNDI MBALLA G<sup>3</sup>, NDJOLO A<sup>1</sup>

<sup>1</sup>CIRCB( Chantal Biya International Reference Center), Yaoundé, Cameroon, <sup>2</sup>Faculty of health sciences, University of Buea , Buea, Cameroon, <sup>3</sup>National Public Health Emergency Operations Coordination Centre, Ministry of Public Health, Yaounde, Cameroon, <sup>4</sup>National Public Health Laboratory, Yaoundé, Cameroon

**Contexte :** La stratégie de riposte contre la COVID-19 repose sur un approvisionnement adéquat en intrants. En qualité de laboratoire de référence COVID-19, le Centre International De Reference Chantal Biya (CIRCB) a évalué la consommation des intrants en tests PCR, criblage et séquençage, à des fins de meilleures prévisions.

**Matériels et Méthodes :** Il s'agissait d'une étude rétrospective et transversale réalisée sur 12 mois (Aout 2021 à Juillet 2022), portant sur le suivi des données de consommation des intrants pour le diagnostic moléculaire et la surveillance génomique de la COVID-19 au Cameroun. Les données collectées ont été saisies sur Microsoft Excel 2021. Le logiciel IBM.SPSS® Statistics V.20 a été utilisé pour les analyses statistiques.

**Résultats :** Globalement, 31.453 échantillons ont été reçus, 37.008 extractions (35.280 en plateforme-manuelle et 1.728 en plateforme-automatique) et 37.248 PCR (35.520 en manuelle et 1.728 en automatique) ont été réalisées pour le diagnostic de la COVID-19; soit une consommation moyenne mensuelle de 3.084 extractions et 3.104 PCR pour ~2.621 échantillons/mois (~1,17 extractions/échantillon, et ~1,18 PCR/échantillon). Sur les 2.238 (7.1%) cas diagnostiqués positifs, 265 ont été soumis au criblage et 200 au séquençage

du fait de leur cycle seuil (CT) élevé (CT<25). En criblage, 288 tests ont été utilisés soit 1,08 test/échantillon. En séquençage, 279 tests ont été utilisés soit 1,39 test/échantillon.

**Conclusions :** Les données estimatifs obtenues révèlent une quantification précise des intrants utilisés en période de haute épidémie pour le diagnostic moléculaire de la COVID-19, le séquençage et le criblage des variants au CIRCB-Cameroun. L'implémentation adéquate de cette stratégie logistique dans les laboratoires permettrait une estimation des besoins réels à travers l'intégration des outils logistiques dans la gestion des intrants ; permettrait de faire des économies budgétaires tout en assurant un approvisionnement constant des réactifs et les consommables de manière à préserver leur intégrité et leur fiabilité. Outre raison, cette stratégie permettrait d'optimiser la gestion des intrants et de faire des économies budgétaires tout en assurant la surveillance génomique ou la riposte face à tout autre incident majeur de santé publique en Afrique.

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## Piloting a Positive, Provider-Focused, Person-Centred Care Model: Insights and Lessons from a Study in KwaZulu-Natal, South Africa

Jim A<sup>1</sup>, Rambally-Greener L<sup>1</sup>, Mnyaiza N<sup>1</sup>, Ngubane H<sup>1</sup>, Malone S<sup>1</sup>

<sup>1</sup>PSI, Johannesburg, South Africa

**Background:** Person-centred care (PCC) models often focus on healthcare provider monitoring and accountability. This study tested an alternate hypothesis: that a model focused on supporting providers could enable quality care while being more acceptable to providers.

**Materials and Methods:** Designed and piloted with eight clinics in KwaZulu-Natal, South Africa, the Ngiyakuzwa model employs a combination of training and mentoring targeting topics prioritised by providers. We surveyed 59 providers at baseline and mid-intervention, and interviewed 32 and 28 HCPs, respectively, at baseline and mid-



intervention, to assess their experience of the model as well as changes in attitudes and behaviours.

**Results:** At baseline, providers reported being supportive of person-centred care but often hindered by inadequate resources and support and challenging team dynamics. Mid-intervention, providers characterized the intervention as highly acceptable and reported improvement in motivation, empathy, communication, problem-solving, teamwork, and interactions with patients.

We noted improvement in various measures of provider experience at baseline vs mid-intervention:

I feel motivated to work as hard as I can (69% > 85%)

I feel good about the team I work with. (78% > 83%)

I can talk openly with my supervisor about my feelings and challenges. (34% > 70%)

Suggestions on how to improve things in this clinic are taken seriously. (37% > 63%)

I have access to the training I need to perform well in my role. (57% > 70%)

Person-centred care is not really possible given my work conditions. (28% > 17%)

The patient needs to listen to me more than I need to listen to them. (18% > 8%)

“We’re seeing that they don’t just want us to give them their pills. They want to see that we care about them as people. It needs to be a relationship.”

“I can see that there’s teamwork. And we got that from seeing that everyone is important. Because at the end, from the security to the cleaners, to the nurses, to the doctors, everyone, we are here for one purpose.”

**Conclusions:** A PCC model focused on provider support and empowerment can be effective in improving quality of care, while also being feasible and acceptable to providers.

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## Experiences of Healthcare Workers at Kamuzu Central Hospital, Malawi in Child Health Research: An Interpretative Phenomenological Analysis

**Kasanda-ndambo M**<sup>1,2</sup>, **Manda-Taylor L**<sup>1,2</sup>, **Ndambo B**<sup>3</sup>

<sup>1</sup>Kamuzu University Of Health Sciences, Blantyre, Malawi,

<sup>2</sup>Training and Research Unit of Excellence, Blantyre, Malawi,

<sup>3</sup>Department of Civic Education, Ministry of Local Government, Unity and Culture, Malawi, Lilongwe, Malawi

**Background:** Children’s health is a global public health priority and a determinant of development and sustainability. Its effective delivery and further improvements require constant and dedicated research on child health, especially by healthcare workers. Studies have shown a high involvement of healthcare workers from developed countries in researching child health. However, there is an under-representation in child health research by healthcare workers from the developing world both in authorship and leadership in international collaborative research. This study therefore sought to explore the experiences of healthcare workers at Kamuzu Central Hospital (KCH) in Malawi, in child health research.

**Materials and Methods:** We conducted an interpretative phenomenological analysis through 20 key informant interviews and five in-depth interviews in Lilongwe district from July to August 2023. Healthcare workers at the KCH pediatric section and health policymakers from the Ministry of Health (MoH) Headquarters were purposively sampled to participate. Interviews were conducted in English, audio recorded, transcribed verbatim, and analysed thematically through an adapted COM-B model of behavior change.

**Results:** Three key themes of perceived behavior change in research among healthcare workers emerged from the data; i) capability of healthcare workers in conducting research, ii) availability of research opportunities among healthcare workers, and iii) motivation of healthcare workers in conducting research. Findings indicate an



inadequate capacity for research among healthcare workers at KCH.

**Conclusions:** This study has demonstrated low participation of healthcare workers at the KCH pediatric section in child health research. There is poor coordination among child health workers and a lack of research capacity due to among others, inadequate training in research during healthcare workers' training. We recommend the inclusion of a protected budget line for research at KCH, the inclusion of research training in health institutions, and the establishment of a child health department at the MoH headquarters to improve coordination among child health players.

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## Pratique des Médecins de Première Ligne au Bénin : Conditions pour Améliorer la Qualité des Services, y Compris la Prise en Charge du VIH

**Bello K**<sup>1,2,3</sup>, De Lepeleire J<sup>3</sup>, Zannou D<sup>4</sup>, Criel B<sup>2</sup>  
<sup>1</sup>Centre de Recherche en Reproduction Humaine et en Démographie, Cotonou, Benin, <sup>2</sup>Institut de Médecine Tropicale, Anvers, Belgique, <sup>3</sup>KU Leuven, Louvain, Belgique, <sup>4</sup>Université d'Abomey Calavi, Abomey Calavi, Bénin

**Contexte :** Au Bénin, on constate une augmentation du nombre de médecins exerçant dans les formations sanitaires de première ligne, où les soins de santé primaires sont majoritairement dispensés. Des études antérieures ont montré le potentiel des médecins de première ligne (MPL) pour l'amélioration de la qualité des soins. Les MPL ont, par exemple, contribué à la décentralisation efficace de la prise en charge du VIH en Afrique du Sud et joué un rôle crucial lors de la pandémie de COVID-19 au Bénin. Cependant, plusieurs conditions sont nécessaires pour leur contribution optimale au système de santé. Cette étude explore les facteurs soutenant la performance des MPL au Bénin.

**Matériels and Méthodes :** Une étude de cas multiple a été menée, analysant 8 pratiques médicales de première ligne dans 5 districts de santé béninois. Cette approche combinait des méthodes quantitatives (observations directes

attribuant des scores de performance aux MPL) et qualitatives (ethnographie avec 40 entretiens approfondis et 16 focus group discussions). Une analyse thématique de contenu a identifié des facteurs de performance potentiels. Ces facteurs ont été présentés dans une matrice, puis une analyse croisée des cas a permis de retenir les facteurs les plus critiques.

**Résultats :** Les scores de performance des MPL variaient de 14,7 à 19,3 (communication avec les patients) et de 68 % à 88 % (qualité technique des soins). Sur 14 facteurs retenus par l'analyse de contenu, l'analyse croisée a identifié 9 facteurs de performance primordiaux. Ce sont l'adoption des valeurs fondamentales des soins de santé primaires, la préparation pour faire face aux spécificités de la première ligne, un soutien continu, des modalités de financement adéquates, la responsabilisation des MPL comme leaders, un mécanisme effectif de redevabilité, une coordination efficace avec les autres membres de l'équipe de soin, une bonne collaboration avec les leaders communautaires, et la prise en compte du contexte.

**Conclusions :** Cette étude met en lumière les facteurs influençant la performance des MPL au Bénin. En intégrant ces leviers, les acteurs de la santé peuvent soutenir efficacement les MPL dans la gestion des problèmes de santé prioritaires, dont l'infection à VIH, renforçant ainsi le système de santé.

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## Increased HIV Viral Testing Output through Mega Polymerase Chain Reaction Laboratory Upgrade in Nigeria: A Retrospective Study

**Omo-Emmanuel U**<sup>1</sup>, Yakubu T<sup>2</sup>, Oyelaran O<sup>1</sup>, Egena P<sup>1</sup>, Goldstein R<sup>1</sup>, Williams J<sup>3</sup>, Pius B<sup>1</sup>  
<sup>1</sup>United State Agency for International Development, Abuja (USAID), Abuja, Nigeria, <sup>2</sup>ICAP Global Health at Columbia University, Nigeria, Abuja, Nigeria, <sup>3</sup>US Agency for International Development, Washington, United States of America

**Background:** HIV viral load (HVL) monitoring plays a pivotal role in determining treatment success





among individuals living with HIV. In Nigeria, as of 2016, inadequate testing capacities posed a significant challenge, only approximately 36% of 700,265 eligible clients receiving antiretroviral treatment had HVL testing. In alignment with Federal Ministry of Health's "test and treat" policy, addressing this issue required structural and equipment upgrades, as well as capacity building for personnel. We present a comprehensive analysis of HVL testing in three PCR laboratories in Nigeria both before and after their transformation into mega laboratories.

**Materials and Methods:** PEPFAR supported substantial laboratory health systems strengthening interventions between 2017 and 2019. We rationalized laboratory services by reducing number of supported PCR laboratories from 27 to 17 based on historical data to improve efficiency and equitable workload distribution. The National Integrated Sample Referral Network was launched. Infrastructural and equipment upgrade for 6 selected high-throughput laboratories to mega laboratories in 2019. USAID led the upgrade of 3 Laboratories situated at Nigeria Institute for Medical Research (NIMR) Lagos, University of Uyo Teaching Hospital (UUTH) Uyo, and Chukwuemeka Odumegwu Ojukwu Teaching Hospital (COOUTH) Awka. Roche Cobas AmpliPrep/Cobas TaqMan 48 & 96 were replaced with Cobas 68/8800 in NIMR while additional Abbott m2000sp/rt were placed in UUTH and COOUTH. Additional staff were recruited, backup power supply was provided and allowances for extended working hours beyond the regular 8 hours of operation was introduced. Data on HVL samples received and tested before (January 2017–December 2019) and after (January 2020–December 2022) the intervention were collated from the National Laboratory Information Management Systems and laboratory Registers and analyzed by Multivariate analysis of variance (MANOVA) on IBM SPSS 25

**Results:** There was a significant difference in number of samples received & tested in the PCLs with a Wilks' Lambda value of 0.066, ( $p=0.001$ ). The Tests of between-subjects effects for samples received ( $F=18.2, p=0.001$ ) & samples tested ( $F=11.1, p=0.001$ ) were significant at 5 df. Samples received post-intervention (1,764,436) were greater than samples received pre-intervention (218,136) by 88% (1,546,300). Similarly, samples tested post-intervention (1,669,250) were greater than samples tested pre-intervention (219,587) by 87% (1,449,663)

**Conclusions:** These data showed that mega PCL approach to HVL testing services contributed significantly to HVL testing uptake. The findings underscore importance of health system strengthening initiatives in expanding access to critical HIV services, leading to improved HIV treatment outcomes across Nigeria

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## Result of Including the CD4 Indicator in Pregnant Women in the HIV Quality Improvement Action Plans in Mozambique

Paulo Y<sup>1</sup>, Eliseu N, Felipe E

<sup>1</sup>MOH Mozambique, Maputo, Mozambique

**Background:** In Mozambique, almost 2.4 million people are living with HIV (Spectrum 6.29). According to the recent population-based survey, the estimated prevalence of HIV is 12.4%, Mozambique's Ministry of Health began implementing the Quality Improvement (QI) Guideline in 2016 with 23 Health Facilities. By 2023, around 86% of people leaving with HIV on anti-retroviral treatment (ART) in the country have been enrolled in the 779 Health Facilities (HF) that are implementing the HIV QI Strategy

**Description:** In June 2023, Mozambique included CD4 indicators in the action plans of the PDSA cycle of Quality Improvement in Health Facilities for Advanced Disease screening in order to achieve viral suppression and reduce the vertical transmission rate (less than 5%). In the national standard, CD4 is requested at the first clinical consultation after HIV diagnosis and the result must be returned within 28 days. This assessment was carried out in 779 HFs with a QI approach through manual or electronic data collection. Manual data collection is carried out by entering data from the primary source into an excel spreadsheet, while electronic data collection is based on a query from the Health Facilities electronic patient tracking system.

**Results:** The CD4 category includes the CD4 request and delivery indicators. In June, 18% of pregnant women who had started antiretroviral



therapy in the previous month had a CD4 test. Of these, only 13% obtained a result. After this evaluation, the 779 Health Facilities identified the problems specific to the Health Facilities for the low CD4 request and return. These actions in turn resulted in an increase in the performance of these 2 indicators after 4 months by 86% and 88% respectively. If we analyse the monthly trend for CD4 requests from July to October was 24%, 21%, 37% and 41% and for the return it was 13%, 11%, 21% and 23% respectively.

**Conclusions:** We could see that including this indicator in quality improvement was a fundamental strategy for creating demand for CD4 requests and results on pregnant women (screening for HIV advanced disease), given that these HF provide services to around 86% of people leaving with HIV on ART

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## Application of the Interactive Systems Framework in Public Health Services and Systems Research Models on Dissemination and Implementation Research in Non-communicable Diseases in Zambia

Ng'andu M<sup>1</sup>, Mulenga B<sup>1</sup>, Chisunka M<sup>1</sup>, Mutale W<sup>2</sup>, Chilengi R<sup>3</sup>, Bosomprah S<sup>1</sup>, Goma F<sup>1,2</sup>

<sup>1</sup>Centre for Infectious Disease Research In Zambia (CIDRZ), Lusaka, Zambia, <sup>2</sup>The University of Zambia (UNZA), Lusaka, Zambia, <sup>3</sup>Zambia National Public Health Institute (ZNPPI), Lusaka, Zambia

**Background:** The Interactive Systems Framework (ISF) highlights how building local capacity specific to organizational functioning and innovations are necessary to support, deliver, and disseminate innovations within new settings. In 2021, CIDRZ engaged with the Zambian Ministry of Health (MoH) to implement the WHO PEN interventions for more severe conditions in Zambia (PEN-Plus Clinical Model). This was done by applying strategies and system actors such as delivery, support and, synthesis and translation systems at

different levels to ensure local adaptation and scaleup.

**Materials and Methods:** The PEN-Plus clinical model was founded on a local investment case for pro-poor policies and integrated health service delivery platforms to achieve substantial reductions in premature death, suffering and poverty due to NCDs and injuries. The application of the ISF and delivery mechanisms was demonstrated at two (2) first level hospitals in a rural (Mwachisompola) and peri urban (Matero) communities. A Stakeholder Consultation Group selected the top ten priority NCD conditions and described level of service provision. The staff were provided with administrative support, knowledge, equipment, and medications. Real-time monitoring and evaluation were carried out via the DHIS2.

**Results:** A total of 1081 residents (302 rural and 779 urban) received NCD services from November 2022 to December 2023. The delivery system consisted of strengthening of the management of severe and complex NCDs through task-shifting and task-sharing to Clinical Officers and Nurses through didactic trainings, clinical attachments, planned mentorship and facilitation. The Synthesis & Translation System is ongoing and consists of the formulation of Standard Treatment Guidelines and evidence based messaging of health effects of NCDs for patients.

**Conclusions:** The ISF in public health services and systems has developed local capacity which requires the Zambian MoH ownership and commitment to absorb the NCD program and establish protocols that describe responsibilities, treatment, referral systems and guide upscaling to other primary level health facilities.



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## Applying Workload Indicator of Staffing Needs as a Model for Staff Rationalization and Rightsizing: Case of Bungoma County Department of Health, Western Kenya

Ashiono E<sup>1</sup>, Malubi A<sup>1</sup>, Wamalwa A<sup>2</sup>, Wanambisi C<sup>2</sup>

<sup>1</sup>USAID Dumisha Afya, Bungoma, Kenya, <sup>2</sup>County Government of Bungoma, Department of Health, Bungoma, Kenya

**Background:** The Bungoma County Department of Health (CDOH) in Western Kenya, faced challenges in ensuring an adequate and equitable distribution of the health workforce, comprising 1,944 individuals, or 35% of the county's total workforce. The conventional WHO Human Resources for Health (HRH) norms proved insufficient in considering variables such as accessibility and services offered. To address this, the CDOH adopted the Workload Indicators of Staffing Need (WISN) model developed by the World Health Organization (WHO) to accurately identify HRH gaps in health facilities.

**Materials and Methods:** Between April and July 2022, the CDOH supported by USAID Dumisha Afya conducted a WISN study in 13 health facilities, involving seven different cadres responsible for health service delivery. The study encompassed group discussions with select cadres, data collection from MOH tools, comparison with KHIS data, and interviews with cadre in-charges at the facilities. Personnel records from hospitals were retrieved and analyzed using the WISN software.

**Results:** The study revealed significant HRH shortages across all health facilities, with nursing and clinical staff experiencing the most substantial gaps. Bungoma County Referral Hospital and Webuye County Hospital reported the highest HRH shortages across all seven cadres, including Community Health Assistants. The application of the WISN model enabled health managers to accurately analyze workload for each cadre, calculate HRH needs, and develop a recruitment plan. Based on this evidence-based data, the county assembly approved a budget of Kshs. 300 million for the recruitment of 248 health workers. The study also identified HRH management gaps,

leading to the establishment of HRH units at the sub-county and high-volume facility levels to address absenteeism, inaccurate HRH data, and reporting delays on abscondment.

**Conclusions:** Adopting the WISN study model allowed the department to determine evidence-based facility HRH gaps, thereby informing recruitment decisions. The establishment of sub-county and facility-based HRH units contributed to improved joint MOH/Partner HRH management, including the effective replacement of staff exiting the service. This study is expected to encourage the use of the WISN tool in other hospitals across the county and inform the development of personnel norms for health facilities in resource-constrained settings.

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## Enhancing Differentiated Service Delivery Uptake in Nigeria through State-to-State Learning Visits: Lessons Learned

Ezenduka J<sup>1</sup>, Obasa G<sup>1</sup>, Emerenini F<sup>1</sup>, Ogbeke G<sup>3</sup>, Tanyishi D<sup>1</sup>, Ekanem C<sup>1</sup>, Esu I<sup>3</sup>, Nwaokennaya P<sup>3</sup>, Momodu H<sup>5</sup>, Preko P<sup>2</sup>, Oramisi V<sup>4</sup>, Reidy W<sup>2</sup>, Sachatp K<sup>2</sup>, Bashorun A<sup>3</sup>, Akinjeji A<sup>1</sup>

<sup>1</sup>ICAP Nigeria, Abuja, Nigeria, <sup>2</sup>ICAP at Columbia University, Columbia, United States, <sup>3</sup>National AIDS and STI Control Program, Abuja, Nigeria, <sup>4</sup>ICAP Kenya, Kenya, <sup>5</sup>WHO Nigeria, Abuja, Nigeria

**Background:** Nigeria, with a high global HIV burden, has seen varied success in implementing strategies to improve HIV patient outcomes. The Differentiated Service Delivery (DSD) models, which are client-centered, have been adopted to meet diverse needs, optimize resources, and improve treatment continuity and overall care quality. A State-to-State Learning project was rolled out to facilitate learning and implementation. ICAP supported the National AIDS and STI Control Program (NASCP) in conducting 12 learning exchange visits between June and December 2023 to share best practices. This study aims to use these lessons to inform future DSD implementation and enhance HIV care quality in Nigeria.



**Materials and Methods:** A standardized visit toolkit was developed that includes the following components: 1) trip planning aids; 2) guides on information to be requested from states; and 3) a framework for States to develop action plans from lessons learned. Each visit lasted over three days and involved meetings with crucial HIV stakeholders, visits to service delivery points, interactions with service providers and recipients of care, review of documentation tools, and presentations on the topic of interest. States then developed action plans for implementing lessons learned, which NASCP and ICAP monitored.

**Results:** Three months after the visit, achievements at the State level were assessed using state program data and feedback from State HIV program managers: 12/12 (100%) of states reported robust coordination systems and availability and use of national DSD tools and guidelines. There was also a noted increase in participation of PLHIV in DSD demand creation activities in 12/12(100%) of states; 6/12 (50%) states reported increased DSD model mix and devolvement rates, 2/12 (16%) developed more robust M&E systems for reporting DSD activities, and another 2/12 (16%) reported improvements in pediatric case findings.

**Conclusions:** State-to-state learning exchange interventions enabled local governments to scale up differentiated service delivery rapidly. The involvement of stakeholders, including PLHIV, in the planning and implementation of the activities was vital to the successes recorded. States and countries can continue to collaborate and learn strategies from each other to address various health challenges.

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## Impact of PEPFAR Laboratory Program Implementation in Collaboration with Ministry of Health: A Case Study of HIV Rapid Testing Continuous Quality Improvement Implementation in Niger State, Nigeria

**Aka-Okeke C**<sup>1</sup>, Essien I<sup>1</sup>, Omo-Emmanuel U<sup>2</sup>, Yakubu T<sup>3</sup>, Katako U<sup>4</sup>, Salami M<sup>1</sup>, Eluke F<sup>1</sup>, Saliu I<sup>1</sup>, Etsetowaghan A<sup>1</sup>, Olutola A<sup>1</sup>, Asaolu O<sup>2</sup>

<sup>1</sup>Center For Clinical Care And Clinical Research (CCCRN), Abuja, Nigeria, <sup>2</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria, <sup>3</sup>ICAP Global Health at Columbia University, Nigeria, <sup>4</sup>Niger State Ministry of Health, Minna, Nigeria

**Background:** The expansion of HIV testing services to non-traditional settings in health facilities and communities contributed to the reports of false positive and negative HIV test results in past programs. To ensure the sustainability of PEPFAR initiatives in guarding against testing errors and misdiagnosis, CCCRN Laboratory Program through the USAID Funded ACE4 project collaborated with the Niger State Ministry of Health (SMOH) to implement the HIV Rapid Testing Continuous Quality Improvement (RTCQI).

**Description:** CCCRN and State Quality Assurance Champions Team (SQACT) implemented RTCQI in 37 HFs and community settings comprising of 100 testing points (TP) from October 2022 to September 2023 in Niger State, Nigeria. Results from PT, competency and SPI-RT assessments were retrieved and evaluated. Evaluations were based on PT National Benchmark of 90% and 80% benchmark for competency assessment. Data generated were collated from the HIV Daily Testing Worksheets, QC Log Sheet, and feedback reports for PT, Competency and SPI-RT assessments, and analysed.

**Lessons Learnt:** In FY23, 34 TPs out of the 100 TPs enrolled for PT were Clinical Laboratories. All the 34 clinical laboratories participated and passed the PT with scores  $\geq 90\%$ , 100% of the other 66 TPs participated but 7.6% (5) of them failed while 92.4% (61) passed. Overall, 95% (95) TPs passed



the PT while 5% (5) failed. The PT failure was due to non-compliance with the testing algorithm and inaccurate interpretation of results. Only 34 (92%) of the clinical laboratories and 63 (100%) non-clinical laboratories participated in LCQI assessment. 27 out of the 34 (79%) clinical laboratories achieved 3-star rating (score 80-89%) while 7 (21%) achieved 4-star (score  $\geq 90\%$ ). For the non-laboratories 32 (50.8%) TPs achieved 0-1 star (score  $\leq 59\%$ ), 20 (31.7 %) achieved 2-3 (score 60-89%), and 11 (17.5 %) achieved 4-star (score  $\geq 90\%$ ).

**Conclusions:** Implementation of RTCQI improved the quality of testing in both clinical laboratory and non-laboratory testing settings. Joint implementation of RTCQI with the SQACT team instituted a framework for sustainability of LCQI in the State. Planning and budgeting for collaboration with the Ministry of health should be considered in Programme implementations.

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## Improving Data Quality of Pre-exposure Prophylaxis Services using a Quality Improvement Framework: Outcomes from a Public Health Facility in Southern Nigeria

**Onori-Gudi G<sup>1</sup>**, Chukwuma C<sup>1</sup>, Elechi I<sup>1</sup>, Ibah N<sup>1</sup>, Ekpar G<sup>1</sup>, Ekanem E<sup>1</sup>, Ukpong K<sup>1</sup>, Gana B<sup>2</sup>, Nwanja E<sup>2</sup>, Onwah O<sup>2</sup>, Akpan U<sup>2</sup>, Unimuke M<sup>2</sup>, Okolo C<sup>2</sup>, Toyo O<sup>2</sup>, Nwageneh C<sup>3</sup>, Oyawola B<sup>4</sup>, Agweye A<sup>4</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Onyedinachi O<sup>2</sup>, Adegboye A<sup>2</sup>, Eyo A<sup>2</sup>

<sup>1</sup>Achieving Health Nigeria Initiative, Uyo, Nigeria, <sup>2</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>3</sup>FHI360, Abuja, Nigeria, <sup>4</sup>United States Agency for International Development, Abuja, Nigeria

**Background:** Oral Pre-Exposure Prophylaxis (PrEP) is a key component of comprehensive HIV prevention programs, and implementation success depends on reliable data to inform decision-making. Excellence Community Education Welfare Scheme, funded by PEPFAR/USAID, conducted data quality assessments (DQAs) of PrEP services to ensure implementation meets standards of service delivery. We describe a quality

improvement (QI) initiative deployed to improve data quality in PrEP service delivery in Nigeria.

**Materials and Methods:** Data quality of PrEP services for clients who started PrEP was assessed across four domains: Availability (client folders with complete documentation), Validity (service forms authenticated by service providers), Integrity (unique client records without mutilations), and Consistency (data in client folders matching electronic medical records) in April 2023 (Period-1) using a modified USAID DQA checklist for the period October 2022-March 2023, at General Hospital Etinan, Akwa Ibom. A 12-week QI-initiative was implemented to address gap areas from May to July 2023 using the Model for Improvement framework, which included a Plan-Do-Study-Act cycle. During the 'Plan' stage, root cause analysis through site-level discussions with service providers revealed a weak data management system, knowledge gaps among service providers, inadequate filing system, and lack of technical supervision, as barriers. Interventions in the 'Do' stage included a refresher training for service providers on PrEP service delivery and documentation, establishment of documentation service flow, provision of a shelf for chronological filing of clients' folders, and weekly PrEP folder audits, and data triangulation. In the 'study' stage, the four data quality domains were reassessed in August 2023 (Period-2), and Mann-Whitney-U test was used to compare differences in performance across domains between both periods.

**Results:** Records of 254 individuals who started oral PrEP were extracted for Period-1, and 93 individuals in Period-2. Between both periods data availability improved from 50.0% to 100.0% ( $p < 0.001$ ), validity improved from 34.1% to 96.8% ( $p < 0.001$ ), integrity improved from 75.4% to 96.2% ( $p < 0.001$ ), and consistency improved from 89.4% to 97.8% ( $p = 0.974$ ).

**Conclusions:** Use of a systematic QI initiative improved the data quality of PrEP services at a health facility in Akwa Ibom. This approach, if scaled to more health facilities could enhance data quality in service delivery.



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## Acceptance of Human Papillomavirus Vaccination and Parents' Willingness to Vaccinate Their Adolescents in Ethiopia: A Systematic Review and Meta-Analysis

**Derbie A**<sup>1</sup>, Mekonnen D<sup>1</sup>, Misgan E<sup>1</sup>, Maier M<sup>2</sup>, Woldeamanuel Y<sup>3</sup>, Abebe T<sup>3</sup>

<sup>1</sup>Bahir Dar University, College of Medicine and Health Sciences, Bahir Dar, Ethiopia, <sup>2</sup>Department of Virology, Institute of Medical Microbiology and Virology, Leipzig University Hospital, Leipzig, Germany, <sup>3</sup>Department of Medical Microbiology, Immunology, and Parasitology, School of Medicine, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia

**Background:** Despite the global vaccination campaign to prevent HPV-related morbidity, HPV vaccination uptake remains unacceptably low in the developing world, like Ethiopia. For strong interventional measures, compiled data in the field is required, which is otherwise missed in the Ethiopian context. Therefore, this systematic review aimed to provide an estimate of the HPV vaccination uptake, mothers' willingness to vaccinate their adolescent girls, and associated factors in Ethiopia.

**Materials and Methods:** Articles were systematically searched using comprehensive search strings from PubMed/Medline, SCOPUS, and gray literature from Google Scholar. Two reviewers assessed study eligibility, extracted data, and assessed the risk of bias independently. A meta-analysis was performed using STATA v 14 to pool the vaccination uptake and mothers' willingness toward HPV vaccination in Ethiopia.

**Results:** We included 10 articles published between 2019 and 2022 covering reports of 3,388 adolescent girls and 2,741 parents. All the included articles had good methodological quality. The pooled estimate of the proportion of girls with good knowledge about HPV vaccination and their agreement to get the vaccine was 60% (95%CI: 59-62) and 65% (95%CI: 64-67), respectively. The pooled estimate of vaccination uptake of at least one dose of HPV vaccine among girls was 55% (95%CI: 53-57). Positive attitudes to the vaccine, higher maternal education, and having knowledge

about HPV and its vaccine were reported as statistically significant predictors. On the contrary, not having adequate information about the vaccine and concerns about possible side effects were reported as reasons to reject the vaccine. Likewise, the pooled estimate of mothers who were knowledgeable about HPV vaccination, who had a positive attitude, and who were willing to vaccinate their children was 38% (95%CI: 36-40) 58% (95%CI: 56-60), and 74% (95%CI: 72-75), respectively.

**Conclusions:** Knowledge about the HPV vaccine among girls and their vaccination uptake is suboptimal and falls short of the 2030 WHO targets. Therefore, stakeholders need major efforts to roll out vaccination programs and monitor their uptake. Social mobilization towards the primary prevention of HPV infection should focus on adolescents. The existing strategies need to address the predictors of uptake by educating girls and parents.

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## Vérification des Algorithmes de Dépistage du VIH au Burkina Faso

**Ouoba T**<sup>1</sup>, Kania D<sup>1</sup>, Sirima C<sup>1</sup>, Ouattara Kone A<sup>1</sup>, Tinto B<sup>1</sup>, Somda S<sup>1</sup>, Dabone E<sup>1</sup>, Galboni K<sup>1</sup>, Sawadogo C<sup>2</sup>, Ky H<sup>2</sup>, Ki Toe C<sup>3</sup>, Derme S<sup>3</sup>, Traore I<sup>1</sup>, Ouedraogo A<sup>1</sup>

<sup>1</sup>Centre Muraz/ INSP, Bobo Dioulasso, BURKINA FASO, <sup>2</sup>Direction des Laboratoires de Biologie Clinique (DLBM), Ouagadougou, BURKINA FASO, <sup>3</sup>Secrétariat Permanent/Conseil National de Lutte contre le Sida et les Infections Sexuellement Transmissibles (SP/CNLS-IST), Ouagadougou, BURKINA FASO

En 2018 avec une prévalence du VIH inférieure à 1% en population générale, le Burkina Faso a adopté dans son programme de lutte contre le VIH, la stratégie de l'algorithme à trois tests pour le dépistage/diagnostic. Afin de définir les tests qui seront utilisés, une étude de vérification des algorithmes de dépistage du VIH au Burkina Faso a été réalisée au Centre MURAZ. Il s'agissait d'identifier les combinaisons appropriées de tests de sérologie VIH et VIH/syphilis pour alimenter la stratégie à 3 tests de l'OMS pour le dépistage/diagnostic de l'infection par le VIH au Burkina Faso.



Dans cette étude transversale, des volontaires au dépistage du VIH ou des femmes enceintes en consultation prénatale testés négatifs dans six sites à Ouagadougou et à Bobo Dioulasso, ont été inclus. Les échantillons de sang prélevés ont été analysés au laboratoire de virologie du Centre Muraz. Ces analyses ont permis d'abord la caractérisation des échantillons par ELISA et les tests de diagnostic rapide (TDR) puis la vérification des TDR candidats au nombre de 10. Sur 341 participants inclus, 301 ont été testés avec les TDR candidats et les résultats de 293 participants ont servi aux choix des algorithmes. Tenant compte des caractéristiques intrinsèques des TDR et des critères de validation de l'OMS, deux algorithmes ont été proposés : (i) l'un pour le dépistage des femmes enceintes en consultation prénatale (CPN) et des personnes concernées avec en position 1, un test duo VIH/syphilis, puis un TDR discriminant et un non discriminant interchangeables en position 2 et 3 ; (ii) l'autre pour la population générale.

Les résultats de cette étude ont permis la révision des directives nationales de dépistage du VIH en vue de l'adoption et de la mise à l'échelle des nouvelles stratégies et algorithmes de dépistage du VIH recommandés par l'OMS

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## Implementation of Systematic TB Screening with Chest Xray Among People Living with HIV Enrolled in Antiretroviral Therapy in Chitungwiza District, Zimbabwe

**Ncube T**<sup>1</sup>, Hove M<sup>1</sup>, Takarinda K<sup>1</sup>, Chimberengwa P<sup>1,2</sup>, Dhodho E<sup>1,3</sup>, Mushonga N<sup>1</sup>, Shoko O<sup>1</sup>

<sup>1</sup>Organization For Public Health Interventions And Development, Harare, Zimbabwe, <sup>2</sup>National University of Science and Technology, Bulawayo, Zimbabwe, <sup>3</sup>University of California, Berkeley School of Public Health, California, US

**Background:** Tuberculosis (TB) remains the primary cause of AIDS-related morbidity and mortality, especially in high HIV burden countries like Zimbabwe. In 2022, HIV was estimated to contribute 37% and 72% towards incident TB and mortality in Zimbabwe, respectively. Despite this,

TB treatment coverage was only 55% of estimated incident TB cases. It is therefore imperative that TB case-finding is bolstered for improved TB treatment coverage. The World Health Organization (WHO) therefore recommends TB screening using Chest Xray (CXR) among people living with HIV (PLHIV) on antiretroviral treatment (ART) as part of universal testing for TB in this high-risk group. We thus assessed feasibility of systematic CXR screening at five ART sites in Chitungwiza district of Zimbabwe from May-July 2023.

**Materials and Methods:** Those eligible for CXR screening were either i) newly initiated on ART ii) TPT naïve and iii) and or had advanced HIV disease manifestation, but excluded those <16 years and pregnant women. Those eligible were issued coupons and referred for CXR and interpretation by a doctor at a hub private hospital followed by referral back to their ART site for further investigation by Gene Xpert or TB LAM before subsequent TB treatment initiation among those eligible.

**Results:** Between May-July 2023, 460 eligible PLHIV were referred for CXR, of whom 305 (66%) had a CXR done and 74 (24%) were referred back for sputum collection. Of these, 4 (5%) were unable to cough and 56 (75%) had sputum collected resulting in 34% being diagnosed with TB. This positivity yield was significantly higher when compared to 1,020 (17%) diagnosed among 6,076 presumptive TB patients identified through the WHO four-symptom screening tool during the July-September 2023 reporting period.

**Conclusions:** We observed higher TB positivity yield which reaffirms the need for universal CXR screening among PLHIV in ART care. However, there were notable leakages due to client referrals across sites which lead to suboptimal TB diagnosis. To plug these leakages, there is need to assess feasibility of placing point-of-care CXR machines complemented with computer-aided detection software's, especially given the unavailability of doctors in primary care facilities to interpret these CXR images.



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## Association Between Complete Blood-Count-Based Inflammatory Scores and Hypertension in Persons Living with and Without HIV in Serenje, Zambia

**Mwape L**<sup>1,4</sup>, Hamooya B<sup>1</sup>, Luwaya E<sup>1</sup>, Mushabati A<sup>2</sup>, Muzata D<sup>2</sup>, Bwalya K<sup>1</sup>, Siakabanze C<sup>1</sup>, Masenga S<sup>1,3</sup>  
<sup>1</sup>Mulungushi University, School of medicine and Health Sciences, Livingstone, Zambia, <sup>2</sup>The University of Zambia, School of Veterinary Medicine, Department of Disease Control, Lusaka, Zambia, <sup>3</sup>Vanderbilt Institute for Global Health, Vanderbilt University Medical Center, Nashville, USA, <sup>4</sup>Serenje District Hospital, Ministry of Health, Serenje, Zambia

**Background:** Hypertension is a risk factor for cardiovascular events. Inflammation plays an important role in the development of essential hypertension. Studies assessing the association between complete blood count based inflammatory scores (CBCIS) and hypertension are scarce. Therefore, the aim of this study was to determine the relationship between CBCIS and hypertension in persons with and without HIV in Serenje District, Zambia.

**Materials and Methods:** This was an analytical cross-sectional study of 344 participants from Serenje District Hospital and Serenje Urban Clinic, structured questionnaires gathered data including sociodemographic variables (age, sex, employment status, alcohol consumption, and smoking). CBCIS, encompassing white blood cell (WBC), absolute lymphocyte (ALC), absolute neutrophil count (ANC), absolute platelet count (APC), lymphocyte-monocyte ratio (LMR), neutrophil-lymphocyte ratio (NLR), platelet-lymphocyte ratio (PLR), and derived neutrophil-lymphocyte ratio (d-NLR). SPSS version 22.0 summarized sociodemographic and clinical variables. Multivariable logistic regression identified factors associated with hypertension.

**Results:** The participants had a median age of 32 years (interquartile range (IQR) 24-42). Among them, 65.1% (n= 224) were females, while 34.9 % (n= 120) were males. The prevalence of hypertension was 10.5% (n=36). Among those with hypertension, 55.6% (n=20) were females and 52.8% (n=19) were living with HIV (PLWH). The CBCIS significantly associated with hypertension

was ANC (adjusted odds ratio (AOR) 1.13; 95% confidence interval (CI) 1.01-1.28, p= 0.04). LMR was significantly higher in PLWH (median 3.32, IQR 2.09-5.17) compared to those without HIV (median 2.57, IQR 1.65-3.97; p<0.001). When segregated by sex in multivariable regression, age (AOR 1.04; 95% CI 1.01-1.08; p= 0.009) and ANC (AOR 1.14; 95% CI 1.01-1.28; p= 0.030) were significantly associated with hypertension in females while in males, only body mass index (AOR 1.30; 95% CI 1.01-1.66; p= 0.038) was significantly associated with hypertension after adjusting for the same variables.

**Conclusions:** Our study indicates a notable association between ANC and hypertension, suggesting a potential biomarker for hypertension risk. This discovery holds substantial implications for early detection and preventive measures. Additionally, our observation of PLWH displaying a markedly higher LMR compared to those without HIV enhances our understanding of immune responses in this population, informing tailored healthcare strategies that emphasize monitoring immune parameters.

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## HIV Infection Among People with Substance Use Disorders: Findings from a Drug Rehabilitation Center in North Central Nigeria

**Makput D**<sup>1</sup>, Dami N<sup>2,3</sup>, Haa T<sup>3</sup>  
<sup>1</sup>Jos University Teaching Hospital, Jos , Nigeria, <sup>2</sup>University of Jos , Jos , Nigeria , <sup>3</sup>Center for Addiction Treatment and Research , Vom , Nigeria

**Background:** Globally, HIV infection continues to be a major concern among people who use drugs. People with substance use disorders are at a higher risk of contracting HIV than the general population due to factors such as needle sharing and unprotected sex when under the influence of drugs. Sub-Saharan Africa which is home to two thirds of all people living with HIV globally is the hardest hit region in the world and Nigeria, with a population of over 200 million people, has a high burden of substance use disorder with an estimated 14.4% of it's population (aged between





15 to 64 years) using drugs. This study aims to determine HIV co-morbidity among patients in rehabilitation.

**Materials and Methods:** After obtaining ethical clearance, a retrospective study was conducted in which demographic, clinical and laboratory data were collected from case notes of patients admitted in the Center for Addiction Treatment and Rehabilitation (CATR) Vom Plateau state in the past two years from January 1, 2022 to December 31, 2023. Descriptive and inferential statistics were performed using SPSS (version 20.0).

**Results:** One hundred and eighty-five patients were studied among whom 162 or 87.6 % were males and 23 (12.4 %) were females with a mean age of 28 years. The most common drugs of abuse were cannabis, alcohol and opioids. The prevalence of HIV among the patients was 3.2% (compared to the current National HIV prevalence of 2.1% in Nigeria). However, among the patients with injecting drug use, the prevalence of HIV was 6.1% ( $p < 0.001$ ). 58% of the patients did not know their HIV status prior to admission.

**Conclusions:** There is a huge gender disparity among people accessing treatment for substance use disorders in our community. There is also a low rate of HIV testing despite a high burden of HIV infection among these people who use drugs.

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## Prioritizing Advanced HIV Disease Screening for Treatment Interruption in PLHIV: Early Learnings from Implementation of New Guidelines in Zimbabwe

Dhliwayo R<sup>1</sup>, Dziva L<sup>1</sup>, Ngwenya T<sup>1</sup>, Mupanguri C<sup>3</sup>, Mushangwe B<sup>1</sup>, Gonese G<sup>1</sup>, Apollo T<sup>3</sup>, Mugurungi O<sup>3</sup>, Maphosa T<sup>2</sup>, Cham H<sup>2</sup>, Thomson K<sup>4</sup>, Wiktor S<sup>4</sup>, Makunike-Chikwinya B<sup>1</sup>

<sup>1</sup>Zim-TTECH, Harare, Zimbabwe, <sup>2</sup>Centre for disease control and prevention (CDC), Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Child Care (MOHCC), Harare, Zimbabwe, <sup>4</sup>International Training and Education Center for Health (I-TECH), University of Washington, USA

**Background:** People living with HIV (PLHIV) who experience treatment interruption are at high risk for mortality caused by advanced HIV disease (AHD), including tuberculosis (TB) and cryptococcal meningitis. In 2022 Zimbabwe introduced a new national guideline to facilitate immediate AHD screening of PLHIV reengaging in care.

**Description:** A total of 70 public sector facilities across five provinces implemented the new guideline for PLHIV returning to care. PLHIV returning to care were categorized based on time disengaged from care (<3 months or ≥3 months). PLHIV with treatment interruption ≥3 months are indicated for immediate AHD screening, starting with VISITECT CD4 point-of-care testing, and then further same-day screening with cryptococcal antigen lateral flow assay (CrAg LFA), and tuberculosis lipoarabinomannan antigen assays (TB-LAM) for those with CD4<200. Here we present data on PLHIV reengaging in HIV care in the first twelve months of implementation, from Oct 1, 2022, to Sept 30, 2023.

**Lessons Learnt:** A total of 1,821 PLHIV were reengaged in care between October 1, 2022, and September 30, 2023. Among these, 81.4% (1,484) were reengaging in care after ≥ 3 months treatment interruption. Of these 23.2% (345/1,484) received CD4 testing and 41.2% (142/345) had CD4 count <200 cells/μL. Of those tested, 12.4% (25/202) were positive for TB-LAM and 5.9% (11/187) were positive for CrAg. Of the total receiving CD4 testing 15.1% (52/345) were reached on subsequent visit. Health-care workers reported that guidelines specifying which laboratory test to prioritize for PLHIV returning to care was helpful, although patient flow and staff shortages were cited as additional challenges to implementation. Additionally, there is need to close the gap and ensure that recipients of care get AHD screening on point of re-engagement into care as it becomes difficult to offer the package on subsequent visits.

**Conclusions:** Re-engaging in care guidelines have reinforced the importance and execution of proactive clinical review and testing for patients at high risk of AHD. However, efforts to secure adequate staffing, establishing patient flow, and consistent stocks of commodities are needed to improve comprehensive implementation of these guidelines at scale.



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## Obesity and Hypertension among People Living with and without HIV in Southern Africa: A Cross Sectional Analysis

**Mandiriri A**<sup>1,2,3</sup>, Chihota B<sup>2,4</sup>, Muula G<sup>4</sup>, Shamu T<sup>1,2,3</sup>, Taderera C<sup>1</sup>, Egger M<sup>2,6</sup>, Bolton-Moore C<sup>4,5</sup>, Chimbete C<sup>1</sup>, Wandeler G<sup>2,7</sup>

<sup>1</sup>Newlands Clinic, Harare, Zimbabwe, <sup>2</sup>Institute of Social and Preventive Medicine (ISPM), University of Bern, Bern, Switzerland, <sup>3</sup>Graduate School of Health Sciences, Bern, Switzerland, <sup>4</sup>Centre for Infectious Disease Research in Zambia (CIDRZ), Lusaka, Zambia, <sup>5</sup>University of Alabama, Alabama, United States of America, <sup>6</sup>Centre for Infectious Disease Research, University of Capetown, Capetown, South Africa, <sup>7</sup>Department of Infectious Diseases, Bern University Hospital, Bern, Switzerland

**Background:** One in two adults aged  $\geq 25$  years has arterial hypertension in sub-Saharan Africa. Body mass index (BMI) is associated with hypertension in high-income countries, but its use in Africa has been criticized partly due to lack of validation studies. We investigated the prevalence of arterial hypertension and its association with obesity, as determined by BMI or waist circumference (WC), among adults  $\geq 30$  years, living with or without HIV in urban Zambia and Zimbabwe.

**Materials and Methods:** We analysed cross-sectional data of 848 participants (404 (48%) people living with HIV (PLWH)), consecutively enrolled in our prospective cohort study between August 2019 and June 2023. We defined hypertension as a systolic blood pressure  $\geq 140$  mmHg and/or diastolic blood pressure  $\geq 90$  mmHg at two separate study visits, or current use of antihypertensive therapy. We defined central obesity as a WC  $\geq 80$  cm for women and  $\geq 94$  cm for men. Obesity was also defined as BMI of  $\geq 30$  kg/m<sup>2</sup>. We used logistic regression to examine the association between one of two measures of obesity and hypertension, adjusted for sex, age, physical activity, HIV status and hazardous alcohol consumption.

**Results:** Median age was 42 years among PLWH vs 41 years among people living without HIV,  $p=0.16$ . Among PLWH, median CD4+ count was 222 cells/mm<sup>3</sup> (IQR 97-406) and viral load was 28,146

copies/ml (IQR 279-211,202). Central obesity was in 71% (341/479) of women and 17% (63/369) of men. BMI-based obesity was in 28% (133/479) of women and 3% (12/369) of men. The prevalence of hypertension was 26%, with no difference by sex. Hypertension was in 36% with and 17% without central obesity, and in 46% with and 22% without BMI-based obesity. BMI-based obesity (adjusted odds ratio 1.9, 95% CI 1.5-2.3) and central obesity (3.1, 2.0-4.6) predicted hypertension in separate multivariable models. Hypertension was associated with increasing age (OR 2.6, 95% CI 2.1-3.3; WC-based model) and (OR 4.8, 95% CI 3.2-7.1; BMI based model) but not with HIV status.

**Conclusions:** We showed a high prevalence of arterial hypertension among adults in Southern Africa. BMI and WC were strong predictors of hypertension. Effective obesity management is important to address the hypertension burden in the region.

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## Mapping the Effectiveness of the Community Tuberculosis Care Programs: A Systematic Review

**Sejie G**<sup>1</sup>

<sup>1</sup>Boitekanelo College, Gaborone, Botswana

**Background:** Tuberculosis is a significant global public health threat, especially in countries with limited resources. To improve tuberculosis care, the World Health Organization emphasizes the importance of considering a TB patient's journey across a variety of connected settings and facilities. A systematic review was conducted to map previously conducted studies to identify existing community TB implementation models, their effectiveness on cost, and treatment outcomes.

**Materials and Methods:** Systematic search through various electronic databases MEDLINE, EBSCO (PsycINFO and CINAHL), Cochrane Library, EMBASE, WHO Regional Databases, gray literature, and hand-searched bibliographies was performed. Articles published in English between year 2000 and 2022 with a substantial focus on community



TB implementation models were considered for inclusion. Studies were excluded if the intervention was purely facility based and those focusing exclusively on qualitative assessments. Two reviewers used standardized methods to screen titles, abstracts, and data charting. Included studies were assessed for quality using ROBINS-I and ROB 2. Analysis of study results uses a PRISMA flow diagram and quantitative approach.

**Results:** A total of 6982 articles were identified with 36 meeting the eligibility criteria for analysis. Electronic medication monitors showed an increased probability of treatment success rate (RR 1.0–4.33 and the 95% CI 0.98–95.4) in four cohort studies in low- and middle-income countries with the incremental cost-effectiveness of \$434. Four cohort studies evaluating community health worker direct observation therapy in low- and middle-income countries showed a treatment success risk ratio of up to 3.09 with a 95% CI of 0.06–7.88. (32,41,43,48) and incremental costeffectiveness up to US\$410. Moreover, four comparative studies in low- and middle-income countries showed family directly observed treatment success risk ratio up to 9.07, 95% CI of 0.92–89.9. Furthermore, four short message service trials revealed a treatment success risk ratio ranging from 1.0 to 1.45 (95% CI fell within these values) with a cost-effectiveness of up to 350\$ compared to standard of care.

**Conclusions:** Community-based TB interventions such as electronic medication monitors, community health worker direct observation therapy, family directly observed treatment, and short message service can substantially bolster efficiency and convenience for patients and providers while reducing health system costs and improving clinical outcomes.

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## Évaluation du Dépistage des Virus de l'Hépatite B et C chez les Personnes Vivant avec le VIH : Une Analyse Rétrospective au CHU-YO, Ouagadougou (Burkina Faso)

**Gnamou A**<sup>1</sup>, **Ouedraogo A**<sup>1</sup>, **Zonon H**<sup>1</sup>, **Sanfo S**<sup>1</sup>, **Sawadogo A**<sup>3</sup>, **Diallo I**<sup>1,2</sup>, **Savadogo M**<sup>1,2</sup>, **Sondo A**<sup>1,2</sup>  
<sup>1</sup>CHU Yalgado Ouedraogo, Ouagadougou, Burkina Faso,  
<sup>2</sup>Université Joseph Ki-Zerbo, Ouagadougou, Burkina Faso,  
<sup>3</sup>Centre Hospitalier Universitaire Régional de Ouahigouya, Ouahigouya, Burkina Faso

**Contexte :** La co-infection VIH/VHB/VHC présente un défi majeur en matière de santé publique, affectant la qualité de vie des personnes vivant avec le VIH (PVVIH). Malgré cela, le dépistage systématique des virus hépatiques chez les PVVIH demeure sous-optimal, justifiant ainsi cette étude visant à évaluer la prévalence et les facteurs associés à ces co-infections au sein du CHU-YO à Ouagadougou.

**Matériels et Méthodes :** Il s'est agi d'une étude transversale descriptive avec une collecte rétrospective allant de Janvier 2016 à Aout 2021. Elle a concerné les dossiers des PVVIH de plus de 15 ans d'âge suivies dans 5 services du CHU Yalgado Ouedraogo à Ouagadougou. L'analyse des données s'est faite à l'aide du logiciel Epi info version 7.1.3.3.

**Résultats :** Sur un total 5188 dossiers colligés de patients séropositifs au VIH suivis au CHU-YO, au moins une sérologie hépatique virale a été réalisée chez 411 patients soit une proportion de réalisation du dépistage sérologique des virus hépatiques de 7,92%. Les patients avaient un âge moyen de 40,41 ± 11,31 ans. Le sex-ratio était de 0,58 en faveur des femmes (63,26%). Pour la sérologie du virus de l'hépatite B (AgHbs), 302 (5,8%) patients ont bénéficié du dépistage. Quant à celle du VHC (Ac Anti-VHC), 266 (5,1%) patients avaient réalisé la sérologie. Les cas de co-infections VIH/VHB, VIH/VHC et VIH/VHB/VHC étaient présentes chez respectivement 98 (23,8%), 14 patients (14,3%) et 4 (0,97%). La co-infection VIH/VHB était plus fréquente chez les femmes (62,2 %) tandis que celle VIH/VHC était plus fréquente chez les hommes (64,3%). Le VIH de



type 1 était majoritaire dans toutes les co-infections. La majorité des patients co-infectés VIH/VHB (59,2%) étaient au stade 1, de même que ceux VIH/VHC (71,4%).

**Conclusions :** Cette étude met en évidence des lacunes significatives dans le dépistage des virus de l'hépatite B et C chez les PVVIH au CHU-YO, avec seulement 7,92% des patients concernés. Le dépistage systématique et la vaccination chez les PVVIH non immunisés restent le moyen le plus efficace pour réduire la morbi mortalité liée aux infections aux virus hépatiques.

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## Understanding Experiences of Depression amongst Adolescents Living with HIV in Malawi

Mphonda S<sup>1</sup>, Sansbury G<sup>1</sup>, Gaynes B<sup>3</sup>, Bhushan N<sup>4</sup>, Pence B<sup>2</sup>

<sup>1</sup>UNC Project, Lilongwe, Malawi, <sup>2</sup>Department of Psychiatry, UNC School of Medicine, University of North Carolina, Chapel Hill, United States of America, <sup>3</sup>Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, United States of America, <sup>4</sup>RTI International Center for Communication Science, United States of America

**Background:** Sub-Saharan Africa has the world's largest population of adolescents living with HIV (ALWH). Compared to adults in the region, ALWH have lower rates of viral suppression and greater rates of lost loss to follow-up. ALWH are at risk of depression, which in turn affects adherence to medication and engagement in HIV care. This study explored the experiences of adolescents living with HIV and experiencing depression in Malawi to inform intervention development.

**Materials and Methods:** We conducted in-depth interviews, focus group discussions, and social support mapping with 25 adolescents living with HIV (ALWH), 13-19 years, diagnosed with depression to understand their experiences living with HIV and experiencing depression. ALWH were screened with the Beck's Depression Inventory II (BDI-II). The interviews were transcribed and thematically coded using Dedoose.

**Results:** Most participants attributed their depression to stigma and poor relationships with family and peers because of their HIV status. They described feeling unwanted and less important when people discovered they were HIV positive and were on ART. Self-isolation, sadness, and anger about how they acquired HIV were common, as were feelings of worthlessness and suicidal thoughts. ALWH stated that depression affects their social lives, academic commitments, relationships with family members, and HIV care, which leads to poor ART adherence and poor health. With their HIV status, some adolescents expressed uncertainty about achieving their goals. In addition to taking away their confidence, this uncertainty increases their sadness. There was good knowledge of the burden of depression but participants were not aware of the available treatment options and where to access care.

**Conclusions:** Addressing depression among adolescents is essential for addressing their mental and HIV-related health. Mental health interventions should be tailored to the needs of this population, including providing education and access to mental health services. The findings will inform the development of an intervention that can be implemented in countries with unmet needs for psychosocial counseling and support.

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## Intrinsic Capacity and Associated Factors in People Ageing with HIV in Nigeria

Ajayi O<sup>1</sup>, Okonkwo P<sup>1</sup>, Ajayi O<sup>2</sup>, Osayi E<sup>1</sup>

<sup>1</sup>Apin Public Health Initiatives, Nigeria, Abuja, Nigeria, <sup>2</sup>Community Medicine Department, University College Hospital, Ibadan, Nigeria

*HIV impacts the human biological system, which might compromise the domains of Intrinsic capacity (IC) in people living with HIV (PLHIV). This study aims to measure IC and associated factors among PLHIV and non-PLHIV in an HIV clinic in Plateau State, Nigeria*

A comparative cross-sectional study. A total of age-matched 217 PLHIV and 216 non-PLHIV were sampled. IC was measured using the WHO 9-item ICOPE brief screening tool across 6 IC domains; Cognitive, mobility, nutrition/vitality, visual, hearing, and depressive symptoms. The participant



with any sign of loss in any of the domain item(s) was categorized as “Impaired IC”, while those with no loss were categorized as “Not impaired”. Factors associated with IC in PLHIV were assessed using binary logistic regression at  $p$  of less than 0.05.

The mean ages were  $40.7 \pm 10.2$  and  $39.7 \pm 10.2$  years for the PLHIVs and the non-PLHIVs participants respectively ( $p = 0.16$ ). Overall, impaired composite IC was 10 times more among the PLHIV participants compared to the non-PLHIV. (PLHIV = 65.8%, Non-PLHIV = 34.2%, Odd ratio = 10.4,  $p < 0.01$ ). The differences between the two groups were significant across all the IC domains except mobility; Cognitive (PLHIV = 72.6%, Non-PLHIV = 27.4%,  $p < 0.01$ ), vitality (PLHIV = 66.7%, Non-PLHIV = 33.3%,  $p < 0.01$ ), visual (PLHIV = 71.6%, Non-PLHIV = 28.4%,  $p < 0.01$ ), hearing (PLHIV = 62.5%, Non-PLHIV = 37.5%,  $p = 0.04$ ), depressive symptoms (PLHIV = 70.9%, Non-PLHIV = 29.1%,  $p < 0.01$ ). Factors associated with participants' IC in the PLHIV group after adjusting for confounders were the current age of the participants and the participants' baseline CD4 count. The higher the age (Adjusted OR = 1.13, 95%CI = 1.05 – 1.21,  $p < 0.01$ ) and the baseline CD4 count (AOR = 1.01, 95% CI 1.00 – 1.01,  $p = 0.04$ ), the higher the likelihood of impaired IC. IC, the homeostatic reserve to cope with aging is compromised in PLHIV compared to non-PLHIVs. A functional approach to geriatric assessment is needed among PLHIVs to ensure early detection of IC decline and functional limitation.

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## Utilizing the Quality Implementation Framework to Integrate HIV and Noncommunicable Disease Programs in Low-Resource Settings: Outcomes from an Integrated HIV/Diabetes Mellitus Pilot in Southern Nigeria

**Gana B**<sup>1</sup>, Elechi I<sup>2</sup>, Enwongo A<sup>1</sup>, Akpan U<sup>1</sup>, Ukpong K<sup>2</sup>, Okpon A<sup>2</sup>, George G<sup>2</sup>, Eyo G<sup>1</sup>, Ekpar G<sup>2</sup>, Charles C<sup>2</sup>, Aloro E<sup>2</sup>, Ekanem E<sup>2</sup>, Onwah O<sup>1</sup>, Nwanja E<sup>1</sup>, Unimuke M<sup>1</sup>, Okolo C<sup>1</sup>, Toyo O<sup>1</sup>, Nwangeneh C<sup>3</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Obiora-Okafor C<sup>4</sup>, Idemudia A<sup>4</sup>, Nwadike C<sup>4</sup>, Kakanfo K<sup>4</sup>, Pius B<sup>4</sup>, Onimode B<sup>4</sup>, Raji A<sup>5</sup>, Oyawola B<sup>4</sup>, Kagniniwai B<sup>5</sup>, Asaolu O<sup>4</sup>, Bashorun A<sup>6</sup>, Gambo A<sup>7</sup>, Onime D<sup>4</sup>, Pius J<sup>4</sup>, Oyelaran O<sup>4</sup>, Goldstein R<sup>4</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Eyo A<sup>1</sup>

<sup>1</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>2</sup>Achieving Health Nigeria Initiative, Uyo, Nigeria, <sup>3</sup>Family Health International, Uyo, Nigeria, <sup>4</sup>Office of HIV/AIDS and TB, United States Agency for International Development, Abuja, Nigeria, <sup>5</sup>Office of HIV/AIDS, United States Agency for International Development, Washington, USA, <sup>6</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, Nigeria, <sup>7</sup>National Agency for the Control of AIDS, Abuja, Nigeria

Diabetes mellitus (DM) increases the risk of health complications among people living with HIV (PLHIV) and requires comprehensive, coordinated care. However, effective integrated care models for HIV and DM are scarce in low-resource settings. This study describes the outcomes of a 12-week pilot of integrated HIV/DM services in Akwa Ibom, Nigeria.

Meyer's Quality Implementation Framework was adapted to pilot an integrated HIV/DM program at six health facilities in Akwa Ibom state, Nigeria, where DM services are available between May and July 2023. In Phase 1, desk reviews, advocacy to the relevant stakeholders, and focus group discussions (FGD) with clinicians on barriers and facilitators were conducted. In Phase 2, interdisciplinary teams including clinicians, nurses, and ancillary staff were formed and trained on HIV/DM service delivery. Guidance documents and



implementation strategies based on the FGD were developed. In Phase 3, PLHIV were screened for DM using a standard symptom checklist at every clinic visit, and those who screened positive (presence of  $\geq 1$  symptom) were tested with a blood glucometer. PLHIV with positive test results (blood sugar  $>$  normal reference range) were referred for expert care through escort services, followed up with phone calls, or provided transport support. PLHIV with diabetes received additional counseling and adherence support via check-in phone calls/SMS, and home visits. In Phase 4, data from clinic attendance, DM screening outcomes, results of blood sugar tests, and referrals for specialized care, were collected, disaggregated by age and sex, and reviewed daily and weekly on WhatsApp and the District Health Information System. This was routinely shared with stakeholders.

In total, 5,048 PLHIV visited the pilot facilities during the period, and 88.0% (4,442/5,048) were screened for DM. 7.3% (323/4,442) screened positive, of which 87.9% (284/323) were tested for DM, and 6.0% (17/284) tested positive. 15 PLHIV completed referrals for expert care and received lifestyle modification counseling, while 12 also received DM medications.

Integration of DM into HIV care provides an opportunity to identify co-morbidities among PLHIV. Further studies to evaluate if PLHIVs can sustain the long-term costs of DM treatment will be necessary.

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## **Molecular Detection and Association of HIV and HSV-2 IgM Co-infection Among Asymptomatic Pregnant Women in Port Harcourt, Nigeria**

**Diamreyan O<sup>1</sup>**, Kalio A<sup>1</sup>, Horsfall S<sup>1</sup>

<sup>1</sup>University of Port Harcourt, Department of Microbiology, River State, Nigeria, Choba, Nigeria

Herpes Simplex Virus type-2 (HSV-2) is a common human pathogen that can cause primary and

recurrent infection of the mucous membrane. Genital infection with HSV-2 facilitates the acquisition of HIV, both mutually reinforcing infection. Infection with Herpes Simplex Virus type 2 is a significant public health problem being the leading cause of genital ulcerative disease. This study aimed at Molecular detection and association of HIV and HSV-2 IgM co-infection among asymptomatic pregnant women in Port Harcourt, Nigeria. This is a cross-sectional study conducted at the antenatal unit of the University of Port Harcourt Teaching Hospital (UPTH), River State. A total of 168 consenting pregnant women were selected. The study involved collecting socio-demographic data and laboratory determination of HSV-2 immunoglobulin M (IgM) and HIV seroprevalence using enzyme linked immunosorbent assay (DIAPRO Diagnostic Bioprobes, Milan, Italy) and ALERE determine/STAT PAK respectively. Data analysis was done using graph pad statistical package. Chi square analysis was used to determine the correlation of the infection with socio-demographic factors. The seroprevalence for HSV-2 IgM was 29.8% (50/168) of the respondents while there was no co-infection between IgM and HIV. All HIV respondents were married. Majority are trader having tertiary educational qualification and are in a monogamous relationship. With regard to IgM seropositivity age, marital status, religion and gestation period were significantly associated with IgM while educational level, occupation, type of family and parity were not significantly associated with HSV-2 IgM. There is a significant correlation between HIV seropositivity with parity and history of sexually transmitted disease while there is no significant difference between HIV prevalence with age, marital status education level occupation type of family, religion history of abortion and the prevalence of HSV-2 was high among women of childbearing age in Port Harcourt, Nigeria. Effort should be made to increase the awareness of HSV-2 and HIV infection among the childbearing populace and serological testing of pregnant women should be included as a routine test.



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## Length of Hospital Stay, In-Patient Mortality, and Factors Associated with Mortality Among HIV-Cryptococcal Meningitis Patients Receiving Liposomal Amphotericin B at Tertiary Hospitals in Uganda

Namuju O<sup>1</sup>, Kwizera R<sup>1</sup>, Tugume L<sup>1</sup>, Meya D<sup>1</sup>, Boulware D<sup>2</sup>

<sup>1</sup>Infectious Diseases Institute, College of Health Sciences Makerere University, Kampala, Uganda, <sup>2</sup>University of Minnesota, Minneapolis, USA

Cryptococcal meningitis (CM) remains the second most common and lethal opportunistic infection among People Living with HIV (PLWHIV) in sub-Saharan Africa. Currently, patients are managed on single high-dose liposomal amphotericin B and flucytosine. However, there is no sufficient data on whether the new treatment regimen has an effect on reducing inpatient mortality and length of hospital stay in the real-world setting.

We aimed to investigate the proportion of inpatient mortality, length of hospital stay (LOS), and factors associated with mortality among patients with HIV-associated CM receiving liposomal amphotericin B-flucytosine regimen. This was a cross-sectional study conducted to review medical records of patients admitted between December 2022 and May 2023 at 11 tertiary hospitals in Uganda. Medical records of 173 HIV-CM patients were reviewed and captured using Kobo Collect. Univariate descriptive statistics were used to summarize the background characteristics. Modified Poisson regression was used to ascertain factors associated with mortality at bivariable and multivariable levels. Associations were presented through adjusted prevalence ratios with their 95% confidence intervals. Data were analyzed using STATA v15.

Of the 173 patients' medical records reviewed, the majority (58.4%), were males with a median age of 38 years (IQR= 30, 48) and over half (55.5%) were married. Forty percent of the patients had altered mental status (GCS<15) on admission. Overall, inpatient mortality for liposomal amphotericin B was 35.8% (compared to 42% of amphotericin B deoxycholate) and this significantly varied by health facility (range 7.1-100%). The median LOS

was 7 days (IQR = 3, 12). Factors associated with mortality were male sex [adjusted prevalence ratio (APR); 1.87, 95%CI (1.21-2.87)], p-value=0.005, admission with a convulsion [APR, 1.86, 95%CI (1.21-2.86), p-value=0.005], altered mental status [APR; 1.66, 95%CI (1.07-2.57), p-value=0.023], and presence of a comorbid condition [APR, 2.26 95%CI (1.44-3.53), p-value=0.006]. Therapeutic lumbar punctures were significantly associated with reduced mortality [APR; 0.47, 95%CI (0.29-0.73), p-value=0.001].

Liposomal amphotericin B regimen has lower mortality than deoxycholate in the real-world setting. Patients on average spend more than a week in hospital. Male sex, admission with a convulsion, altered mental status, and comorbid conditions were independently associated with mortality. Therapeutic LPs significantly reduced inpatient mortality.

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## Insights Into Drivers of Mental Illness, and Design of Mental Health Interventions for Adolescents Receiving Sexual and Reproductive Health (SRH) Services: Perspectives from Adolescents and Mental Health and SRH Providers

Wallace M<sup>1</sup>, Bagg K<sup>1</sup>, Vundhla P<sup>1</sup>, Sindelo S<sup>1</sup>, Fuzile P<sup>1</sup>, Mathola N<sup>1</sup>, Rousseau E<sup>1</sup>, Bekker L<sup>1</sup>

<sup>1</sup>Desmond Tutu Health Foundation, Cape Town, South Africa

**Background:** Mental health issues often manifest initially during adolescence. Integrating mental health interventions into SRH services for adolescents offers an opportunity to address these issues, also known to impact behaviors related to HIV prevention and treatment outcomes. Stakeholder inputs on drivers of mental health issues and recommendations for intervening are key to designing relevant, responsive and effective interventions that can be integrated within established service delivery platforms.

**Materials and Methods:** As part of an implementation science project (FastPREP), scaling



PrEP through a hub and spokes model offering multiple ways for young people to access PrEP, formative qualitative research was conducted with adolescent mental health providers and researchers, FastPrEP field staff and adolescents 15 to 19 years receiving FastPrEP services. Ten in-depth interviews with mental health providers; two focus group discussions with staff (n = 16); and a co-design workshop with 25 adolescents were conducted to explore perceived influences on mental health and integration of a mental health intervention into this model. Participants were purposively recruited and data were analysed using thematic analysis.

**Results:** Noting the unmet need for mental health support for adolescents, all stakeholder groups identified drivers of mental health issues at individual, interpersonal, community and structural levels, however mental health providers highlighted structural drivers eg. Community violence and lack of services, while staff and adolescents emphasized individual and interpersonal drivers eg. Family and peer relationships. All noted use of alcohol and other substances as a common coping mechanism by adolescents. Mental health providers favored building problem-solving, interpersonal, and emotional regulation skills as key components of a mental health intervention, while staff and adolescents identified education on alcohol and substances, and building assertiveness and interpersonal skills. All groups acknowledged the value of using SRH services as an opportunity to reach adolescents, and were supportive of a peer-led model, alongside adequate training and support for peers.

**Conclusions:** More mental health support for adolescents is needed. Building effective interpersonal skills and adolescents' sense of control and assertion, while equipping them with positive coping skills to manage their emotions, are strategies supported by key stakeholders, and in addition have a strong evidence base.

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## Lessons Learned from Implementation of Two Methods of Community TB Screening in Malawi

Nkosi D<sup>1</sup>, Phiri S<sup>1,2</sup>, J. van Oosterhout<sup>1</sup> J<sup>1</sup>, Talama G<sup>1</sup>, Njala J<sup>1</sup>, Kadyremwana B<sup>1</sup>, Matewera S<sup>1</sup>, Mwamlima P<sup>1</sup>, Nkhono Z<sup>1</sup>, Mbalanga C<sup>1</sup>,

Masangano T<sup>1</sup>

<sup>1</sup>Partners In Hope, Lilongwe, Malawi, <sup>2</sup>School of Global and Public Health, Kamuzu University of Health Sciences., Lilongwe, Malawi

**Background:** Active TB case finding in the community is a complementary intervention to passive case finding, contributing 10% of notified TB cases in Malawi. It also aids early TB diagnosis and treatment. We aimed to assess TB screening outcomes for two active TB case finding approaches in routine programmatic settings in Malawi.

**Materials and Methods:** Partners in Hope (PIH) conducted TB screening in communities of Chikwawa, Nsanje and Lilongwe districts in collaboration with Ministry of Health, with funding from USAID. Mobile diagnostic unit vans (MDU) and door-to-door approaches were used to reach community members. To determine presumptive TB status, MDU teams used a parallel screening algorithm with the WHO standard 4-symptom screen and digital chest X-ray imaging coupled with computer-aided software for interpretation. Community volunteers conducted door-to-door TB screening with the WHO standard 4-symptom screen. Individuals with presumptive TB who could submit sputum, had MTB Xpert or microscopy testing according to MOH guidelines. Samples were examined on-site in MDU vans, while taken to nearest facility in the door-to-door approach. Individuals who could not submit sputum and those with negative sputum results underwent clinical evaluation.

**Results:** From June to September 2023, we screened 43,605 community members, 57% females. MDU screening had higher TB presumptive yield, 6.3% (389/6,162) vs 3.8% (1,413/37,443); higher TB case yield, 0.80% (49/6,162) vs 0.15% (58/37,443); and, resulted in a higher proportion of clinical diagnosis, 49% (24/49) vs 19% (11/58). Overall, less men were reached





with both methods than women (18,965 vs 24,640) but men had higher TB case yield, 0.32% (60/18,965) vs 0.19% (47/24,640); MTB Xpert contributed 79% (57/72) of bacteriologically confirmed TB cases (one rifampicin resistance case); TB cases had 19% (20/107) HIV prevalence.

**Lessons learned:** Community screening with MDU vans had higher TB case yield than door-to-door screening.

**Recommendations:** MDU is costly, warranting a cost-effectiveness evaluation. Innovative male-specific approaches need to be explored.

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## Predictors of Mortality among TB/HIV Coinfected Patients in Effia Nkwanta Catchment Area, Ghana

Appiah M<sup>1</sup>, Nimako E

<sup>1</sup>Effia Nkwanta Regional Hospital, Sekondi, Ghana

Tuberculosis (TB) is one of the leading causes of death globally. According to the World Health Organization (WHO), HIV/TB coinfecting patients experienced about 170,000 deaths in 2020 on the African continent. Until 2020, Ghana was classified among the 22 countries with a high TB/HIV burden worldwide. Ghana reported 8,100 mortalities among TB/HIV coinfecting patients in the same year. Despite its relatively high burden and mortality rate not much is known about the factors associated with mortality amongst TB/HIV coinfecting patients in the Ghanaian context. This study contributes to the ongoing discussion by identifying the risk factors associated with TB mortality. The population consisted of all patients diagnosed with TB and put on treatment from January 2007 to December 2020 at Effia Nkwanta Catchment area, Ghana. The patients were grouped into HIV-positive and HIV-negative based on their HIV status. We estimated the mortality rate in each of the two groups and the difference between the two groups using the binomial exact method. We fitted a multiple logistic regression model to the data to determine which of the covariates (age, sex, type of tuberculosis, kind of tuberculosis treatment and type of patient) is

associated with statistically significant odds of mortality. In all 1630 patients were included in this study. We found that the mortality rate was 17.3% amongst the TB/HIV coinfecting patients and 8.2% amongst the HIV-negative TB patients. The difference between the two groups was 9.1% (95% CI 3.1 to 15.2%,  $p < 0.01$ ). Univariate and multivariate logistic regression showed that positive TB test results were associated with a lower odds ratio of dying ( $aOR = 0.36$ ,  $p < 0.01$ ). None of the other covariates was statistically significant ( $p > 0.05$ ). Our study found that a positive diagnosis of tuberculosis was associated with lower odds of dying during treatment for tuberculosis. This suggests that TB control programs should as much as possible try to establish a positive diagnosis of TB in HIV patients before initiating treatment. Moreover, health systems should equip health facilities with the diagnostic capacity to diagnose other diseases that might easily be confused with TB in HIV patients to reduce mortality among TB/HIV patients.

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## The Effect of a Theory-Based Guideline Dissemination Intervention on Health Worker Adherence to Hypertension Screening for Adolescents Living with HIV in Ghana: A Pragmatic Cluster-Randomized Study

Adu-Gyamfi R<sup>1,2</sup>, Enos J<sup>2</sup>, Shabanova V<sup>3</sup>, Yeboah K<sup>4</sup>,

Ayisi Addo S<sup>1</sup>, Lartey M<sup>4,5</sup>, Paintsil E<sup>3</sup>, Torpey K<sup>2</sup>

<sup>1</sup>Ghana National Aid/Sti Control Programme, Accra, Ghana,

<sup>2</sup>School of Public Health, University of Ghana, Accra, Ghana,

<sup>3</sup>Yale School of Public Health, Yale, USA, <sup>4</sup>University of Ghana

Medical School, Accra, Ghana, <sup>5</sup>Korle Bu Teaching Hospital

**Background:** Due to a high prevalence of hypertension (29%) in adolescents living with HIV (ADLHIV) in Ghana, WHO's recommendation to integrate non-communicable disease care into HIV services was adopted. This was expanded to include checking the blood pressure (BP) of persons living with HIV 3 years and older at each clinical visit. This study aimed to assess the



effectiveness of a theory of planned behaviour (TPB)-based guideline dissemination package in addressing the poor adherence to this recommendation for ADLHIV.

**Materials and Methods:** A parallel, multicenter cluster-randomized study was conducted between September 2022 and July 2023. The clusters were 20 antiretroviral therapy (ART) sites in the Greater Accra Region of Ghana with the highest burden of adolescent HIV. They were assigned equally to the two study arms by a computer-generated randomization list. The control group received the standard dissemination package comprising the distribution of guidelines to facilities, a classroom-based orientation on the updates and one supportive visit by the National AIDS/STI Control staff. In addition to this, the intervention group received a tested multicomponent TPB-based intervention comprising orientation of ART staff on hypertension risk among ADLHIV in Ghana; monthly feedback and mentorship from a facility expert; orientation on BP measurement approaches and provision of BP centile charts and pediatric-friendly sphygmomanometers. The primary outcome was the rate of BP checks, expressed as the proportion of adolescents whose BPs were checked during clinical visits. Blinded investigators assessed this through a clinical records review before and six months after intervention implementation.

**Results:** The records of 454 (Intervention n=233, Control n=221) adolescents were reviewed. Pre-intervention, there was no difference in the mean proportion of BPs checked during clinical visits (Intervention: 20.7%(95%CI:6.15-35.22); Control:19.1%(95%CI:3.86-34.30),  $p=0.89$ ). Although both groups observed a within-group increase in proportions screened, the intervention group had a higher mean proportion at follow-up (73.2%(95%CI:69.1-77.3) compared to the control group (36.3%(95%CI:25.6-47.1),  $p=0.0001$ ).

**Conclusions:** The intervention improved adherence to guidelines for hypertension screening among ADLHIV. Dissemination of such guidelines by Country Programmes should, therefore, be supported by context-specific evidence, continuous mentorship using available human resources and availability of relevant job aids.

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## Prevalence and Risk Factors of Chronic Kidney Disease among People Living with HIV Older than 50 Years at Newlands Clinic, Zimbabwe

Chimbetete C<sup>1</sup>, Taderera C<sup>1</sup>, Shamu T<sup>1</sup>

<sup>1</sup>Newlands Clinic, Harare, Zimbabwe

**Background:** Renal dysfunction is independently associated with morbidity and mortality among people living with HIV (PLHIV). Elderly PLHIV face numerous health challenges including deterioration of kidney function due to multiple risk factors. We assessed the burden of chronic kidney disease (CKD) and its associated risk factors among PLHIV older than 50 years enrolled in an HIV treatment program in Zimbabwe in 2024.

**Materials and Methods:** Routinely collected patient data were exported from the clinic's electronic records to excel and analyzed using Stata version 16.1. Kidney function was assessed by estimated glomerular filtration rate (eGFR) calculated using the chronic kidney disease epidemiology collaboration (CKD-EPI) equation. We defined CKD as  $\geq 2$  eGFR measurements  $< 60$  mL/min/1.73m<sup>2</sup> for  $\geq 3$  months and determined the prevalence of moderate, and severe kidney dysfunction among participants with CKD defined as eGFR  $< 60$ , and  $< 30$  mL/min/1.73m<sup>2</sup>, respectively. We used multivariable logistic regression to determine factors associated with CKD.

**Results:** Among 2 472 adults aged  $> 50$  years, 1 517 (61%) were female and 955 (39%) were male. The median age was 57 years (Interquartile range (IQR): 53-62) and the median BMI was 26 (IQR: 23-31). The median nadir CD4 cell count was 180 cells/mm<sup>3</sup> (IQR: 93-330) and median duration of antiretroviral therapy (ART) was 14 years (IQR: 9.8-17.4), 99% had a viral load of  $< 1000$  copies/ml. Hypertension was common (n=1389, 56%). A total of 502 (20.3%) had CKD. Among participants with CKD, 465 (92.6%) and 37 (7.4%) had moderate and severe CKD, respectively. Hypertension (aOR 1.6, 95%CI 1.3-2,  $p < 0.001$ ), was the most significant risk factor associated with CKD.



**Conclusions:** Our data show a high burden of CKD among elderly PLHIV highlighting the need for routine renal function monitoring. Early ART initiation and adequate control of hypertension and HIV may play a role in improving renal function in elderly PLHIV.

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## Association of Maternal Depression with Developmental Disorder Likelihood in Ugandan Children Perinatally Exposed and Unexposed to HIV

**Awadu J<sup>1</sup>**, Zalwango S<sup>2</sup>, Sikorskii A<sup>1</sup>, Abbo C<sup>3</sup>, Giordani B<sup>4</sup>, Ezeamama A<sup>1</sup>

<sup>1</sup>Michigan State University, East Lansing, United States,

<sup>2</sup>Kampala Capital City Authority, Kampala, Uganda, <sup>3</sup>Makerere University, Kampala, Uganda, <sup>4</sup>University of Michigan, Ann Arbor, United States

**Background:** Developmental disorders (DD) are rising globally including among children exposed and unexposed to HIV. Caregiver reports of child behavior are often used to produce indices for the probability of dependent children's autism spectrum disorder (ASD), attention deficit and hyperactivity disorder (ADHD), emotional behavioral disorder (EBD), and functional impairment (FI). The purpose of this study was to evaluate how caregiver's own depression may be associated with their ratings of 6–18-year-old children among Ugandan adult caregivers living with HIV (n=381) and community controls (n=218).

**Materials and Methods:** Children (n=604) and their primary caregivers were assessed at enrollment into two cohort studies, and 6 and 12 months later. Caregiver depression level was measured using the Hopkins Symptom Checklist-25 (HSCL-25) depression items and categorized as low, moderate or high based on tertiles. Caregiver responses to standardized items from the third edition of the Behavioral Assessment System for Children (BASC-3) were used to calculate indices of developmental disorders and functional impairment. Standardized mean differences (SMDs) and 95% confidence intervals (CIs) for the average difference over time in each index were

estimated according to caregiver depression level using longitudinal mixed effects models in Statistical Analysis Software (v.9.4), with adjustment for caregiver demographic factors.

**Results:** Low vs. high caregiver depression was associated to lower index (probability) for ASD (SMD: -0.33; 95%CI: -0.55, -0.12), ADHD (SMD: -0.36; 95%CI: -0.57, -0.15), EBD (SMD: -0.57; 95%CI: -0.78, -0.36), and FI (SMD: -0.46; 95%CI: -0.69, -0.24) over 12 months. Moderate vs. high depression was also associated with lower index for EBD (SMD: -0.28; 95%CI: -0.47, -0.09), and FI (SMD: -0.17; 95%CI: -0.35, -0.00) over 12 months.

**Conclusions:** Caregiver's own depression is associated with how caregivers evaluate behavior of their dependent children. The resulting developmental disorder indices need further evaluation in terms of the influence of caregiver depression. If possible, multidimensional assessments of developmental disorders should include assessments of both child and caregiver, especially when caregiver is a proxy reporting on child behavior.

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## Violence and Depression Among Men Who Have Sex with Men in Tanzania

**Mgopa L<sup>1</sup>**, Mbwambo J<sup>1</sup>, Likindikoki S<sup>1</sup>, Pallangyo P<sup>2</sup>

<sup>1</sup>Muhimbili University Of Health And Allied Sciences, Dar Es Salaam, Tanzania, United Republic of, <sup>2</sup>Jakaya Kikwete Cardiac Institute, Dar es Salaam, Tanzania

**Background:** Men who have sex with men (MSM) remain to be at risk of contracting HIV, victimization and mental illness such as depression on top of many other bio-psycho-socio challenges they face as a result of their sexual orientation.

**Materials and methods:** A sample of 345 MSM using a respondent driven sampling technique was enrolled. Revised Conflict Tactic Scale, PHQ-9 and questions adapted from the TDHS 2010 were used to assess for violence, depression and HIV-risk behaviors respectively. Continuous and categorical variables were analyzed with student's t-test and chi-square test respectively. Logistic regression



analyses were performed to assess for predictors of depression and HIV-risk behaviors. All tests were two sided and  $p < 0.05$  was taken as significance level.

**Results:** Overall, 325 (94.2%) of participants experienced any form of violence, with emotional violence constituting the majority (90.1%), while physical and sexual violence were reported by 254 (73.6%) and 250 (72.5%) of participants respectively. Depressive symptoms were present in 245 (70.0%) and participants who experienced violence had a 3 times increased risk of depressive symptoms compared to their violence-free counterparts,  $p < 0.001$ . On the other hand, participants who experienced any form of violence showed an over 11 times increased rate of depressive symptoms compared to their counterparts who were violence free,  $p < 0.001$ . Violence experience was found to be the strongest associated factor for depressive symptoms.

**Conclusions:** The rates of violence and depressive symptoms amongst MSM are remarkably high thus necessitating extensive interventions. In view of this, deliberate measures to deal with the reported high rates necessitate joint intervention efforts from the policy makers, health providers and community at large.

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## High In-hospital Mortality of HIV-Positive Patients Despite Timely Availability of Tests and Drugs for Advanced HIV Disease

Malunda C<sup>1</sup>, Kapenga D<sup>1</sup>, Mseke B<sup>1</sup>, Rambiki E<sup>1</sup>, Steffen H<sup>2,3</sup>, Huwa J<sup>1</sup>, Wallrauch C<sup>1</sup>, Heller T<sup>1,4</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>Department of Gastroenterology and Hepatology, University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany, <sup>3</sup>Hypertension Center, University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany, <sup>4</sup>International Training and Education Center for Health, University of Washington, Seattle, United States of America

**Background:** Advanced HIV disease (AHD) assessment is recommended for HIV-positive (HIV+) in-patients. Lighthouse established a service

model for comprehensive support of HIV+ patients admitted to referral hospitals ensuring timely AHD testing and daily availability of antiretroviral, tuberculosis, and antifungal drugs for rapid treatment initiation. The effect on mortality is not clear.

**Materials and Methods:** We correlated CD4 counts, Serum-Cryptococcal Antigen (S-CrAg) and Urine-Lipoarabinomannan (U-LAM) results, and other possible prognostic factors with in-hospital mortality. Data was recorded at Kamuzu Central Hospital, Lilongwe, Malawi for all adult HIV+ patients after admission to medical wards. The outcome of hospital stay was recorded from Nov 2022 to May 2023.

**Results:** During the six-months 401 HIV+ adult patients were seen; median age 39 years [IQR 30-49], 50.1 % were female, median BMI 21.5 kg/m<sup>2</sup> [IQR 19.1-23.8]. CD4 counts were done for 395 patients (98.5%); 218 (54.4%) with CD4 < 200 cells/μl. S-CrAg was done in 195 (89.5%) of these patients (positive 11.3%); U-LAM in 188 (86.2%- positive 29.8%. S-CrAg and U-LAM were done for clinical reasons in 19 (positive 5.3%) and 17 (positive 11.8%) patients with CD4 > 200, respectively. In-hospital mortality was 25.7% [95% CI 21.3 - 30.0%]; sex, age or BMI < 18.5 were not significantly associated with mortality. Median CD4 of patients who died in hospital was 132.5 cells/μl [IQR 54-279] compared to 181 cells/μl [IQR 82-353] in survivors ( $p = 0.051$ ). Mortality in patients with CD4 < 200 was 28.9% [95%CI 22.8-35.0] compared to 22.0% [95%CI 15.8-28.3] in patients with CD4 > 200 ( $p = 0.134$ ). Also CD4 < 100/cells/μl (mortality 32.1%,  $p = 0.051$ ) or CD4 < 50/cells/μl (33.3%,  $p = 0.165$ ) showed no significant difference in mortality compared to higher group. Patients with CD4 < 200 cells/μl with U-LAM positive had a higher mortality (41.4%) compared to U-LAM negative patients (21.5%;  $p = 0.005$ ). Mortality was not statistically different between S-CrAg positive (34.8%) or negative (25.9%) patients ( $p = 0.455$ ).

**Conclusions:** Our service model provides comprehensive AHD care for in-patients in referral hospitals. More than half of patients had AHD; U-LAM and S-CrAg testing had high yields. Low CD4 counts and positive S-CrAg were not significantly associated with in-hospital mortality in contrast to positive LAM tests. Despite continuous, immediate availability of treatment for opportunistic infections in-hospital mortality was high.



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## Prevalence and Risk Factors of Mental Disorders in People Infected with HIV at Army Medical and Surgical Center of Bamako

Diallo L<sup>1</sup>, Cissoko Y<sup>2,3</sup>, Sylla O<sup>1</sup>, Minta D<sup>2,3</sup>, Dao S<sup>2,3</sup>, Seydi M<sup>4,5</sup>

<sup>1</sup>Army Medical and Surgical Center, Bamako, Mali, <sup>2</sup>Infectious Diseases Department, Point G Teaching Hospital, Bamako, Mali, <sup>3</sup>University of Science, Technics and Technologies, Bamako, Mali, <sup>4</sup>Infectious Diseases Department, Fann National Teaching Hospital, Dakar, Senegal, <sup>5</sup>Cheick Anta Diop University, Dakar, Senegal

**Background:** Mental disorders are highly prevalent among people with HIV. These disorders jeopardize management of PLHIV and can lead to treatment failure. The objective of this study was to estimate prevalence and to describe mental disorders, and to identify risk factors influencing mental health of PLWHIV.

**Materials and Methods:** This was a cross-sectional study at Army Medical and Surgical Center of Bamako from January 2018 to November 2023 in HIV-infected patients initiating HAART.

Sociodemographic, clinical and biological data regarding HIV infection and psychiatric disorders were collected.

Patients underwent periodical psychiatric examination. The diagnosis of psychiatric disorders was made according to the DSM-V criteria using the MINI international Neuropsychiatry interview as well as the Beck depression scale, the Hamilton anxiety rating scale, and the PCL. Data analysis was performed using Epi Info 7.

**Results:** We enrolled 137 patients. The mean age was 31.27±17 years. There was a female predominance (sex ratio: 0.59). The overall prevalence of mental disorders was 5.1%. Seventy-eight patients developed disorders during follow-up. Mental disorders were dominated by anxiety and stress following HIV infection diagnosis concerning 57% of patients. Post-traumatic stress disorders tend to appear in months following the diagnosis (mean delay: 27±11 days) and affected 1.9% of patients. Depressive symptoms occurred later (mean delay: 17±7 months) and 1.4% of patients experienced depression. Mental disorders were associated with poverty, stigma, and not

sharing HIV status. Mean CD4 count was 141 ± 56 cells/mm<sup>3</sup> in mental disorders group vs 216 ± 89 cells/mm<sup>3</sup> in no mental disorder group ( $p=3.10\cdot 10^{-3}$ ) and mean viral load was 968 ± 347 copies vs 676 ± 389 copies ( $p<10^{-3}$ ). Treatment failure rate was significantly higher in mental disorder group (49%) as compared to no mental disorder group [(17%),  $p<10^{-3}$ ]. Psychotropic drugs were prescribed in 61% of cases and 57% benefited from psychotherapy.

**Conclusions:** Mental disorders are frequent during HIV infection. They are dominated by anxiety and stress in early stage or depression and PTSD in long term. They can lead to therapeutic failure, hence integrating mental healthcare into HIV care may improve mental health and HIV treatment.

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## The Interplay between Severity of Psychological Disorders and Viral Load among HIV Patients at OI/ART Clinic in Bulawayo, Zimbabwe

Machingauta K<sup>1</sup>, Shoko O<sup>1</sup>, Mazivisa S<sup>1</sup>, Takarinda K<sup>1</sup>, Masiye K<sup>1</sup>, Chimberengwa P<sup>1</sup>, Dhodho E<sup>1</sup>, Hove M<sup>1</sup>

<sup>1</sup>Organization for Public Health Interventions and Development, Bulawayo, Zimbabwe

**Background:** Zimbabwe has made significant strides in HIV management, with the current HIV prevalence rate standing at 11%. However, the country has also seen a rise in psychosocial disorders, such as depression and generalized anxiety. These disorders are thought to be associated with high viral loads, a key factor in the progression of HIV infection. The severity of these disorders can be quantified using validated psychometric instruments such as the Patient Health Questionnaire (PHQ9) and the Generalized Anxiety Disorder Scale (GAD 7). This study aimed to investigate the association between viral load and the severity of depression and anxiety in adults living with HIV in Zimbabwe.

**Materials and Methods:** The study was a retrospective cross-sectional study that analyzed data from 114 people living with HIV (PLHIV) who



visited the United Bulawayo Hospital (UBH) Opportunistic Infections (OI) clinic between the 1st of October and the 31st of December 2023 for various OI services.

**Results:** The median age of the participants was 51 years, with the majority being female (64%). The viral load coverage was 98%, with a suppression rate of 93%. 16% of the participants had generalized anxiety ( $GAD7 \geq 5$ ), and 10% had depression ( $PHQ9 \geq 5$ /suicidal ideation). We found a strong link between unsuppressed viral load and psychological disorders. Specifically, the odds of having either depression or generalized anxiety were 3.8 times higher in the unsuppressed group (38%) compared to the suppressed group (13%), with a 95% confidence interval of (0.828421; 17.95893).

**Conclusions:** Our findings highlight a significant interplay between the severity of psychological disorders and viral load among HIV patients. This underscores the importance of comprehensive care for PLHIV that addresses not only their physical health but also their mental well-being. However, it's important to note that our study was conducted with a relatively small sample size from a single health facility, which may not be representative of the broader population of PLHIV in Zimbabwe or other regions. This limitation underscores the need for further research with larger and more diverse samples to validate and expand upon our findings.

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## The Prevalence of Concurrent Pulmonary and Extrapulmonary Tuberculosis in Uganda: A Retrospective Study

Nalukenge S<sup>1</sup>, Nantaayi B<sup>2</sup>, Kyagulangi E<sup>2</sup>, Mirembe J<sup>2</sup>, Mukasa D<sup>2</sup>, Tamale J<sup>2</sup>, Oriekot A<sup>2</sup>, R kanya M<sup>2</sup>, Baruch Baluku J<sup>2</sup>

<sup>1</sup>Mulago National Referral Hospital, Kampala, Uganda, <sup>2</sup>School of Medicine, College of Health Sciences, Makerere university, Kampala, Uganda

**Background:** Concurrent pulmonary tuberculosis (PTB) and extrapulmonary tuberculosis (EPTB) is

associated with poor treatment outcomes yet its epidemiology in Uganda is unknown. The purpose of this study was to determine the prevalence, associated factors, and treatment outcomes of concurrent PTB and EPTB among patients at a national tuberculosis (TB) treatment center located at Mulago National Referral Hospital in Kampala, Uganda.

**Materials and Methods:** We conducted a retrospective review of charts for people with TB who were enrolled in care between January 2015 and December 2019. Eligible charts were for people with pulmonary bacteriologically confirmed TB enrolled in care in the period under study. Concurrent PTB and EPTB were defined as PTB and bacteriological, histopathological, and/or radiological features of TB at another noncontiguous site.

**Results:** Overall, 400 patient charts were eligible, of whom 240 (60.0%) were aged 15–34 years and 205 (51.3%) were female. The prevalence of concurrent PTB and EPTB was 8.5% (34/400) [95% confidence interval (CI): 6.0–11.7%]. People with concurrent PTB and EPTB were more likely to have at least one comorbidity (82.4% versus 37.2%,  $p < 0.001$ ), of which HIV was the most frequent. Furthermore, people with concurrent PTB and EPTB were more likely to have empyema (15% versus 2.6%,  $p = 0.028$ ) but less likely to have broncho-pneumonic opacification (0.0% versus 15.3%,  $p = 0.043$ ) on chest x-ray imaging. People with concurrent PTB and EPTB had higher mortality (26.5% versus 6.37%) and a lower cure rate (41.2% versus 64.8%),  $p = 0.002$ .

**Conclusions:** Our findings highlight the need for early detection of TB before dissemination, particularly among people who use alcohol and people with HIV.



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## Feasibility of Programmatic Hepatitis B Treatment in an HIV Clinic in Malawi - Early Lessons on Treatment Indications

Kumwenda T<sup>1</sup>, Phiri V<sup>1</sup>, Mzumara W<sup>2</sup>, Heller T<sup>1,3</sup>, Rambik E<sup>1</sup>, Wallrauch C<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>Department of HIV/AIDS and Viral Hepatitis, Lilongwe, Malawi, <sup>3</sup>ITECH, Seattle, USA

**Background:** Chronic Hepatitis B (CHB) carries major morbidity and mortality; therefore antiviral tenofovir treatment is indicated preventing progression to cirrhosis and hepatocellular carcinoma (HCC). World Health Organization recommends Fibroscan<sup>®</sup> and DNA-PCR to determine treatment eligibility in hepatitis B surface-antigen (HBsAg) positive patients; these are often unavailable in resource-limited settings. Malawi released the first local CHB guidelines in 2023 and treatment eligibility relies on aspartate-aminotransferase-to-platelet-ratio-index (APRI) and signs of cirrhosis. Programmatic implementation experience in ART clinics is yet to be documented.

**Materials and Methods:** We conducted an implementation study at Lighthouse HIV clinic at Kamuzu Central Hospital, referral hospital in Lilongwe. Treatment eligibility was defined by a) clinical assessment with signs of liver cirrhosis, b) APRI score >0.65, and c) abdominal ultrasound showing signs of liver fibrosis/cirrhosis or HCC. Patient data of consecutive patients referred for treatment assessment during routine clinical care were collected and summarized.

**Results:** 111 HBsAg positive patients were assessed between January and July 2023. 72 (64.8%) were male, 49 (35.1%) female; 10 were pregnant. 68 patients (61.3%) had no clinical symptoms. TDF treatment was started in 45 (40.5%) on the same day. Clinical signs were suggesting CHB in 24 (44.4%) of patients, APRI score identified 35 (64.8%) and liver ultrasound detected 31 (57.4%). "Abdominal swelling" as potential sign of ascites was seen in 24 patients but only in 9 (37.5%) ultrasound confirmed ascites; in 10 (41.7%) cirrhosis and/or HCC was found (also

indicating treatment). The remaining 5 had no indication for treatment.

The APRI score was calculated in 103 (94.6%) patients and 35 (33.3%) had a score >0.65. In eight, the APRI was not used due to miscalculation (3), malaria (1) and no reason (4). Ultrasound detected CHB in 31 (27.9%); cirrhosis only was seen in 15, cirrhosis and HCC in 13 and HCC without cirrhosis in 3.

**Conclusions:** Detection and treatment of CHB is essential for disease management. The use of clinical signs, APRI score and black-and-white ultrasound can identify cases, which require treatment in a significant proportion of patients in referral setting. It can be implemented in ART clinics where basic ultrasound and laboratory facilities are available

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## Best Practices in HIV and Mental Health Interventions for Women Affected by IPV: Insights from Implementing the Common Element Treatment Approach in Johannesburg, South Africa.

Mngadi-Ncube S<sup>1</sup>, Sardana S<sup>2</sup>, Metz K<sup>2</sup>, Manganye P<sup>1</sup>, Kane J<sup>3</sup>

<sup>1</sup>Health Economics And Epidemiology Research Office, Faculty Of Health Sciences, University Of The Witwatersrand, Johannesburg, Johannesburg, South Africa, <sup>2</sup>Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Baltimore, United States of America, <sup>3</sup>3 Department of Epidemiology, Columbia University Mailman School of Public Health, New York, New York, USA, New York, United States of America

**Background:** Within South Africa's health context dynamics, the relationship between HIV and mental illness is particularly pertinent. The coexistence of the high prevalence in both mental illness and HIV in South Africa underscores the complex relationship between these two health challenges. Research has shown that approximately 28 to 62% of people living with HIV suffer from mental illnesses. The Common Elements Treatment Approach (CETA) is an evidence-based intervention that simultaneously addresses multiple mental health and other health



related problems, that can be delivered by lay-counsellors and adapted to meet an individual's psychological needs.

**Materials and Methods:** Between 23/11/21 and 19/07/23, 400 women (>18) living with HIV and experiencing IPV, who had missed visits or were virally unsuppressed at two sites in Johannesburg were randomized 1:1 to CETA or control. We used the Centre for Epidemiological Studies- Depression (CES-D) and the Harvard Trauma Questionnaire (HTQ) scales to assess presence and severity of mental illness, including trauma, trauma symptoms, anxiety and depression at baseline. All participants received safety planning and weekly safety check-ins. Post baseline follow up assessments were at 3, 12- and 24-months post baseline assessing retention, suppression, IPV and mental health outcomes. Follow up assessment for 12 and 24 months is still ongoing.

**Results:** Of the 400 women randomized, 62.4% had depression only, 23% had depression and trauma, 15% had subclinical mental health symptoms. At baseline, 75% of participants had low to medium risk of suicidal ideation (25%) homicidal ideation (22%) and interpersonal violence (70%), and 30% had high risk of same (SI 13%, HI 6% and IPV 30%), some participants indicated no risk of HI (72%) and SI (62%).

**Conclusions:** The increasing prevalence of mental illness in South Africa is emerging as a significant public health challenge. This burden is exacerbated by the intricate connection between mental illness and other diseases, notably HIV. Addressing this concern requires implementing evidence-based, task-shifting and cost-effective interventions, and greater integration of mental health into general healthcare. CETA is one such intervention that has shown a promise in the integration of HIV and mental health support, particularly in resource constrained regions like South Africa.

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## Mitochondrial DNA Patterns Among Individuals Living With HIV-1 on Dolutegravir with Hyperglycaemia

Buzibye A<sup>1</sup>, Hoke A<sup>2</sup>, Zhou Z<sup>2</sup>, Chen W<sup>2</sup>, Bollinger R<sup>3</sup>, Omali D<sup>1</sup>, Mulindwa F<sup>1</sup>, Kim S<sup>4</sup>, Seera M<sup>1</sup>, Muller D<sup>5</sup>, Laker E<sup>1</sup>, Andia I<sup>6</sup>, Lamorde M<sup>1</sup>, Reynolds S<sup>3,7</sup>, Bagaya B<sup>8</sup>, Castelnuevo B<sup>1</sup>, Manabe Y<sup>9</sup>

<sup>1</sup>Infectious Diseases Institute, Makerere University College of Health Sciences, Kampala, Uganda, <sup>2</sup>Department of Neurology, Johns Hopkins University, Baltimore, USA, <sup>3</sup>Johns Hopkins University School of Medicine, Baltimore, USA, <sup>4</sup>Department of Medicine, Division of Endocrinology, Diabetes and Metabolism, the Johns Hopkins University School of Medicine, Baltimore, USA, <sup>5</sup>Laboratory Medicine, University Hospital Basel, Basel, Switzerland, <sup>6</sup>Department of Internal Medicine, School of Medicine, Makerere University College of Health Sciences, Kampala, Uganda, <sup>7</sup>Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, USA, <sup>8</sup>Department of Immunology and Molecular Biology, School of Biomedical Sciences, Makerere University College of Health Sciences, Kampala, Uganda, <sup>9</sup>Department of Medicine, Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, USA

**Background:** Dolutegravir-associated hyperglycaemia has been reported among antiretroviral therapy (ART) experienced patients with prior exposure to nucleoside reverse transcriptase inhibiting (NRTI) drugs. NRTIs are known to cause mitochondrial toxicity, a contributor to hyperglycemia. We compared the baseline proportion of mitochondrial DNA major deletions (marker of mitochondrial damage) between individuals living with HIV on dolutegravir, with and with no hyperglycaemia.

**Materials and Methods:** A case-control study was nested within a cohort of ART-experienced patients initiated on dolutegravir. Participants with incident hyperglycaemia following dolutegravir initiation (cases) were age- and gender-matched 1:1 with those who did not (controls). Hyperglycaemia was defined as either fasting blood glucose  $\geq 110$  mg/dL or random blood glucose  $\geq 116$  mg/dL. Whole blood samples from 74 participants (37 cases) who had a recorded blood glucose within  $\pm 3$  months of dolutegravir initiation and had no prior history of hyperglycaemia were included. Gene expression was assessed by real-time PCR and the  $2^{-\Delta\Delta Ct}$  method to identify frequent 5-kb deletions of the





mitochondrial genome; when deletions are present, DNA strands are shorter, amplification occurs faster, and gene expression is higher. Using the Mann-Whitney U test, we compared median  $2^{\Delta\Delta\text{ct}}$  in cases and controls.

**Results:** Dolutegravir was initiated in 711/1000 cohort participants. Samples from 74/711 participants were analyzable. Cases had higher mean baseline BMI compared to controls [mean baseline BMI(SD) 25 (4) kg/m<sup>2</sup> vs 23 (4), respectively ( $p=0.05$ )]. The median  $2^{\Delta\Delta\text{ct}}$  values were similar between cases [median  $2^{\Delta\Delta\text{ct}}$  values: 1.1, IQR 0.8, 1.9,  $p=0.111$ ] and controls [median  $2^{\Delta\Delta\text{ct}}$  values: 1.1, IQR: 0.6, 1.7]. However, in 7 of 74 participants with glucose >125mg/dL(grade 2 hyperglycaemia), the median  $2^{\Delta\Delta\text{ct}}$  values in cases were higher [median  $2^{\Delta\Delta\text{ct}}$  values: 2.0, IQR: 1.1, 2.8,  $p=0.048$ ] compared with the seven matched controls [median  $2^{\Delta\Delta\text{ct}}$  value: 1.1, IQR: 0.6, 1.9].

**Conclusions:** We found that baseline 5-kb deletions were more common among NRTI-experienced individuals initiating dolutegravir who developed grade 2 or higher hyperglycaemia compared to age-matched controls. Further investigation into ART-associated mitochondrial toxicity and potential for incident hyperglycemia is warranted.

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## Inflammatory Biomarkers as Potential Mediators of the Association between HIV Status and Depressive Symptoms in Young People

**Mudra Rakshasa-Loots** A<sup>1,2</sup>, Naidoo S<sup>1</sup>, Hamana T<sup>1,3</sup>, Fanqa B<sup>1</sup>, van Wyhe K<sup>1,4</sup>, Lindani F<sup>1</sup>, van der Kouwe A<sup>3,5,6</sup>, Glashoff R<sup>7,8</sup>, Kruger S<sup>1</sup>, Robertson F<sup>3,9,10</sup>, Cox S<sup>11</sup>, Meintjes E<sup>3,9,10</sup>, Laughton B<sup>1</sup>  
<sup>1</sup>Family Centre for Research with Ubuntu (FAMCRU), Tygerberg Hospital, Department of Paediatrics and Child Health, Stellenbosch University, Cape Town, South Africa, <sup>2</sup>Edinburgh Neuroscience, School of Biomedical Sciences, The University of Edinburgh, Edinburgh, UK, <sup>3</sup>Division of Biomedical Engineering, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa, <sup>4</sup>ACSENT Lab, Department of Psychology, University of Cape Town, Cape Town, South Africa, <sup>5</sup>A.A. Martinos Center for Biomedical Imaging, Massachusetts

General Hospital, Boston, USA, <sup>6</sup>Department of Radiology, Harvard Medical School, Boston, USA, <sup>7</sup>Division of Medical Microbiology, Stellenbosch University, Cape Town, South Africa, <sup>8</sup>National Health Laboratory Service (NHLS), Tygerberg Business Unit, Cape Town, South Africa, <sup>9</sup>Neuroscience Institute, University of Cape Town, Cape Town, South Africa, <sup>10</sup>Cape Universities Body Imaging Centre, Cape Town, South Africa, <sup>11</sup>Lothian Birth Cohorts group, Department of Psychology, The University of Edinburgh, Edinburgh, UK

**Background:** People living with HIV are at three times greater risk for depressive symptoms. Inflammation is a notable predictor of depression, and people with HIV exhibit chronic inflammation despite antiretroviral therapy. We hypothesised that inflammatory biomarkers may mediate the association between HIV status and depressive symptoms.

**Materials and Methods:** We recruited N = 60 young people (53% girls, median age 15.5 years, 70% living with HIV) in Cape Town, South Africa. Participants completed the nine-item Patient Health Questionnaire (PHQ-9). We measured choline and myo-inositol in the brain using magnetic resonance spectroscopy and 16 inflammatory proteins in blood serum using immunoassays. We then calculated the standardised indirect effect estimates with 95% confidence intervals for each of these biomarkers as potential mediators of the association between HIV status and PHQ-9 score using structural equation modelling.

**Results:** Median [interquartile range] total PHQ-9 score was 3 [0, 7]. HIV status was significantly associated with total PHQ-9 score ( $B = 3.32$ ,  $p = 0.022$ ). Participants with HIV showed a higher choline-to-creatine ratio in the basal ganglia than those without HIV ( $\beta = 0.86$ ,  $p\text{FDR} = 0.035$ ). In blood serum, participants with HIV showed higher monocyte chemoattractant protein-1 (MCP-1,  $\beta = 0.59$ ,  $p\text{FDR} = 0.040$ ), higher chitinase-3 like-1 (YKL-40,  $\beta = 0.73$ ,  $p\text{FDR} = 0.032$ ), and lower interleukin-1beta (IL-1 $\beta$ ,  $\beta = -0.67$ ,  $p\text{FDR} = 0.047$ ) than those without HIV. None of the biomarkers were significantly associated with total PHQ-9 score. Consequently, none of the indirect effects were significant, mediating <13.1% of the association. Findings remained consistent when accounting for age, gender, and time between neuroimaging and PHQ-9 administration.

**Conclusions:** We have shown that participants living with HIV in a community-based sample reported greater depressive symptoms than those without HIV, but we did not find that neuroimaging and blood biomarkers of



inflammation significantly mediated this association. Further research with participants experiencing severe depression may help to clarify the links between HIV, inflammation, and depression.

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## Circulation of the Hepatitis B Virus Among People Living with HIV Receiving Antiretroviral Treatment in Oyem, Northern Gabon

Engone Ondo J<sup>1</sup>, Mounguengui Mounguengui D<sup>1</sup>, Yaro M<sup>1</sup>, Diane A<sup>1</sup>, Mouinga-Ondeme A<sup>1</sup>

<sup>1</sup>Centre International de Recherches Médicales de Franceville, Franceville, Gabon

**Background:** Liver disease has become one of the leading causes of death among people living with HIV (PLHIV) co-infected with Hepatitis B Virus (HBV). Indeed, in individuals with HBsAg, HIV co-infection leads to higher rates of chronicity, accelerated progression of liver disease, and decreased response to treatment. It is therefore necessary to establish the burden of HBsAg co-infection among PLHIV, characterize the most affected populations and geographic regions and inform national and regional screening programs and clinical management. In Gabon, little data exists on co-infection between HIV and HBV among PLHIV on antiretroviral treatment (ART). The aim of our study was to determine the prevalence of co-infection between HIV and HBV and evaluate the effect of ART on the proviral load of HBV.

**Materials and Methods:** From December 2021 to March 2022, we recruited PLHIV on ART at the Oyem Ambulatory Treatment Center in Gabon. HIV viral load (VL) was determined using the Generic HIV Viral Load test (Biocentric). Detection of HBsAg was done using the MonolisaTMHBs Ag ULTRA kit. The proviral load of HBV DNA was determined using the Generic HBV Viral Load Assay (Biocentric).

**Results:** In total, we recruited 240 PLHIV. Women represented 68.33% (164/240) of the population. The median age was 50 years IQR (32.25; 58). The

most prescribed ART was TDF+3TC+DTG (66.95%). The patients had been on ART for approximately 29 months. The HIV-1 virological suppression rate was 62.08% (CV < 1000 copies/ml). The prevalence of HBsAg was 10.83% (26/240), 95% CI [6.9; 14.8]. Among PLHIV positive for HBsAg, 27% (7/25) had a positive proviral load ( $\geq 95$  IU/ML) and for 72% (18/25) it was undetectable (<95 IU/ML). A patient on TDF+3TC+DTG ART with virological failure (HIV CV at 934,388 copies/ml) had an HBV proviral load of 302,510 IU/ml.

**Conclusions:** Our results show that there is circulation of HBV among PLHIV. They suggest a strengthening of the diagnosis of HBV in this population. Also, to reflect the true situation on HIV/HBV co-infection, studies must be organized at the national level. Finally, these results show the need to implement surveillance of the emergence of HBV resistance to ART.

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## Prévalence Des Principaux Facteurs de Risque Communs Aux Maladies Non Transmissibles Chez Les PvVih Sous ARV au Burkina Faso

Poda A<sup>1</sup>, ZOUNGRANA J<sup>1</sup>

<sup>1</sup>Chu Souro Sanou, Service Des Maladies Infectieuses ; Université Nazi Boni, Bobo-dioulasso , Burkina Faso

**Contexte :** L'amélioration de la prise en charge de l'infection au virus de l'immunodéficience humaine (VIH) a donné un nouveau visage de maladie chronique avec comme conséquence l'émergence des MNT dans cette même population. L'objectif de l'étude était de déterminer l'ampleur des facteurs de risque communs aux Maladies Non Transmissibles (MNT) chez les personnes vivant avec le VIH (PVVIH).

**Matériels et Méthodes :** Il s'agit d'une étude transversale analytique avec collecte prospective de données chez des PVVIH et sous traitement ARV suivies en ambulatoire à l'hôpital de jour dans du CHU Sourô Sanou de Bobo-Dioulasso au Burkina Faso sur une période de 11 mois allant du 1er janvier au 30 Novembre 2018. Était incluses toute PVVIH âgé de 25-65 ans consentant à



participer à l'étude, suivi à l'hôpital de jour de Bobo-Dioulasso depuis au moins 2 ans et ayant bénéficié d'une mise sous traitement dans le service.

**Résultats :** Au total, 433 patients ont été inclus soit 10% de la file active suivi dans le service de maladies infectieuses. L'âge moyen était de 42,6 IIQ (37,0-49,1). Le sex ratio était de 0,4. La majorité des patients résidaient en milieu urbain soit 88,9%. Les patients non scolarisés étaient les plus représentés avec 46,6% des patients (n=202). Une Histoire familiale d'HTA et de diabète sucré étaient respectivement rapportées dans 64,4% (n= 279) et 15,2% (n=66) des cas. Un antécédent de dyslipidémie était noté chez 6,7% (n= 29) des patients. La sédentarité, la consommation insuffisante de fruits et légumes, la consommation d'alcool étaient les facteurs de risque comportementaux les plus représentés avec respectivement 68,6% (n=297), 58,0% (n=251) et 26,8% (n=116) des patients. L'obésité abdominale, l'obésité androïde, l'hypertension artérielle étaient les facteurs de risque métaboliques et physiologiques majoritaires avec respectivement 57,0% (n=251), 37,6% (n=163) et 35,6% (n=154).

**Conclusions :** Les facteurs de risques communs aux MNT présents chez les PVVIH exposent davantage à un risque cardiovasculaire accru.

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## Role of Doorstep Delivery of Haart in Improving Adherence Among HIV-Positive Clients Living with Disabilities - A Case of Khunyangu Sch, Busia County, Kenya

Ashiono E<sup>1</sup>, Opiyo J<sup>1</sup>, Tebagalika F<sup>1</sup>, Mogoi F<sup>2</sup>, Afubwa D<sup>2</sup>

<sup>1</sup>USAID Dumisha Afya, Bungoma, Kenya, <sup>2</sup>County Government of Busia, Department of Health, Busia, Kenya

**Background:** Effective HIV care is crucial for preventing mortality and promoting longevity in people living with HIV, aligning with UNAIDS targets. However, individuals with physical and mental disabilities face barriers in accessing and

adhering to Highly Active Antiretroviral Therapy (HAART). By March 2021, Khunyangu Sub-County Hospital identified 22 clients with disabilities, contributing to 50% of non-adherence to clinic appointments, with a 77% viral suppression rate among them. We aimed to evaluate the impact of doorstep HAART delivery on treatment outcomes.

**Materials and Methods:** Conducted from 2021 to 2023 at Khunyangu Sub-County Hospital, this longitudinal follow-up involved screening clients with disabilities, recording baseline viral loads, and implementing home delivery of medications. Healthcare workers were trained for home delivery, and caregiver counselling was integrated to enhance patient support for continued adherence. The client population increased from 22 to 35 during the evaluation period, with 100% of the clients with disabilities identified, enrolled. Clinical assessments, medication refills, and viral load tests were conducted at clients' doorsteps during integrated clinical team visits facilitated by the USAID Dumisha Afya project, ensuring a comprehensive approach.

**Results:** Following the two-year intervention, all 34 eligible clients in the cohort had a viral load done, with 32 achieving undetectable viral loads. Among the physically and mentally challenged clients, 32 (91.4%) had valid viral load results, while 3 (8.4%) did not, as two awaited results and one was newly enrolled. Out of 33 clients, 32 (96.9%) achieved undetectable viral loads, with only one client registering a detectable viral load of 446 copies/ml. The personalized approach of doorstep ARV delivery significantly contributed to positive outcomes in HIV care.

**Conclusions:** The project's success underscores the significance of doorstep ARV delivery in positively influencing HIV care outcomes. Lessons learned include the crucial role of the treatment buddy system for clients with mental health challenges and the impact of stigma on impeding access during home delivery. Efficient communication via phone facilitated coordination, and missed appointments could be rescheduled. The findings emphasize the need for tailored interventions to address the unique challenges faced by clients with disabilities in accessing and adhering to HIV care.



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## Etude de la Séroprévalence de L'Antigène HBs et L'Efficacité du Traitement Antirétroviraux chez les Patients Suivis en Consultation au SMIT

**Akouete N<sup>1</sup>**, Cissoko Y<sup>1,2</sup>, Fofana D<sup>2</sup>, Attaher F<sup>1</sup>, Coulibaly A<sup>2</sup>, Soumare Dicko M<sup>1,2</sup>, Doumbia Y<sup>1</sup>, Sogoba D<sup>1</sup>, Konate I<sup>1,2</sup>, Soungalo D<sup>1,2</sup>

<sup>1</sup>Service de Maladies infectieuses CHU du Point G, Bamako, Mali, <sup>2</sup>Université des sciences, des techniques et des technologies de Bamako, Bamako, Mali

**Contexte :** La co-infection est très fréquente. Le traitement ARV est actif sur les deux virus. Le but de notre étude est de déterminer la fréquence de cette co-infection et d'évaluer l'efficacité de la trithérapie antirétrovirale

**Matériels et Méthodes :** Il s'agissait d'une étude cohorte descriptive et analytique avec recueil des données prospectif portant sur la file active des patients infectés par le VIH suivis sous ARV en consultation au service des Maladies Infectieuses du CHU du Point G de janvier à décembre 2023. Les données ont été saisies, analysées et comparées avec le logiciel SPSS.25 et le test de Fisher pour un seuil de significativité  $p \leq 0,05$ .

**Résultats :** La file active comprenait 633 PvVIH dont 93 nouveaux patients. La fréquence de la co-infection VHB/VIH étaient de 9,2%. Les femmes étaient majoritaires à 66,6% avec un sex ratio = 0,50 pour les mono-infectés vs 56,9% pour les co-infectés et un sex ratio = 0,75. Il y a une différence non significative selon le sexe (11,6% pour les hommes vs 7,9% chez les femmes). L'âge moyen était de  $45 \pm 11,5$  ans pour les mono-infectés vs  $43,12 \pm 12$  ans pour les co-infectés. Le VIH type 1 est retrouvé chez 98% des patients. Les thérapies à base TDF-3TC-DTG et TDF-3TC-EFV étaient les plus utilisées respectivement à 64% et 30,5%. Dans le suivi virologique 86,9% des PvVIH avaient une charge virale du VIH indétectable au dernier contrôle; 13,1% des patients avaient une charge virale du VIH  $>1000$  Cp/ml tandis que 98,3% des co-infectés ayant plus de 60 mois de traitement avaient une charge virale détectable. L'observance était mauvaise pour 5,2% des patients. Il existe une relation statistiquement significative entre l'observance la charge virale.

**Conclusions :** La co-infection VIH/VHB est relativement élevée au sein de la file active, la charge virale du virus de l'hépatite B détectable après plusieurs mois de traitement attirent l'attention. Ces thérapies semblent ne pas influencer la virémie des virus essentiellement pour le Virus de l'hépatite B.

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## Seroprevalence and Correlates of Co-infection with HIV and Active Syphilis among Pregnant Women in Six Sub-Saharan African Countries: Results from Population-Based HIV Impact Assessments (PHIAs)

**Abila D<sup>1,2</sup>**, Kyagulanyi E<sup>3</sup>, Chemutai B<sup>2</sup>, Nakiyingi E<sup>2</sup>, Mbabazi I<sup>4</sup>

<sup>1</sup>Uganda Child Cancer Foundation, Kampala, Uganda, <sup>2</sup>Health Equity for All Foundation, Kampala, Uganda, <sup>3</sup>Makerere University, Kampala, Uganda, <sup>4</sup>Infectious Disease Institute, Kampala, Uganda

**Background:** Ulcerative STIs like syphilis, increase the risk for HIV acquisition and transmission and serve as a point-of-entry and exit for HIV. In this study, we aimed to determine the seroprevalence and correlates of co-infection with HIV and active syphilis among pregnant women living in six countries in sub-Saharan Africa.

**Materials and Methods:** For this study, we pooled Population-based HIV Impact Assessments data from Ethiopia, Kenya, Tanzania, Uganda, Zambia, and Zimbabwe. We included pregnant women aged 15 years or older, living with HIV and were tested for syphilis. During the surveys, participants were interviewed and tested for HIV infection using the national rapid testing algorithm. HIV viral load testing and testing for the presence of selected antiretroviral drugs (ARVs) was done using a qualitative high-performance liquid chromatography/tandem mass spectrometry assay. A suppressed viral load was defined as less than 1000 viral copies per mL. Chembio DPP<sup>®</sup> Syphilis Screen and Confirm Assay was used to distinguish between active and older syphilis



infections. A log-binomial regression model was used to determine the demographic and clinical characteristics associated with co-infection with active syphilis and HIV and calculated weighted crude and adjusted-prevalence ratios.

**Results:** We included 355 pregnant women living with HIV in this study. Overall, the prevalence of co-infection with active syphilis and HIV was 5.6%. The prevalence of co-infection with active syphilis and HIV was 0.0% in Ethiopia, 0.0% in Kenya, 8.0% in Tanzania, 3.4% in Uganda, 8.0% in Zambia, and 3.9% in Zimbabwe. Pregnant women whose HIV viral load was not suppressed were more likely to have co-infection with active syphilis and HIV compared to those whose viral load was suppressed [adjusted Prevalence Ratio (aPR): 3.7, 95% CI: 1.2 – 11.5, p-value 0.025]. Pregnant women who were single were more likely to have co-infection with active syphilis and HIV compared to those who were divorced/separated/widowed [aPR: 5.2, 95% CI: 2.2 – 12.5, p-value < 0.001].

**Conclusions:** There is a high prevalence of co-infection with active syphilis and HIV among pregnant women. There is a need to develop guidelines for syphilis diagnosis and treatment among pregnant women attending HIV clinics and antenatal clinics.

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## Using an Outreach Model of Service Delivery to Improve Uptake of Cervical Cancer Screening Among Women Living with HIV in Northeastern Uganda, 2021-2023

SENTONGO S<sup>1</sup>, Bakashaba B<sup>1</sup>, Oryokot<sup>1</sup>, Opito R<sup>1</sup>, Munina A<sup>1</sup>, Miya Y<sup>1</sup>, Alwedo S<sup>1</sup>, Nakawuka M<sup>2</sup>, Mugisha K<sup>1</sup>, Kalamya N J<sup>3</sup>

<sup>1</sup>The AIDS Support Organization, Kampala, Uganda, <sup>2</sup>Ministry of Health AIDS Control Program., Kampala, Uganda, <sup>3</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda

**Background:** Cervical cancer (CxCa) is the leading cause of cancer-related death in Uganda with

women living with HIV (WLHIV) being six times more likely to develop CxCa. At the start of the CxCa screening program for WLHIV aged 25-49 in January- March 2021, the uptake of the service was low, achieving 3% of the quarterly target. This was attributed to screening at only static facilities. This report demonstrates how CxCa screening uptake was improved by using an outreach model of service delivery in North-Eastern Uganda.

**Material and Methods:** During January 2021 to January 2023, 25 health facilities (HFs) were equipped to offer CxCa screening in the region. Additionally, 61 outreach HFs were identified and a team of health workers (HWs) at each of the outreach was trained on CxCa service provision, and given supplies to screen and treat precancerous lesions. At each outreach site, a line list of eligible WLHIV was generated from HIV clinic registers. Phone calls or short message services were used to book and invite eligible WLHIV for screening. Trained HWs conducted health education and WLHIV who consented were screened by visual inspection with acetic acid. WLHIV identified with precancerous lesions were treated by thermal ablation, while those with cancerous lesions were referred to the referral hospital for further management. We analyzed routine program data to show the number of WLHIV screened for CxCa.

**Results:** During January 2021-January 2023, a total of 17,345 WLHIV of 25-49 years were screened for CxCa at static and outreach facilities. Of those screened, 1,159 WLHIV were identified with precancerous lesions yielding a positivity of 6.7% (1,159/17,345) while 52 had suspected cancerous lesions. The outreach HFs contributed 46.7% (8,112/17,345) of the total WLHIV screened. The number of WLHIV screened for CxCa increased from 52 in January-March 2021 to 1,381 in January-March 2023 after scaling services to outreach sites. All WLHIV with precancerous lesions were treated.

**Conclusions:** Scaling up CxCa screening in outreach sites increased the number of WLHIV screened for CxCa. Moving services nearer to clients through an outreach model could increase access and uptake of CxCa services in similar settings.



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## Using HPV/DNA Testing to Target at Risk Young Mothers Living with HIV in Need of Cervical Cancer Screening in Zimbabwe

**Kuchocha P<sup>1</sup>**, Sellberg A<sup>1</sup>, Chitiyo V<sup>1</sup>, Willis N<sup>1</sup>, Bondayi S<sup>1</sup>, Mukamuri N<sup>1</sup>, Dube L<sup>1</sup>, Kandengwa L<sup>1</sup>, Chikwanya T<sup>1</sup>, Makamba A<sup>1</sup>, Mnkandla P<sup>1</sup>, Wasili E<sup>1</sup>, Mushavi A<sup>2</sup>, Andifasi P<sup>2</sup>, Madakadze S<sup>3</sup>, Pascoe M<sup>4</sup>, Bhila J<sup>5</sup>

<sup>1</sup>Zvandiri, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Solutions for Health, Harare, Zimbabwe, <sup>4</sup>Newlands Clinic, Harare, Zimbabwe, <sup>5</sup>Global network of young people living with HIV(Y+), Harare, Zimbabwe

**Background:** Cervical cancer is common in Zimbabwe and globally. WHO recommends hrHPV screening for women starting at 25, with regular screening every 3 to 5 years. Zvandiri is a Non-Governmental Organization providing peer to peer support through its Young Mentor Mother (YMM) programme. It found a high proportion of cervical cancer lesions in young mothers (19-24) living with HIV with visual inspection. It proceeded, with the help of Her Voice Found, to perform hrHPV screening to identify those at risk of pre-cancerous lesions.

**Description:** YMMs mobilized YMLWHIV across 10 districts in Zimbabwe for HPV screening based on identified risk factors, from November 2022 to February 2023. They overcame barriers by disseminating a co-created fact sheet. YMMs collaborated to link YMLWHIV to HPV screening services and provided positive results to other treatment modalities as per need. The project relied upon proven community-centered approaches.

**Lessons Learnt:** 183 YMLHIV aged 19-24 (median age; 21), were mobilized for hrHPV screening, of which 113/183 (62%) were screened for hrHPV. 44/113 (39%) screened positive and were referred for VIAC by December 2023 of which 44/44 (100%) accessed VIAC services. 6/40 (15%) were identified with lesions suspicious of cancer which all accessed treatment such as cryotherapy (3/6; 50%) or LEEP (3/6; 50%). Histological examination of the excised tissue from LEEP showed Cervical

Intraepithelial Neoplasia (CIN1) for one of the samples and CIN3 for two of the samples.

The high proportion of YMLWHIV with lesions requiring treatment shows the need for cervical cancer screening in this group of at-risk women, even at lower ages than what is recommended by WHO. HPV screening is a useful tool to determine those in need of earlier screening

**Conclusions:** There is need to confirm these findings through a larger research study, that can be used to inform efforts for early identification and treatment of cervical cancer which has known adverse outcomes if there are delays along the continuum. Additionally, the research will contribute to inform WHO guidelines for YMLWHIV which helps to inform global, regional and national policies.

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## Integrating Non-communicable Diseases (Hypertension and Diabetes Mellitus) Management into HIV Care Management; Lessons Learnt from Community Program Implementation

**Chimberengwa P<sup>1</sup>**, Takarinda K<sup>1</sup>, Bepe T<sup>1</sup>, Hove M<sup>1</sup>, Mushonga N<sup>1</sup>, Dhodho E<sup>1</sup>

<sup>1</sup>Organisation for Public Health & Intervention and Development, Harare, Zimbabwe

**Background:** The national antiretroviral treatment (ART) program in Zimbabwe is devolving care to communities in line with differentiated service delivery (DSD). The Target, accelerate, and sustain quality care for HIV epidemic control (TASQC) program supports community outreach points which are serviced by community health workers (CHWs). Leveraging on the TASQC, the NCD integration project mentored CHWs on screening for hypertension (HT) and diabetes mellitus (DM) while navigating those screened positive to public health facilities. We aimed to determine prevalence of NCDs among the general population and people living with HIV (PLHIV) above 40 years old.



**Materials and Methods:** A retrospective review was conducted of existing program data collected from January-December 2023. Community health workers in two TASQC supported districts in urban cities (Bulawayo and Chitungwiza) were trained to measure and record blood pressure and sugar using digital blood pressure (BP) machines, glucometers and glucoStix. Using program phones, collected NCDs data was entered into an open data kit (ODK) which syncs into DHIS-2.

**Results:** By 31 December 2023, cumulatively 113,786 people were screened; 58% were from general population and 42% were PLHIV; these were 112% and 105% of the set program targets respectively. A total of 53,878/113,786 ( 47.4%) was either hypertensive and or diabetic. The prevalence of hypertension in the general population was 46.4% compared to a prevalence of 48.2% in PLHIV. The prevalence of HT in men was 46.3% compared to women at 47.6%. The prevalence of DM was 7.2% across both sub populations with recorded RBS. Linkage to care was 50.3% among PLHIV and 24.8% among the general population.

**Conclusions:** The Prevalence of NCDs is higher in PLWHIV compared to the general population and HT is more common than DM. Men do not usually utilize healthcare facilities however they were reached through outreaches in their workplace. Linkage to care was poor due to lack of medications for NCDs in public health facilities. There is lack of prioritization and funding for NCDs medicines. The program innovated around the shortage of NCDs medicines by partnering with pharmacies. However, sustainability after project close out is key.

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## Evaluating the Outcome of Case Management on Referral and Linkage to Treatment of Women Living with HIV Diagnosed with Pre-invasive Lesions of Cervical Cancer.

**Obiero O<sup>1</sup>**, Mwaniki L<sup>1</sup>, Gathendu B<sup>1</sup>, M'Muriithi M<sup>1</sup>

<sup>1</sup>CHAK, Nairobi, Kenya

**Background:** Cervical cancer is the fourth leading cause of global cancer deaths among women, with age-adjusted morbidity and mortality rates at least six times higher for women living with HIV. Despite available screening at different healthcare levels, a significant gap in timely intervention for pre-invasive lesions persists due to uncoordinated referral systems and socioeconomic barriers. This paper explores the immediate outcomes of the "screen and treat" plan, an innovative case management approach aiming to streamline the referral process.

**Materials and Methods:** This was a non-randomized pre-post design in selected facilities in Embu County. We compared July 2021 to June 2022 (pre-period) and July 2022 to December 2023 (post-period). A spokes-and-hub model was used. Spokes were the screening facilities without treatment capacity, while hubs were the treatment sites. We trained mentor mothers as patient navigators and case managers in a structured referral network linking spokes to the hubs. Women with pre-invasive lesions were assigned Mentor-Mothers, who coordinated referrals/escorts and communication between sites. We compared performance between the two periods using descriptive statistics like proportions of women screening positive, effective referrals and proportions of invasive lesions treated.

**Results:** In the pre-period, 733 women were screened in four hubs, with a positivity of 35 (5%). Of these, 10 (29%) received on-site treatment. In spokes, 541 were screened, 27 (5%) tested positive, and 9 (33%) were effectively referred and treated. In the post-period, 1,064 were screened in hubs, with a positivity of 52 (5%), and all (100%)



received on-site treatment. In spokes, 916 were screened, with a positivity of 45 (5%), all (100%) of whom were effectively referred and treated. Overall, 19 (31%) received treatment during the pre-period, while 97 (100%) were treated in the post-period.

**Conclusions:** The "screen and treat" approach using a 'spoke and hub' model, supported by a structured network and case managers, was an effective intervention to promote diagnosing and treating pre-invasive cervical lesions and bridging major health systems gaps.

**Recommendations:** We recommend the adoption of a person-centred, peer-led referral/navigation system and case management for the management of pre-invasive cervical lesions in resource-limited environments.

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## The Prevalence of Depression and Associated Factors Among Adolescents and Young People Living with HIV at a First-Level Hospital in Lusaka, Zambia

Tapisha B<sup>1</sup>, Simwanza S<sup>2</sup>, Siganda L<sup>1</sup>, Mulungu C<sup>3,7</sup>, Mwenya O<sup>4</sup>, Mwamba J<sup>1</sup>, Moyo L<sup>3</sup>, Moyo C<sup>6</sup>, Mbambara T<sup>3</sup>, Lungu G<sup>3</sup>, Mbewe M<sup>5</sup>, Maila B<sup>3</sup>, Moonga G<sup>2</sup>, Shanaube K<sup>1</sup>

<sup>1</sup>Zambart, Lusaka, Zambia, <sup>2</sup>University of Zambia, Department of Epidemiology and Biostatistics, Lusaka, Zambia, <sup>3</sup>Ministry of Health, Mental Health Unit, Lusaka, Zambia, <sup>4</sup>Serenity Harm Reduction Programme Zambia, Lusaka, Zambia, <sup>5</sup>Seed Global Health, Lusaka, Zambia, <sup>6</sup>Lifeline Childline Zambia, Lusaka, Zambia, <sup>7</sup>University of Lusaka, Lusaka, Zambia

**Background:** Depression is associated with poor clinical outcomes among people living with HIV. Screening, assessment, early diagnosis, and early intervention have the potential to improve the quality of life. However, few studies in sub-Saharan Africa have examined the prevalence and associated risk factors in routine HIV care. We aimed to determine the prevalence and associated factors of depression among adolescents and young people living with HIV and receiving antiretroviral therapy (ART) at a primary healthcare facility in Lusaka, Zambia.

**Materials and Methods:** We conducted a cross-sectional survey from September to December 2023 at a first-level hospital in Lusaka. A total of 307 young people aged 15 to 24 years living with HIV were enrolled through a complete enumeration of hospital ART registers. Depression was measured using the Patient Health Questionnaire (PHQ-9) administered by a research assistant, with a positive screen defined by a score  $\geq 5$ . Frequencies and proportions were used to determine prevalence and a logistic regression model, was employed to identify correlates of depression.

**Results:** Out of 307 participants, 94.8% consented, with females comprising 66%, and a median age of 20 years (IQR 18-23). Overall depressive symptoms were prevalent in 70% (95%CI 64-75), with 55% having mild, 31% moderate, 12% moderately severe, and 2% severe depression. Females showed higher rates of moderate (60%) and moderately severe depression (64%) than males. The highest rate of moderately severe (48% CI 28-69) and severe depression (75% CI 19-99) were among those aged 21-24 years compared to the other age groups. For all levels of depression, those aged 15-17 years had the lowest proportions compared to those aged 18-20 and 21-24 years.

Individuals who self-reported feeling stigmatized (aOR 2.13; 95%CI 1.07-4.49,  $p=0.037$ ) and those forced into their last sexual encounters (aOR 8.64; 95%CI 1.67-159,  $p=0.04$ ) were more likely to have depressive symptoms.

**Conclusions:** There is a high prevalence of depression among young people living with HIV. Routine screening for depression is feasible and can be integrated into routine HIV clinic visits. Efforts to address HIV-related stigma and sexual abuse must be strengthened to support adolescents and young people who are a vulnerable population.





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## Fighting a Twin Enemy: A Descriptive Evaluation of HIV and Syphilis Testing Among Pregnant Women in Liberia

Dunbar D<sup>1</sup>, Paye C<sup>2</sup>, Nyanplu T<sup>2</sup>, Gibson B<sup>2</sup>, Flomo J<sup>2</sup>, Honore E<sup>2</sup>, Conteh S<sup>2</sup>, Fassah W<sup>2</sup>, Wordsworth N<sup>2</sup>, Korvah S<sup>3</sup>

<sup>1</sup>Redemption Hospital Liberia., Monrovia, Liberia, <sup>2</sup>National AIDS & STI Control Program/Ministry of Health, Monrovia, Liberia, <sup>3</sup>UNICEF, Monrovia, Liberia

**Background:** HIV and syphilis are a twin tragedy for exposed babies around the globe, with one million new syphilis and 1.5 million new HIV infections occurring in pregnant women every year. The prevalence of both infections among pregnant women accessing antenatal clinics (ANC) in Liberia is 1.6 and 1.3 % respectively WHO recommends simultaneous dual testing for both infections to maximize access and efficiency. The National AIDS Control Program partnered with stakeholders to introduce dual testing in 2021 across selected antenatal clinics. We share our national experience and provide a descriptive evaluation of the women tested for both infections.

**Materials and Methods:** stakeholder engagements, advocacy, and sensitization with staff of ANC clinics, between April 2021 and March 2022 led to the design of a road map adapted to country context. Guidelines and job aids were developed to support the training of providers. 124 master trainers were trained across the 15 counties to cascade training to staff of 563 health facilities. Data collection and monitoring tools were updated to collect data and to track dual testing.

**Results:** 187,667 pregnant women tested for HIV, 1,878(1.0%) were HIV positive and were linked to ART. 111,799 (60%) were screened for syphilis with 1,652 (1.5%) testing positive and started on Benzathine penicillin. The other women (40%) were tested for HIV alone from peripheral clinics without stock of HIV/Syphilis dual test. The proportion of women tested positive for HIV (1.8%) and syphilis (2.3%) was highest for women 10-14 years than women 15years and above (0.9 and 1.5% respectively)

Table: Pregnant women tested for Syphilis and HIV - January - December 2022 (Source: Country DHIS2)

Age (Years)	Tested for Syphilis Positive for Syphilis	Tested for HIV Positive for HIV	Tested
10 - 14	914	21 (2.3%)	1286
15 - 25+	110,885	1,631 (1.5%)	186,381
Total	111799	1652 (1.5%)	187667
	1878 (1.0%)		

**Conclusions:** Dual HIV and syphilis testing is feasible in Liberia. Supply chain support should be enhanced to assure commodity supply to include peripheral clinics. The comparatively higher prevalence of syphilis and HIV among pregnant women younger than 15 needs to be investigated.

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## Sexually Transmitted Infections and Seeking Care Behaviour Among Sexually Active Adolescent Girls and Young Women in Zimbabwe: A Respondent Driven Sampling Survey

Chidhanguro K<sup>1</sup>, Murenjekwa W<sup>1</sup>, Ncube G<sup>2</sup>, Copas A<sup>3</sup>, Cowan F<sup>1,4</sup>, Dirawo J<sup>1</sup>, Matsikire E<sup>1</sup>, Mpofu A<sup>5</sup>, Mugurungi O<sup>2</sup>, Phillips A<sup>6</sup>, Taramusi I<sup>7</sup>, Sibanda E<sup>1,4</sup>, Cambiano V<sup>6</sup>

<sup>1</sup>Centre for Sexual Health and HIV/AIDS Research (CeSHHAR), Harare, Zimbabwe, , Zimbabwe, <sup>2</sup>Department of AIDS and TB Unit, Ministry of Health and Child Care, Zimbabwe, <sup>3</sup>Institute for Global Health and the MRC Clinical Trials Unit, University College London, UK, <sup>4</sup>Department of International Public Health, Liverpool School of Tropical Medicine, , United Kingdom, <sup>5</sup>National AIDS Council (NAC), Zimbabwe, <sup>6</sup>Institute for Global Health, University College London, United Kingdom, <sup>7</sup>UNAIDS UCO, Zimbabwe

**Background:** Uptake of sexual and reproductive health services (SRH) among adolescent girls and young women (AGYW) is poor. We aimed to estimate the prevalence of sexually transmitted infections (STIs) and describe uptake of STI



treatment amongst sexually active AGYW (SA-AGYW).

**Materials and Methods:** A cross-sectional respondent driven sampling survey of SA-AGYW, aged 15-24 years was conducted in May-July 2023 in six urban and peri-urban districts in Zimbabwe. Participants self-completed an audio computer-assisted questionnaire focusing on sexual behaviour, STI symptoms and uptake of SRH services. A random third self-collected vaginal swabs that were tested for Chlamydia (CT), Gonorrhoea (NG), and *Trichomonas vaginalis* (TV) using a multiplex polymerase chain reaction test. Individuals with positive results were notified by phone call (up to six attempts) and offered free treatment at their clinic of choice.

**Results:** Of 900 SA-AGYW, 68% (614/900), reported having condomless sex in the last three months, with 17% (157/900) reporting having genital sores, genital warts, or an unusual vaginal discharge in the last 12 months; 41% (64/157) reported not doing anything about these symptoms. During the survey 8% (72/900) reported current symptoms.

Among the 300 that collected vaginal swabs, 31% (93/300) tested positive to at least one of CT, NG, or TV; however, 89% (82/92) reported no current symptoms. Of note 9% (26/294) reported current symptoms and among these 38% (10/26) tested positive to at least one STI compared to 31% (82/268) in those who did not. Among participants who reported symptoms in the last 12 months, 47% (28/59) were positive to at least one STI compared to 27% (65/236) among those not reporting symptoms in the last 12 months, chi-square  $P=0.0015$ . Five AGYW refused to answer the question about symptoms. Of those with a positive result 76% (71/93) were successfully notified. However, 51% (36/71) came forward to receive treatment.

**Conclusions:** High STI prevalence continues to be seen amongst SA-AGYW. Despite offering free treatment at local clinics only half of them accessed it. Better provision for screening and treatment of STIs is required coupled with education to raise awareness of STIs and the fact that they are often asymptomatic.

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## Co-designing Desirable Postpartum Mental Health Services Using a Human-Centered Approach with Kenyan Women at Risk for and Living With HIV

Marwa M<sup>1</sup>, Larsen A<sup>2</sup>, Mutahi J<sup>1</sup>, Moraa H<sup>2</sup>, Atieno W<sup>1</sup>, Kumar M<sup>3</sup>, Wamalwa D<sup>4</sup>, Kinuthia J<sup>1</sup>, John-Stewart G<sup>2</sup>, Pintye J<sup>2</sup>

<sup>1</sup>Kenyatta National Hospital, Nairobi, Kenya, <sup>2</sup>University of Washington, Seattle, USA, <sup>3</sup>New York University, USA, <sup>4</sup>University of Nairobi, Nairobi, Kenya

**Background:** Untreated perinatal mood and anxiety disorders (PMAD) contribute to negative health outcomes for mother-infant pairs, especially in contexts of HIV. However, linkage to mental health services from maternal child health (MCH) and prevention of maternal-to-child transmission (PMTCT) services is low in Kenya. We used a human-centered design approach to identify perinatal women's preferences for mental health service elements to inform design of future desirable services.

**Materials and Methods:** We conducted 6 focus group discussions (FGDs) among postpartum women identified through two ongoing longitudinal studies among Kenyan women living with HIV and at risk of HIV. Postpartum women resided in Nairobi or Homa Bay County and were eligible for FGDs if they had screened positive for likely depression or anxiety in one of the parent studies. FGDs focused on iteratively ideating acceptable elements (e.g., location, provider, format, mode) of hypothetical future perinatal mental health services. For each element, participants were offered a list of 3-15 options derived from existing evidence-based interventions to rank in priority.

**Results:** Top-ranking elements of potential perinatal mental health services differed by location and HIV status. Regardless of HIV status, postpartum women in Nairobi desired mental health services delivered in a health facility by a counselor via a mix of individual and group sessions. In contrast, women in Homa Bay preferred individual support delivered in a church by a pastor. Content about spirituality and



financial skills was chosen across all FGDs. Women living with HIV (WLHIV) in Nairobi preferred support from someone known to them whereas HIV-negative women in both locations preferred not to know the provider. WLHIV ranked telephone counseling over in-person care, whereas HIV-negative women selected in-person care. Confidentiality was the top quality that WLHIV desired in a provider, whereas HIV-negative women preferred problem-solving capabilities.

**Conclusions:** Postpartum Kenyan women at risk for and living with HIV have clear preferences for elements of perinatal mental health services which differed slightly by HIV status and location. As integrated mental health services in MCH and PMTCT expand, it is increasingly important to tailor services to perinatal women, with special considerations for HIV status, to optimize desirability and utilization.

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## High Prevalence of Hypertension and Diabetes Mellitus Among People Living with HIV in Eastern Uganda

Kanyike A<sup>1,2</sup>, Nakawuki A<sup>3</sup>, Akech G<sup>2</sup>, Kihumuro R<sup>1</sup>, Kintu T<sup>4</sup>, Nalunkuma R<sup>1</sup>, Nakandi R<sup>1</sup>, Mugabi J<sup>2</sup>, Twijukye N<sup>2</sup>, Bwayo D<sup>2</sup>, Katuramu R<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, Mengo Hospital, Kampala, Uganda, <sup>2</sup>Department of Internal Medicine, Faculty of Health Sciences, Busitema University, Mbale, Uganda, <sup>3</sup>Department of Nursing, Faculty of Health Sciences, Busitema University, Mbale, Uganda, <sup>4</sup>Mulago National Referral Hospital, Kampala, Uganda

**Background:** Antiretroviral therapy (ART) has extended lifespans for People Living with HIV (PLHIV), subsequently exposing them to risks of cardiovascular diseases (CVD), especially hypertension (HTN) and Diabetes mellitus (DM). This study assessed CVD risk factors, their correlates, and the 10-year risk for CVD among PLHIV in Eastern Uganda.

**Materials and Methods:** A cross-sectional quantitative study was conducted at Mbale Regional Referral Hospital and Bugobero Health Center IV from May to July 2023. PLHIV, aged  $\geq 18$  years, and willing to have a fasting blood glucose

test were included. A semi-structured questionnaire adapted from the WHO STEPwise approach to noncommunicable disease risk factor surveillance (STEPS) and the AIDS Clinical Trials Group (ACTG), and anthropometric measurements, blood pressure, and fasting blood glucose were taken by a trained research assistant. Ten-year cardiovascular risk was assessed using the WHO cardiovascular disease risk nonlaboratory-based charts for Eastern Sub-Saharan Africa. Bivariate and multivariable logistic regression were performed. A P value of 0.2 in the bivariate analysis was transferred to the multivariable logistic regression model. A two-sided P value of less than 0.05 was considered statistically significant.

**Results:** We surveyed 400 participants with a mean age of  $46.5 \pm 12.4$  years. The majority were female (65.3%), with 10-14 years of living with HIV (33.7%) and a suppressed viral load (94.7%). Of these, 37.5% had HTN only, 12.0% had DM only and 7.3% had both conditions. Most participants (88.5%) had a low 10-year cardiovascular risk ( $< 10\%$ ), and 10.8% had a moderate risk (10-20%). Obesity was found in 8.8% of participants, with a higher prevalence among females (12.3%) than males (2.2%). HTN and DM were independently associated with age  $\geq 50$  years, being on ART with a protease inhibitor, and having a BMI  $\geq 25$ . Additionally, DM was also associated with  $\geq 10$  years of living with HIV and a positive family history of DM.

**Conclusions:** A significant portion of PLHIV have hypertension and diabetes mellitus influenced by a combination of lifestyle factors like obesity and HIV-related factors such as ART. Screening and management of cardiovascular diseases among PLHIV is imperative to prevent non-HIV-related mortality and morbidity.



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## Hépatites B et C chez les Professionnels de Santé du Plus Grand Hôpital Universitaire de Cotonou : Aspects Épidémiologiques et Diagnostiques

Krossou A<sup>1</sup>, Sokpon M<sup>1</sup>, Zokpodo M<sup>2</sup>, Vignon R<sup>1</sup>, Mikponhoué R<sup>3</sup>, Kodjoh N<sup>1</sup>, Gbedo E<sup>4</sup>, Ayélo P<sup>3</sup>, Sehonou J<sup>1</sup>

<sup>1</sup>Sahge, Cotonou, Bénin, <sup>2</sup>CNHU-HKM, Cotonou, Bénin, <sup>3</sup>FSS, Cotonou, Bénin, <sup>4</sup>PNNLH, Cotonou, Bénin

**Background :** L'infection par le virus de l'hépatite B (VHB) et de l'hépatite C (VHC) constitue un problème majeur de santé publique dans le monde. L'objectif de ce travail était d'étudier les aspects épidémiologiques et diagnostiques de l'infection au VHB et au VHC chez les professionnels de santé du plus grand hôpital public de Cotonou.

**Matériels et Méthodes :** il s'agissait d'une étude prospective transversale à visée descriptive et analytique. La phase de collecte de données a duré 2 mois allant de juillet à septembre 2022 à la clinique universitaire de santé au travail et ensuite à la clinique universitaire d'hépatogastroentérologie du CNHU-HKM de Cotonou. Le recrutement a été exhaustif chez les agents de santé venus pour le dépistage du VHB et du VHC et ayant donné leur consentement.

**Résultats :** en tout, 806 personnes ont été incluses. L'âge moyen des agents était de 43,1 ans ± 1,9 avec un sex-ratio de 1,1. Les infirmiers étaient majoritairement représentés (259 ; 32,1%) suivis des aides-soignants (185 ; 23%) et du personnel de l'administration (122 ; 15,1%). L'HTA était la comorbidité la plus retrouvée (129 ; 16%). Aucun cas d'antécédent d'infection VIH n'était noté. Sur l'ensemble, 51 personnes étaient positives à l'Ag HBs soit une prévalence de 6,3% et 6 personnes étaient positives à l'Ac anti-VHC soit une prévalence de 0,7%. Seulement 23 personnes étaient revenues pour la suite des examens, la majorité n'était pas symptomatique (78,2%) parmi les 23 et l'examen physique était souvent normal. Parmi ceux positifs à l'Ag HBs, la majorité avaient une infection chronique à Ag HBe négatif (59,1% ;

13 sujets) et sans fibrose cliniquement significative. Aucune complication n'a été observée dans ce travail. Il n'y avait pas de facteurs significativement associés à la survenue de VHB chez le personnel.

**Conclusions :** Il ressort de ce travail qu'il y a un intérêt à offrir un dépistage systématique des hépatites B et C de tous professionnels de la santé (à l'embauche) afin de leur assurer une prise en charge adéquate pour contribuer à l'éradication de ces fléaux au Bénin.

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## High Risk HPV Type Distribution Among HIV Positive Patients Diagnosed with Cervical Precancerous and Cancerous Lesions. The Case of Dominican Hospital Center, St Martin de Porres Yaoundé, Cameroon

Keriane Diane K<sup>1,4</sup>, BERTRAND KIAFON F<sup>2</sup>, Jules-Roger K<sup>1,3</sup>, Andrillene Laure D<sup>1</sup>

<sup>1</sup>Faculty of Science and Technology, Evangelical university of Cameroon, Bandjoun, Cameroon, <sup>2</sup>Pathology department of Dominican Hospital Center, St Martin de Porres Yaoundé, Yaoundé, Cameroon, <sup>3</sup>Department of Biochemistry, Faculty of Science, University of Dschang, Dschang, Cameroon, <sup>4</sup>Pathology laboratory, Bafoussam Regional Hospital, Bafoussam, Cameroon

**Background:** Despite the development of vaccines aimed at reducing infection with high-risk Human Papilloma Virus (HPV), cervical cancer remains the second most common cancer affecting women in Sub-Saharan Africa. Women living with HIV in the region are at increased risk to develop cervical cancer, which is caused by persistent infection with 13 oncogenic HPVs. The aim of this study was to determine the distribution of high-risk HPV subtypes among HIV-positive and negative women diagnosed with cervical precancerous and cancerous lesions.

**Materials and Methods:** This was a descriptive cross-sectional study of 410 women diagnosed with cervical precancerous and cancerous lesions



since 2015 at the pathology laboratory of the Dominican Hospital Center, St Martin de Porres Yaoundé. Sampling was non-probabilistic, consecutive and exhaustive of all cytologically proven cervical pre-cancer and cancer cases, who were called for rescreening. Were excluded from the study; women with negative pap smears after rescreening and women who have undergone surgical excision of the cervix or uterus. Data was analyzed using SPSS version 22.0.

**Results:** 506 pre-cancer and cancer cases were recorded within this period for an annual average of 74.0 cases. Of the 506 cases, 410 were contacted successfully; among which 40 had positive Pap smears after rescreening. Of the 370 women remaining, HIV negative patients represented 62.4% while HIV positive patients represented 37.6%. These patients were on average of  $41.0 \pm 11.1$  years old. Cervical Low grade squamous intraepithelial lesions (L/SIL) were most prevalent representing 67.0%. HPV subtypes 16, 18, 33 and 45 represented 54.1%, 31.9%, 8.6% and 5.4% respectively. HPV 33 and 45 were predominant in HIV positive patients (55.4% and 31.7% respectively) while HPV 16 and 18 were predominant in HIV negative patients. HPV types 16 and 18 were predominant in High grade SIL. Co-infection with HPV 16 and 33 was high in HIV-positive patients.

**Conclusions:** HPV 33 and 45 are predominant in HIV-positive women. This high prevalence suggests that these subtypes should receive special attention for molecular diagnostic algorithms during cervical cancer prevention programs for HIV positive women in Cameroon and sub-Saharan Africa.

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## Estimation of 10 years Risk of Cardiovascular Diseases among People with or without HIV Infection Using WHO Risk Prediction Charts: A Facility Based Study in Nigeria

Ajayi O<sup>1</sup>, Okonkwo P<sup>1</sup>, Ajayi O<sup>2</sup>, Osayi E<sup>1</sup>, Ogwuche J<sup>3</sup>, Elujoba M<sup>3</sup>, Ogunsola O<sup>1</sup>, Onwuatuelo I<sup>1</sup>, Samuels J<sup>1</sup>

<sup>1</sup>Apin Public Health Initiatives, Nigeria, Abuja, Nigeria,

<sup>2</sup>Community Medicine Department, University College Hospital, Ibadan, Nigeria, <sup>3</sup>ART Clinic, Our Lady of Apostle Hospital, Jos, Nigeria

An effective prevention strategy for Cardiovascular Disease (CVD) is early risk identification and evidence-based treatment of high-risk people. This study aimed to estimate the 10-year risk of CVD and its associated factors and profile cardiovascular risk factors among people with (PLWH) and without HIV (Non-PLWoH) receiving care in an HIV Clinic in Plateau State, Nigeria.

A cross-sectional analysis from baseline data of a prospective cohort study of NCD incidence among age-matched adults (18 years and above) PLWH and PLWoH. Risk scores were calculated using the updated 2019 WHO risk prediction charts. The scores were determined based on age, gender, current smoking status, systolic blood pressure, diabetes mellitus status, and total serum cholesterol. Data collected included sociodemographic history, lifestyle risk factors, and relevant clinical data. Adjusted odds ratios were computed to identify significant predictors of CVD risk at a 95% confidence limit.

Of the 239 PLWH and 234 PLWoH sampled, 71.5% and 77.8% were women ( $p < 0.01$ ), with a median age of 40 years and 37 years ( $p = 0.02$ ) respectively. CVD risk factors Significant differences exist between PLWH and PLWoH were as follows; alcohol use ( $p < 0.01$ ), waist-hip-ratio ( $p = 0.02$ ), abdominal circumference ( $p < 0.01$ ), diastolic blood pressure ( $p < 0.01$ ), serum triglyceride level ( $p < 0.01$ ), and serum creatinine level ( $p = 0.04$ ). Most participants had  $< 10\%$  of 10-year CVD risk (PLWH: 98.3%, PLWoH: 97.0%). The prevalence of  $\geq 10\%$  CVD risk in 10 years was higher among the PLWoH (3.0%) than PLWH



(1.7%) ( $p = 0.36$ ). Predictors of 10-year CVD risk at univariate level were the participant's total serum cholesterol level ( $COR = 1.79$ ,  $p = 0.03$ ) and age ( $COR = 1.08$ ,  $p < 0.01$ ). The adjusted model showed that 10 years of CVD risk increases with the age of the participants ( $AOR = 1.71$ ,  $P < 0.01$ ).

Although, this study shows a relatively low risk of  $\geq 10\%$  CVD risk among PLWH and PLWoH. Emphasis should be geared towards CVD risk screening as individuals advance in age to prevent CVD risk factors and diseases.

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## Diabetes Mellitus Control in People Living with HIV at a Referral Clinic in Zimbabwe: A Cross Sectional Analysis

Chimbetete C<sup>1</sup>, Mandiriri A<sup>1</sup>, Moyo V<sup>1</sup>

<sup>1</sup>Newlands Clinic, Harare, Zimbabwe

**Background:** There is a growing burden of non-communicable diseases including diabetes mellitus (DM) among the ageing population of people living with HIV (PLHIV). Optimum blood sugar control is as important as HIV control to ensure a reduction in morbidity and mortality among diabetic PLHIV. We assessed and compared blood sugar and HIV control in a cohort of PLHIV with comorbid DM receiving care at a specialist HIV referral clinic in Zimbabwe.

**Materials and Methods:** We conducted a descriptive cross-sectional analysis of adult patients ( $\geq 40$  years) as of 31 December 2023 using routine clinic records. DM control was defined as an HBA1C of  $< 7\%$ . HIV control was defined as a viral load of  $< 1000$  copies/ml. We compared the percentage of disease control (HIV vs diabetes) in participants living with both HIV and diabetes.

**Results:** We reviewed 4857 records (1694, 39% males, overall median age 51 years, IQR 46-47). Most participants (91%, with 65% females) were on a dolutegravir based regimen with a median of 14 years on antiretroviral therapy (IQR:9-17). Prevalence of DM was 7% ( $n=330$ , 95%CI 6.1-7.5) with no difference by gender (8% males and 6% females,  $p=0.08$ ). Amongst these diabetic patients,

glycaemic control was 59% (190/323) and did not significantly differ by gender (62%, 95%CI; 53-70 males vs 58%, 95%CI; 50-64 females). The proportion of HIV virologic control ( $< 1000$  copies/ml) was 98% (95%CI; 96-99) with no differences by gender. Overall, patients were more likely to achieve HIV virological control (98%) than glycaemic control (59%).

**Conclusions:** We show a high percentage of HIV virologic suppression which is in line with the global targets. However, the proportion of patients with good glycaemic control was significantly lower. Within integrated HIV care programs, health care workers need to help patients understand the equal importance of glycaemic control. Lessons learnt from HIV treatment programs should be used to help optimise control of comorbidities. Future research may be useful in understanding perceptions of PLHIV regarding the importance of comorbidities.

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## Impact of HDV Positivity on the Selection of HBV Surface Antigen Mutations and Epitope Processing and Presentation

Baruti K<sup>1,2</sup>, Choga W<sup>1,5</sup>, Phinius B<sup>1,5</sup>, Ratsoma T<sup>1,2</sup>, Mpebe G<sup>1,2</sup>, Phakedi B<sup>1,2</sup>, Motshosi P<sup>1,2</sup>, Jongman M<sup>1,2</sup>, Moyo S<sup>1,3</sup>, Anderson M<sup>1,4</sup>, Gaseitsiwe S<sup>1,3</sup>

<sup>1</sup>Botswana Harvard Health Partnership, Gaborone, Botswana, <sup>2</sup>Department of Biological Sciences, Faculty of Science, University of Botswana, Gaborone, Botswana, <sup>3</sup>Harvard T.H. Chan School of Public Health, Boston, United States of America, <sup>4</sup>University of KwaZulu Natal, Durban, Republic of South Africa, <sup>5</sup>School of Allied Health Professions, Faculty of Health Sciences, University of Botswana, Gaborone, Botswana

**Background:** The interaction of multiple viruses in one host is thought to lead to development of more mutations to enhance their survival rate. However, the impact of hepatitis D virus (HDV) positivity on the development of unique hepatitis B virus (HBV) mutations among people living with HIV (PWH) remains poorly understood, especially in Botswana, where HBV and HDV are not routinely diagnosed. Therefore, we aimed to elucidate the potential impact of HDV positivity on the development of HBV mutations among PWH who were HBV/HDV positive in Botswana.



**Materials and Methods:** This was a retrospective cross-sectional study utilizing HBV sequences generated from participants of the Botswana Combination Prevention Project (BCPP) study. To date, BCPP remains the largest pair-matched cluster-randomized trial in Botswana which enrolled a total of 12,610 participants. HBV positivity was recorded among 271 PWH, 75 of whom were successfully sequenced using the Oxford Nanopore tiling protocol [HBV-positive (n=68) and HBV/HDV positive (n=7)]. Geno2pheno was used to determine HBV sub-genotypes and the complete HBV surface (S) region sequences (all subgenotype A1) were aligned in AliView for mutational analysis. The impact of mutations in the S region was assessed using Phyre2, and the mapping of mutations within the CD4+ T-cell-restricted epitopes was assessed using NetMHCIIpan.

**Results:** Our results reveal 13 common mutations in the HBV S region between the two groups. Among the 27 unique mutations characterized in the HIV/HBV/HDV cohort, four (L95W, W196G, W156Q, C221Y) were classified as deleterious. Three of these mutations occurred in one participant whose HBV viral load was 409 IU/ml; and was receiving efavirenz, emtricitabine and tenofovir as HIV anti-retroviral therapy. Among the 48 unique mutations characterized in the HIV/HBV cohort, four (W199R, C221A, C221S, W223G) were also classified as deleterious. MHC II class analysis showed no strong peptide binding among HBV positive PWH while only one strong binder (MHC DRB1\*0101) was found in the HIV/HBV positive cohort.

**Conclusions:** Despite the limited impact of HDV positivity on epitope binding, our results demonstrate the presence of unique HBV mutations among the HBV/HDV positive cohort. Functional characterization of these mutations is recommended to determine their effect on HDV positivity.

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## Serum Vitamin B-12 and Performance-Based Cognition Among Persons Living with HIV and Demographically Matched Controls Without HIV Infection or Exposure in Kampala, Uganda

Ezeamama A<sup>1</sup>, Zalwango S<sup>2</sup>, Bayigga L<sup>3</sup>, Sikorskii A<sup>1</sup>, Awadu J<sup>1</sup>, Nakasujja N<sup>4</sup>, Giordani B<sup>5</sup>

<sup>1</sup>Michigan State University, East Lansing, United States,

<sup>2</sup>Kampala Capital City Authority, Kampala, Uganda, <sup>3</sup>Joint

Clinical Research Center, Kampala, Uganda, <sup>4</sup>Makerere

University School of Medicine, Kampala, Uganda, <sup>5</sup>University of

Michigan, Ann Arbor, USA

**Objectives:** Vitamin B-12 is usually neuroprotective but its relationship to cognition is unclear in the context of anti-retroviral therapy. Thus, we examine HIV differences in prevalent VB deficiency and test the hypothesis that VB sufficiency improves performance-based cognition in 1144 Ugandans from two large prospective cohort studies including children with perinatally acquired HIV (CPHIV, n=267), adults living with chronic HIV (ALWH, n=207), children perinatally HIV exposed but uninfected (CHEU, n=265) and HIV-uninfected controls (n=405, children 286, adults 119).

**Materials and Methods:** Plasma-derived baseline VB levels (in picomole/liter) were used to define VB levels as high (if >900), normal VB (if 200≤ plasma VB ≤900), and deficient (if <200). A comprehensive neuropsychological test battery was administered at baseline, 6, 12, and 18 months to define performance in eight cognitive domains. Multivariable linear-mixed regression models implemented in Statistical Analysis Software (v. 9.4) estimated VB-associated mean differences (β) with corresponding 95% confidence interval (95% CI) in each cognitive domain adjusted for time, HIV status, age, sex, education, and cohort.

**Results:** Serum VB in high range occurred in 16.8% (n=192), 74.1% (n=848) were in normal while VB deficiency occurred in 9.1%(n=104). Over 18 months, higher vs. deficient VB levels predicted superior performance or faster completion in tests



of executive function (high:  $\beta = -0.84$ , 95%CI: -1.37, -0.31; normal:  $\beta = -0.57$ , 95%CI: -1.0, -0.11), processing speed – i.e., symbol digits modality test (High:  $\beta = 0.40$ , 95%CI: 0.06, 0.74; normal:  $\beta = 0.15$ , 95%CI: -0.07, 0.38) and Color Trails 1 (high:  $\beta = -1.0$ , 95%CI: -1.79, -0.21; normal:  $\beta = -0.64$ , 95%CI: -1.36, 0.09). Likewise, higher VB predicted superior performance in tests of gross motor (high:  $\beta = -0.35$ , 95%CI: -0.69, -0.01; normal:  $\beta = -0.08$ , 95%CI: -0.38, 0.20) and fine motor (high:  $\beta = 0.50$ , 95%CI: 0.11, 0.88; normal:  $\beta = 0.19$ , 95%CI: -0.15, 0.52) function among children but not among adults.

**Conclusions:** Compared to VB deficient status, clinically normal and high serum VB predicted better performance in several cognitive domains. Among adults and children from Uganda, VB association with cognition was independent of confounders and invariant by HIV status suggesting that mitigating overt VB deficiency may support brain health regardless of HIV status.

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## Health Care Providers' Perspectives on Cancer Treatment Decision-Making for Cancer Patients with HIV at Major Cancer Centres in Malawi, South Africa, Zimbabwe, and Uganda: A Qualitative Study

Bula A<sup>1</sup>, Dunda W<sup>1</sup>, Chagomerana M<sup>1</sup>, Jatho A<sup>2</sup>, Mtisi T<sup>3</sup>, Nassolo C<sup>2</sup>, Borok M<sup>3</sup>, Ndlovu T<sup>3</sup>, Weza S<sup>3</sup>, Joffe M<sup>4</sup>, Bender Ignacio R<sup>5</sup>, Mugisha N<sup>3</sup>, Montano M<sup>5</sup>

<sup>1</sup>UNC Project, Lilongwe, Malawi, Lilongwe, Malawi, <sup>2</sup>Uganda Cancer Institute, Kampala, Uganda, <sup>3</sup>University of Zimbabwe, Faculty of Medicine and Health Sciences, Harare, Zimbabwe, <sup>4</sup>University of Witwatersrand, Faculty of Health Sciences, Strengthening Oncology Services Unit, Johannesburg, South Africa, <sup>5</sup>University of Washington, Department of Medicine, Division of Allergy and Infectious Diseases, Seattle, USA

**Background:** People with HIV (PWH) are at higher risk of developing cancer and are less likely to receive cancer treatment compared with the general cancer population. They are more likely to miss their Anti-retroviral treatment and

experience higher morbidity and mortality compared with the general population. We examined cancer care providers' perspectives on how HIV status influences the delivery of cancer treatment for PWH diagnosed with cancer.

**Materials and Methods:** Between October 2022–July 2023, we conducted 61 qualitative in-depth interviews (IDI) with health care providers (HCP) as part of a mixed method study conducted in Malawi, South Africa, Uganda, and Zimbabwe. Using a semi-structured interview guide, we explored how HCP ascertain HIV status and how status influences cancer treatment, their knowledge and experiences providing care to cancer patients with HIV, and their impression of patient experience receiving concurrent cancer and antiretroviral therapy. IDIs were audio-recorded in English and vernacular languages, transcribed, and translated into English. Data were analyzed using NVivo Version 1.7 with periodic interrater reliability checks. Memos were developed using a thematic approach.

**Results:** All HCP (61) across countries reported providing care to cancer patients with HIV frequently and they reported knowing HIV status of cancer patients is essential for deciding a treatment plan, managing side effects, and providing counselling for both conditions. HCP reported delays in starting cancer treatment for patients with unknown HIV status due to poor coordination between cancer and HIV services; some patients failing to return after referral for HIV, viral load and CD4 testing at HIV clinics, separate from oncology units. Poor adherence to HIV and cancer drugs, often due to side effects or failure to visit both clinics, was mentioned as the major challenge in treating cancer patients with HIV. Most HCP reported challenges in providing counselling to promote adherence to both treatment regimens due to inadequate training in HIV management.

**Conclusions:** HCP in Malawi, South Africa, Uganda, and Zimbabwe nearly uniformly felt that care for HIV was integral to appropriate management of cancer in PWH. Care integration, multidisciplinary collaboration, and provider training on HIV are needed to improve outcomes among cancer patients with HIV.





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## Knowledge, Uptake, and Completion of Tuberculosis Preventive Therapy Amongst Adolescents and Young People Living with HIV in Marondera and Chikomba Districts, Zimbabwe, 2023

**Peperoke H<sup>1</sup>**, Makoni T<sup>1</sup>, Mademutsa C<sup>1</sup>, Timire C<sup>2</sup>, Mhondoro M<sup>2</sup>, Mhloyi M<sup>3</sup>

<sup>1</sup>Zimbabwe National Network Of People Living with HIV (ZNNP+), Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>University of Zimbabwe, Harare, Zimbabwe

**Background:** Despite Zimbabwe being one of the countries at the forefront in the rollout of the shorter and safer TB Preventive Therapy (TPT) regimen, uptake and completion of the chemoprophylaxis has been reportedly low. Adolescents and young people being a unique group with unique needs, even lower uptake, adherence, and completion rates were expected amongst the group, as has been consistent in most TB and HIV programs.

**Materials and Methods:** A triangulation study involving the collection of data from TPT and Anti-retroviral therapy (ART) registers, a survey and qualitative interviews was done. Target population were the 12–24-year-old adolescents and young people living with HIV. Multivariate analysis on the quantitative, and thematic analysis on the qualitative data were carried out.

**Results:** Data for the uptake and completion of TPT was obtained from the TPT and ART registers of clients at the respective 22 facilities sampled in Marondera and Chikomba districts. Of the 232 records sampled, 97.4% were initiated on TPT, whilst 83.6% completed the respective regimen initiated. Completion rate was higher for the 3-month, 93.7%, compared to the 6-month regimen, 66.3%. A paltry 0.9% developed adverse reactions whilst on TPT. Knowledge levels were low with only 47.9% of the 169 respondents having ever heard or comprehensively responding to the TPT survey. The in-depth and key-informant interviews identified the barriers to the uptake and completion of TPT to include lack of health

education, lack of knowledge, lack of treatment literacy, pill burden, fear of perceived side effects of medication, regimen type, staff shortage, stigma and discrimination, and lack of an effective monitoring and evaluation system for TPT.

Facilitators to the uptake of medication included peer support from support group members, type of regimen and capacitated staff.

**Conclusions:** The identified barriers and facilitators may be used to improve program performance. Scaling up of the shorter TPT regimen, intensification of TPT related health education and counselling, adolescent and young adults support groups, and establishment of an effective TPT monitoring and evaluation system at health facilities were recommended to mitigate attrition at each stage of the TPT cascade to yield better program performance results.

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## An Integrated Approach in Enhancing the Quality of Care for Individuals Living with Mental Illness and HIV in Busia County Referral Hospital, Busia County, Kenya

**Tebagalika F<sup>1</sup>**, Zeph L<sup>1</sup>, Wabuti A<sup>1</sup>, Ashiono E<sup>1</sup>

<sup>1</sup>USAID Dumishaafya, Eldoret, Kenya

**Background:** This outlines a multifaceted strategy aimed at improving the quality of care for individuals coping with both mental illness and Human Immunodeficiency Virus (HIV) who have been greatly neglected. Busia County is a level 4 Healthcare facility in Kenya with 6,574 Recipients of HIV Care clients. With routine screening, 29 cases of mental illness have so far been identified and enrolled in an integrated HIV- mental healthcare clinic that involves a coordinated and multidisciplinary healthcare team to improve their treatment outcomes.

**Materials and Methods:** Mental health screening was integrated into routine visits by clinicians and counselors at the different service delivery within the Comprehensive Care Clinic (CCC). The



screening is conducted with the use of structured approved Ministry of Health tools. The diagnosed cases are then enrolled in an integrated HIV/Mental clinic with a multidisciplinary approach that involves a nutritionist, clinical officers, a nurse, a psychiatrist, and an ART (Anti-Retroviral Treatment) peer supporter that provides structured and harmonized same-day booking, specialized clinical reviews, build family support systems and empowerment on income-generating activities such as kitchen gardens and sheep farming. Medications for these cases are provided at no cost for those available as usually these patients cannot afford them. The clients are longitudinally followed up for continuation on ART and viral suppression by the mental clinic champion,

**Results:** A total of 29 clients have been identified with 22 from the general CCC clients and 7 from the pregnant and breastfeeding mothers. The trends in the past 5 months have shown monthly improvement in outcomes from 59% cohort retention and 62% viral load suppression in September 96% cohort retention and 82% viral load suppression in January 2024. 93% are controlled and able to live with their families while 7% are still under close follow-up.

**Conclusions:** Improving the quality of care for individuals living with both mental illness and HIV necessitates an integrated and collaborative approach to improve overall treatment outcomes.

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## Anaemia in HIV: Investigating the Prevalence and Associated Factors Among Adults on Antiretroviral Therapy in Zambia

Kamvuma K<sup>1</sup>, Hamooya B<sup>1</sup>, Masenga S<sup>1</sup>  
<sup>1</sup>Mulungushi University, Livingstone, Zambia

**Background:** Anaemia in HIV is a common haematological complication which is linked to disease progression and increased mortality. The global prevalence of anaemia in people living with HIV (PLWH) varies widely, with higher rates in low and middle-income countries, particularly in sub-

Saharan Africa. This study quantified the burden and identified factors associated with anaemia among adults PLWH at Livingstone University Teaching.

**Materials and Methods:** We gathered cross-sectional demographic, lifestyle, anthropometric, clinical, and laboratory data from 629 adults who had been on antiretroviral therapy (ART) for at least 6 months between February 2019 and May 2020. Based on World Health Organisation (WHO) classification, anaemia was defined as haemoglobin concentration lower than normal i.e. < 12 g/dl in females and 13 g/dl in males. Data were analysed using SPSS. Descriptive statistics and logistic regression were the statistical methods employed.

**Results:** The mean age (range) was 44 years (18-79) and 63.7% (n=401) were female. The prevalence of anaemia was 34.8% (219/629; 95 confidence interval (CI) 31.1 - 38.7). In multivariate logistic regression analysis, factors significantly associated with anaemia were female sex (AOR = 2.50, p < 0.001), being underweight (AOR = 3.991, p = 0.034), long duration on ART (AOR= 1.01, p= 0.026) and physical exercise (AOR = 0.57, p = 0.009).

**Conclusions:** The study reveals a significant prevalence of anaemia among adults with HIV receiving ART and it was positively associated with female sex, underweight status, and prolonged duration on current ART, while engaging in active exercise shows a protective effect. These findings emphasize the importance of tailored interventions to address anaemia in the HIV population, particularly targeting females, underweights and those who have been on ART longer. Future studies focusing on the exploration of underlying mechanisms for anaemia in HIV are needed.



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## Prevalence of HBV and/or HCV amongst PLHIV within Four Regions of Cameroon

Fualefac A<sup>1,2,3</sup>, Kofon J<sup>4</sup>, Mbekem J<sup>5,6</sup>, Cho J<sup>1</sup>, Ndip L<sup>1</sup>, Njukeng A<sup>1,2,3</sup>

<sup>1</sup>Department of Microbiology and Parasitology, Faculty of Science, University of Buea-Cameroon, Buea, Cameroon, <sup>2</sup>Global Health Systems Solutions (GHSS) - Cameroon, Douala, Cameroon, <sup>3</sup>Global Health Systems Laboratory (GHSL) - Cameroon, Limbe, Cameroon, <sup>4</sup>Catholic School of Health Sciences (CSHS-Shisong) -Cameroon, Kumbo, Cameroon, <sup>5</sup>Military Research Center, Yaoundé, Cameroon (CRESAR) - Cameroon, Yaounde, Cameroon, <sup>6</sup>Department of Bacteriology and Virology, Catholic University of Central Africa Yaoundé, Cameroon, Yaounde, Cameroon

**Background:** PLHIV are at a greater risk of co-infection with either HBV and/or HCV compared with the general population. In most developing countries, including Cameroon, HBV and/or HCV testing is not a routine test for HIV patients; therefore, up to 33% of PLHIV may be co-infected with HBV and/or HCV.

**Materials and Methods:** This was a cross-sectional study, in which 652 PLHIV receiving care and treatment within the West, Center, Littoral, and Southwest regions of Cameroon participated. They were screened for HBV and HCV using RDT and ELISA. The majority of the participants were female (76.8%). Data for the study was collected using a pre-designed questionnaire. The data was cleaned, saved as CVS files, and imported into R-Studio for analysis.

**Results:** The overall prevalence of HIV co-infection with HBV and HCV was 7.6% and 1.7%, respectively. The prevalence of triple infection (HIV co-infection with HBV and HCV) was 0.2% (1/652). There was no significant difference (p values of 0.597) in HIV co-infection with HBV between males and females (8.6% and 7.2% respectively). The same holds for HIV co-infection with HCV (p values of 0.741), where we had a prevalence of 2% for males and 1.6% for females. Only 13 (2%) of the population had been vaccinated against HBV, and the prevalence of HBV in those vaccinated was 15.4% (2/13). The most striking result was the prevalence of HCV among those vaccinated against HBV, 15.4% (2/13) which was significantly higher than that among those who had never been vaccinated (1.4%), with a p-value of 0.018, which could be argued by the

low (2%) proportion of the population that had previously taken HBV shots.

**Conclusions:** The effect of HBV/HCV infection on the progression of HIV infection remains uncertain. Morbidity and mortality associated with HIV co-infection with HBV/HCV are very significant worldwide. They may be further enhanced in African populations because of the influence of host, viral, and environmental factors. Poor patient care and monitoring of HBV/HCV infections in HIV patients are one of the main causes of high morbidity and mortality in HIV patients.

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## Using Estimated Glomerular Filtration Rate to Assess Prevalence of Chronic Kidney Disease in Young People Living with HIV in Uganda, What Is the Truth?

Nasuuna E<sup>1,2</sup>, Tomlinson L<sup>3</sup>, Kalyesubula R<sup>4</sup>, Castelnovo B<sup>1</sup>, Chikwari C<sup>5,6</sup>, Weiss H<sup>6</sup>

<sup>1</sup>Infectious Diseases Institute, Makerere University College of Health Sciences, Kampala, Uganda, <sup>2</sup>Non-communicable Diseases Program, Medical Research Council/Uganda Virus Research Institute and London School of Hygiene and Tropical Medicine Uganda Research Unit, Entebbe, Uganda, <sup>3</sup>Department of non-Communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom, <sup>4</sup>Departments of Physiology and Medicine, Makerere University College of Health Sciences, Kampala, Uganda, <sup>5</sup>Biomedical Research and Training Institute, Harare, Zimbabwe, <sup>6</sup>MRC International Statistics and Epidemiology Group, London School of Hygiene & Tropical Medicine, London, United Kingdom

**Background:** Chronic kidney disease (CKD) is categorized by glomerular filtration rate (GFR). Determination of GFR is best done by measuring it using various invasive methods that are not practical in clinical settings. To enable clinicians estimate GFR simply, estimating equations using serum creatinine or cystatin C are used. We set out to determine the prevalence of CKD in the different categories according to different eGFR estimating equations among young people living with HIV in Uganda.

**Materials and Methods:** A cross-sectional study with YPLHIV aged 10-24 years was conducted in



seven HIV clinics in Kampala, Uganda. Participants provided a blood sample which was used to determine serum creatinine and cystatin C levels. The estimated GFR (eGFR) was calculated using 27 different equations with serum creatinine, cystatin C or both biomarkers, overall and stratified by age (<18 vs >18 years). The proportions in the different CKD categories (G1 eGFR>90, G2 eGFR 60-90, G3a eGFR 45-59) were described. Since these were not independent samples, no hypothesis test was used.

**Results:** A total of 495 participants were enrolled. Female were 56% (280) with a mean age of 16.8 years. The lowest eGFR was 56 ml/min/1.73m<sup>2</sup> so CKD stages G1 to G3a were considered. The 27 equations gave different prevalence of CKD. Stage 1 prevalence ranged from 37.8%-96.9% according to creatinine, 40.8% to 98.2% according to cystatin C and 69.8% to 97.0% according to both biomarkers. Prevalence of stage G2 varied the most with creatinine-based equations showing a prevalence between 3% and 25.7%, cystatin C equations showed the widest range between 1.8% and 57.7% and both biomarkers showed a prevalence of 3% to 30.2%. Prevalence of stage G3a according to creatinine ranged from 0% to 2.4%, 0% and 1.5% according to cystatin C and 0% to 0.3% according to both biomarkers.

**Conclusion:** The different estimating equations gave different eGFR categories making it difficult to ascertain the prevalence of CKD in the different categories. Since each estimating equations works best in the population it was developed for, it is important that one is developed for Africans living on the African continent including young adults living with HIV.

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## Cryptococemia Is a Risk Factor for Poor Patient Outcome Even in Settings with Comprehensive Advanced HIV Disease Care

**Kumwenda T<sup>1</sup>**, Heller T<sup>1,2</sup>, Wallrauch C<sup>1</sup>, Rambik E<sup>1</sup>  
<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>I-TECH, Seattle, USA

**Background:** Malawi's ART guidelines recommend serum-cryptococcal antigen (S-CrAg) screening for patients with CD4 <200 cells/ $\mu$ l; cryptococcal meningitis is ruled out by lumbar puncture for all S-CrAg+ patients. In cases of "cryptococemia only" (S-CrAg+/CSF-CrAg-) fluconazole pre-emptive treatment is provided. Given almost universal test coverage, clear treatment algorithms and virtually absent drug stock-outs at our clinic, the question remains whether cryptococemia is associated with poorer patient outcomes.

**Materials and Methods:** Lighthouse, Lilongwe, Malawi, provides ART for approx. 13,000 outpatients and starts about 500 patients/year. All AHD results (CD4, S-CrAg, CSF-CrAg) are recorded in paper registers (available Oct 2020 -June 2023). A retrospective matched-pair cohort analysis was done to assess treatment outcomes. All recorded S-CrAg+/CSF-CrAg- patients were manually linked to the electronic medical record system (EMRS). A matched cohort included the consecutively next three registered S-CrAg- patients matching sex and CD4 level (+/-30 cells) with the index patient. Patients with positive urine-LAM were excluded. EMRS outcomes ("dead", "lost-to-follow-up (LTFU)", "alive") at 3 and 6 months were extracted; patients "transferred out" to other clinics censored.

**Results:** We identified 33 serum-CrAg+ patients who could be linked to EMRS. 12 (25%) were female; median CD4 count was 100 [IQR 54-147]; median age 41 years [IQR 31-51]; 18 (54%) were ART naive. The 99 matched CrAg- patients had similar sex (25% female), ART status (65% ART naive) and median CD4 counts (100.5 [IQR 38-140]) and age (41 [IQR 35-46]). After six months, 5 CrAg+ and 5 CrAg- patients had transferred out. 7/28 S-CrAg+ patients (25.0%; 95%CI = 10.7-44.9) and 7/94 S-CrAg- patients (7.4%; 95%CI = 3.0-14.7) had died or were recorded as LTFU ( $\Delta$  17.6% (95%CI = 3.4-36.3, p=0.0105). If patients LTFU were excluded as their status cannot be ascertained, similar findings emerged: 3/24 CrAg+ patients (12.5%; 95%CI = 2.7-32.4) and 1/88 CrAg- (1.1%; 95%CI = 0-6.1) were recorded dead ( $\Delta$  11.4% (95%CI = 1.8-29.9, p=0.0082).

**Conclusions:** Cryptococemia is rare and in single-centers it is difficult to investigate outcomes. Nevertheless, our experience at clinic offering high-quality, uninterrupted care suggests that cryptococemia patients have higher risk of mortality. Efforts are required to monitor these



patients and potentially intensify their antifungal treatment.

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## Prevalence of HIV and Other Sexually Transmitted Infections Co-Morbidity Among Diverse Key Populations Assessing One-Stop-Shops Health Services in a Multicenter Program in Nigeria: A Retrospective Observational Study

Omo-Emmanuel U<sup>1</sup>, Jegede F<sup>3</sup>, Akhigbe M<sup>2</sup>, Abang R<sup>2</sup>

<sup>1</sup>United States Agency for International Development, Abuja, Nigeria, Abuja, Nigeria, <sup>2</sup>Heartland Alliance LTD/GTE, Nigeria, Uyo, Nigeria, <sup>3</sup>C/o Life Science Department, Bayero University, Kano, Nigeria

**Background:** PEPFAR funds have facilitated access to HIV and Sexually Transmitted Infections (STIs) treatment and prevention services for Key Populations (KPs) in supported countries. While documented strategies have improved health outcomes for comorbid HIV and STI cases among KPs, this population remains disproportionately burdened by HIV, with prevalence ranging from 2.8% to 28.8%. Despite the worldwide public health implications of high HIV and STI burdens, there is a lack of data on the co-infection burden among diverse groups of KPs in Nigeria. This retrospective observational study aims to assess the prevalence of HIV and other STIs co-morbidity among KPs in four Nigerian states.

**Description:** This retrospective observational study focused on KPs, including Female Sex Workers (FSWs) (70%), People who Inject Drugs (PWID) (17%), Men Who have Sex with Men (MSM) (12%), and Sexual partners (SPs) (1%) in four Nigerian states supported by USAID. Data from HIV and STIs programs were collected from individuals over 15 years old seeking prevention, care, and treatment services at 14 KPs One-Stop-Shops (OSSs) in the four states between January 2021 and December 2022. Variables of

interest, including HIV, Hepatitis-B, Hepatitis-C, Syphilis (VDRL), urine Microscopy, Culture, and Sensitivity (M/C/S), were extracted from Laboratory registers. Data were manually collected, entered into Excel, reviewed, cleaned and analyzed using SPSS, with results presented using descriptive statistics.

**Lessons Learnt:** Among 652 participants, 41% were from Badagry-Lagos, 31% from Bayelsa, and 28% from other states combined. The median age was 30, ranging from 15 to 53 years, with 73% female and 27% male participants. FSWs constituted 70% of the participants, while MSM and others constituted 30%. HIV infection was observed in 10% of participants, while Hepatitis-B, Hepatitis-C, and VDRL tests were all negative (100%). Pathogens isolated in 43% of cases included *Staphylococcus* spp (27.9%), *Candida albicans* (25.7%), *Escherichia coli* (25.1%), *Neisseria gonorrhoea* (6.7%), *Klebsiella* spp (9%), and other pathogens (7.2%).

**Conclusions:** The study revealed a moderate HIV infection rate and high co-morbidity with other pathogens of public health importance among diverse KPs in the four states. Routine screening for these relevant pathogens is recommended in KPs OSS settings to enhance HIV and STI prevention, treatment, and management for improved health outcomes.

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## Systematic Review on the Compliance of WHO Guidelines in the Management of People with Advanced HIV Disease in Low- And Middle-Income Countries: The Case of Cryptococcal Antigen Screening.

Mbwana M<sup>1</sup>, Ally Z<sup>2</sup>, Bakari H<sup>3</sup>, Mustafa S<sup>4</sup>, Lascko T<sup>5,6</sup>, Ramadhani H<sup>6</sup>

<sup>1</sup>Primary Health Care Institute, Iringa, Tanzania, <sup>2</sup>District Hospital, Tanga, Tanzania, <sup>3</sup>University of Dar es salaam, Dar es salaam, Tanzania, <sup>4</sup>Canada Youth Group, Dar es salaam, Tanzania, <sup>5</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine,



Baltimore, United States of America, <sup>6</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States of America

**Background:** The World Health Organization (WHO) recommended cryptococcal antigen (CrAG) screening for people presenting with advanced HIV disease (AHD) and for those with positive CrAG to initiate preemptive antifungal medication. Data on WHO recommendations about CrAG screening implementation is limited. We aimed to estimate pooled prevalence of CrAG screening uptake, cryptococcal antigenemia, and initiation of preemptive antifungal medication in low- and mid-income countries (LMICs).

**Materials and Methods:** This was a systematic review and meta-analysis. PubMed, Cochrane Library and Embase were searched for articles published between January 2002 and December 2023. Uptake was defined as percentage of eligible people (CD4<200 c/mm<sup>3</sup> or WHO stage III/IV) who received cryptococcal antigen testing. Stratified analysis was done to compare uptake and cryptococcal antigenemia between ART-naïve and ART-experienced individuals and those with CD4<100 vs 100-199 c/mm<sup>3</sup>. Using random effects models, we computed the pooled prevalence of CrAG screening uptake, cryptococcal antigenemia, and preemptive antifungals treatment and 95% confidence intervals (CIs).

**Results:** A total of 12 studies with 17,687 individuals living with advanced HIV disease were analyzed. Ten studies reported data from ART-naïve and two from ART-experienced individuals. Overall, the pooled prevalence of CrAG screening uptake was 34.3% (95%CI:33.6-35.0). CrAG screening uptake was significantly higher among ART-naïve compared to ART-experienced individuals, (48.0% vs 12.0%;  $p<0.001$ ) and higher among those with CD4 count <100 c/mm<sup>3</sup> compared to those with CD4 100-199 (50.1% vs 44.5%;  $p<0.001$ ). Overall, the pooled prevalence of cryptococcal antigenemia was 9.3% (95%CI:8.6-10.1). Cryptococcal antigenemia was significantly higher among ART-experienced compared to ART-naïve individuals, (10.8% vs 8.6%;  $p=0.033$ ) and higher among those with CD4 count <100 c/mm<sup>3</sup> compared to those with CD4 100-199 c/mm<sup>3</sup> (9.5% vs 2.6%;  $p<0.001$ ). Among those with cryptococcal antigenemia, the overall prevalence of preemptive antifungal treatment was 83.2% (95%CI:77.8-89.1).

**Conclusions:** Nearly six in 10 people with AHD did not screen for CrAG in LMICs. Although the uptake

of CrAG screening was significantly lower among ART-experienced individuals, the positivity yield was higher than in ART-naïve individuals. Efforts to improve CrAG screening among people with AHD should be heightened, as CrAG screening is known to be cost-effective in preventing fulminant cryptococcal disease.

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## Perceptions and Practices About Diabetic Nutrition Among Patients Receiving Health Care Services at Kitagata Hospital, Sheema District

Kamukama A<sup>1</sup>

<sup>1</sup>Bishop Stuart University and Soroti regional referral hospital, Mbarara, Uganda

**Background:** Globally, diabetes prevalence was half billion people in 2019 and estimated to have caused 4 million deaths in 2017. In Uganda, the prevalence was 4.1% due to low socioeconomic status and 6.6% due to impaired glucose tolerance. Dietary management and practices are referred to be among the cores of diabetes care stemming from the principle of healthy eating in terms of social, economic, cultural, and psychological influences on food choice. Though, still there is insufficient data on perceptions and practices which does not explore the cornerstone of its contribution towards diabetic management and prevention of diabetic complications, morbidity, and mortality. Therefore, the study explored the perceptions and practices in Sheema.

**Materials and Methods:** A descriptive phenomenological study, Kitagata hospital, Sheema district. A total of 18 (n=18) participants living with diabetes were purposively selected and subjected to in depth semi-structured interviews, recorded, transcribed, and translated for thematic analysis.

**Results:** 1) perceptions about diabetic nutrition showed that diabetic nutrition as balanced diet, taking restrictive diet, its importance, and sources of nutrition information. 2) Diabetic nutrition



practices involved regular daily schedules, observing balanced diet, accessibility of recommended diet, adherence, copying and lifestyle patterns. 3) Effectiveness of dietary practices was viewed as good health implications whereas some participants experienced complications. 4) Community involvement and engagement involved active and direct participation both at family and community level.

**Conclusions:** Our study shows perceptions and practices about diabetic nutrition through effective sources of diabetic nutrition information, diet education on lifestyle patterns, observing diet and accessibility of good diet, more campaigns to increase their oversight about the diabetes and diabetic nutrition most especially partners of diabetic people to have effective management of diabetes.

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## Facility-Based HCV & HBV Positivity Rate Across Testing Platform from 2019 – 2021 in Akwa Ibom & Nasarawa State – Result from the Hepatitis Evaluation to Amplify Testing & Treatment (HEAT) Project in Nigeria

Ejeckam C<sup>1</sup>, Green K<sup>1</sup>, Adesina A<sup>1</sup>, Ejembi J<sup>1</sup>, Bashorun A<sup>2</sup>, Jinga F<sup>2</sup>, Ward J<sup>3</sup>, Hierbert L<sup>3</sup>, Ikpeazu A<sup>4</sup>

<sup>1</sup>West Africa Centre for Public Health and Development, Abuja, Nigeria, <sup>2</sup>National AIDs, STI & Viral Hepatitis Control Program, Abuja, Nigeria, <sup>3</sup>Coalition for Global Hepatitis Elimination, Decatur, United States of America, <sup>4</sup>World Health Organisation, Congo, Congo

**Background:** Nigeria has one of the highest burdens of viral hepatitis with a national average prevalence of 8.1% for HBV (10.3% in men and 5.8% in women) and 1.1% for HCV (1.3% in men and 1.0% in women). The country has a co-infection rate of 8.9% and 1.1% for HIV/HBV and HIV/HCV among people living with HIV (PLHIV) aged 15-49 years respectively (NAIIS, 2018). Nigeria is a signatory to the World Health Assembly's guideline on Triple elimination, which

recommends the mandatory and ethical screening of patients for hepatitis, HIV and other STI (e.g. Syphilis) across all levels of care.

**Materials and Methods:** A descriptive cross-sectional design in selected health facilities. A non-probability purposive sampling was used to select 129 health facilities providing HBV and HCV testing in the two states. The study instrument for data collection composed of 2 sections – Sections A & B, with section A focusing on facility bio-data information while section B focused on the assessment of testing capacity in the selected facilities. Approval for the study was received from Nigeria's Health Research Ethics Committee (NHREC) in the Federal Ministry of Health.

**Results:** The study reveals that out of 584,287 and 91 test done across Serology, Core Antigen and PCR platforms for HBV respectively in 2019, the percentage positivity rates were 10%, 41% and 59% respectively. In 2020, 610,287, and 70 test, about 8%, 39% and 69% were positives respectively across the platforms while in 2021, 583 serology test, 216, Core antigen and 124 PCR test carried out for HBV, there were 10%, 28% and 52% positives respectively. For HCV test carried out using Serology (557), Core antigen (702) and PCR (226) platforms in 2019, positivity rates were at 11%, 8% and 46% respectively. In 2020, 596,379 and 170 test were done across the platforms with 12%, 2% and 30% positivity rates respectively. In 2021, 925 and 97 using Core antigen and PCR respectively, 3% and 45% positivity rates were observed respectively. In 2021, no HCV test was carried out using Serology.

**Conclusions:** The study has provided information on the growing positivity rate of viral hepatitis B & C across the testing platforms in the state over time. Stakeholders, including ministries, department and agencies can use these findings to increase efforts towards viral hepatitis elimination in Nigeria.



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## Profil épidémio-Clinique et Bactériologique des Infections Bactériennes Non Tuberculeuses Diagnostiquées Chez Les PVVIH au Service Des Maladies Infectieuses et Tropicales (Smit) du Chnu de Fann

Lakhe N<sup>1</sup>, Thioub D<sup>1</sup>, Badiane A<sup>1</sup>, Fall N<sup>1</sup>, Massaly A<sup>1</sup>, Diallo-Mbaye K<sup>1</sup>, Cisse-Diallo V<sup>1</sup>, Ka D<sup>1</sup>, Fortes L<sup>1</sup>, Ndour C<sup>1</sup>, Seydi M<sup>1</sup>

<sup>1</sup>Service des maladies Infectieuses et Tropicales de Fann, Dakar, Senegal

**Contexte :** L'objectif de cette étude était de déterminer le profil des infections bactériennes non tuberculeuses chez les PVVIH au SMIT de Fann et d'identifier les principales espèces responsables ainsi que leur profil de résistance.

**Matériels et Méthodes :** Il s'agissait d'une étude rétrospective descriptive allant de la période du 1er janvier 2019 au 31 décembre 2022 à partir des dossiers des patients infectés par le VIH hospitalisés pour une infection bactérienne non tuberculeuse avec antibiogramme. Les données étaient recueillies grâce à un formulaire standard comprenant les aspects socio-démographiques, cliniques, bactériologiques, biologiques, thérapeutiques et évolutives.

**Résultats :** Au total, 36 cas d'infections bactériennes non tuberculeuses chez les PVVIH ont été colligées sur 2657 hospitalisations (1,35%). L'âge moyen des patients était de 45,4±12,2ans. Les femmes représentaient 55,6% des cas. Les patients étaient infectés par le VIH-1 dans 34 cas. La tuberculose était le diagnostic associé dans 11 cas (30,5%). La médiane des leucocytes était de 6300elts/mm<sup>3</sup> [3500 ; 9040] et celle des lymphocytes de 800elts/mm<sup>3</sup> [530 ; 1400] alors que le taux moyen de l'hémoglobine était de 8,4±2,3 g/dL. La CRP médiane était de mg/L [88,6 ; 186]. Les infections urinaires étaient les plus fréquentes (66,7%) suivies des bactériémies (33,3%) et des infections de la peau et des parties molles (25%). Les principales espèces isolées étaient *Escherichia coli* (28,3%), *Klebsiella*

*pneumoniae* (22,6%) et *Staphylococcus aureus* (20,8%). Les SARM étaient retrouvés dans 36,4% des cas et des BLSE dans 47,4% (9 isolats/19). Une résistance aux carbapénèmes était notée sur 2 isolats/25 (8%). Au cours des bactériémies, *Staphylococcus aureus* était la principale espèce à l'hémoculture. Il s'agissait de SARM dans 50,0% des cas. Des antibiotiques avaient été administrés dans les 3 mois (36,1%) précédents l'hospitalisation et la principale molécule était la ceftriaxone (23,1%). En cours d'hospitalisation, les antibiotiques les plus prescrits hormis le cotrimoxazole étaient l'imipénème, la ciprofloxacine, l'amikacine et la gentamicine. Le décès survenait dans un-tiers des cas.

**Conclusions :** Les infections bactériennes chez le PVVIH au SMIT sont surtout liées à des bactéries multirésistances qui entraîne une forte létalité.

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## Facteurs Associés à la Létalité Chez Les Patients Hospitalisés Pour Le VIH Avancé

Guilavogui F<sup>1</sup>

<sup>1</sup>Programme National De Lutte Contre Le Sida Et Les Hépatites, Conakry, Guinée

**Contexte :** Une unité soutenue par Médecins Sans Frontières (MSF) qui prend en charge les patients avec un VIH avancé à l'Hôpital National de Donka, Conakry, Guinée.

**Objectif :** Déterminer les facteurs liés à la survenue du décès chez les patients hospitalisés dans l'unité entre 2017 et 2021.

**Schéma :** Ceci est une analyse rétrospective de données de routine des patients hospitalisés pour le VIH avancé.

**Résultats :** Au total, 3,718 patients étaient inclus, d'âge médian de 40 ans (IQR 33–51), dont 2,241 (60,3%) femmes. Le taux de moyen de décès était de 33,6% (n = 1,240). Il était passé de 40% en 2017 à 29% en 2021, sans être statistiquement significatif. La période la plus à risque de décès était les 25 premiers jours d'hospitalisation. Chez ces patients décédés, la TB (43,8%) et la toxoplasmose (11,4%) étaient les diagnostics les





plus fréquents. Après analyse multivariée par régression de Cox, les facteurs associés au décès étaient un âge compris entre 25–49 ans (hazard ratio ajusté [HRa] 1,60 ; P = 0,002) ou  $\geq 50$  ans (HRa 1,80 ; P < 0,001), la présence de signes respiratoires (HRa 1,23 ; P = 0,001) ou abdominaux (HRa 1,26 ; P < 0,001) et une réadmission (HRa 0,54 ; P < 0,001).

**Conclusions :** Les patients âgés de 25–49 ans, ou plus, ou présentant des signes respiratoires ou abdominaux requièrent une surveillance accrue car ils sont les plus à risque de décéder de la maladie, surtout pendant les 25 premiers jours d'hospitalisation.

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## Diagnosis, Monitoring, and Outcomes of People Living with HIV and HIV-Negative Patients Accessing MDR-TB Treatment in Blantyre, Malawi

Mango J<sup>1</sup>, Tariq R<sup>2</sup>, Chione B<sup>1</sup>, Mtitimila H<sup>1</sup>, Kiruthu-Kamamia C<sup>1</sup>, Huwa J<sup>1</sup>, Rambiki E<sup>1</sup>, Wallrauch C<sup>1</sup>, Heller T<sup>4</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>James Lind Institute, Geneva, Switzerland, <sup>3</sup>Blantyre District Health Office, Blantyre, Malawi, <sup>4</sup>International Training and Education Centre for Health, University of Washington, Seattle, United States of America

**Background:** Tuberculosis (TB) carries high mortality and is common among HIV co-infected clients. Multi-drug resistant (MDR) TB is defined as resistance against rifampicin and isoniazid, which poses treatment challenges. Data on MDR treatment outcomes and impact of HIV infection in Malawi is scarce; this cohort review was conducted to address this gap.

**Materials and Methods:** Lighthouse Trust ART clinics support Gateway facility, an urban facility in Blantyre district seeing on average 26 MDR-TB clients per month. We performed a retrospective review of routine program data of all adult clients who started treatment from 2018/01 to 2021/12. Demographic information and TB treatment outcomes were extracted from clients' files and local databases. Data on monthly smear and

culture results were reviewed for clients initiating in 2018/01 and 2020/12. Descriptive statistics were calculated and groups were compared using Chi2-test.

**Results:** 81 clients initiated MDR-TB treatment during the period; 61.6% were male, median age 34 years [IQR 26-42] and oral-only, 18-24 months MDR-TB treatment regimens were administered. All MDR-TB cases were diagnosed using GeneXpert MTB/RIF.

HIV status was ascertained in all clients; 74% were HIV co-infected. Co-infection was more frequent in female (26/31, 84.0%) than in male (34/50, 68%) clients, although the difference was not statistically significant (16.0%; -4.1% to 32.4%, p=0.11).

In the 2018 cohort, 49 sputum smear (4 positive) and 33 sputum culture results (0 positive) were documented for follow-up of 24 clients (average 2.0 smear/client and 1.4 cultures/client). In 2020, this increased to 397 documented smear (1 positive) and 280 culture results (3 positive) for 31 clients (12.8 smear/client and 9.0 cultures/client). 61.7% of clients completed treatment successfully, 19.7% died, 2.5% failed, 12.3% were lost to follow-up and 3.7% were transferred-out. The proportion of successful completion of treatment was neither different between males (62.0%) and females (61.3%, p=0.95), nor between HIV-positive (60.0%) and HIV-negative clients (66.7%; p=0.59).

**Conclusions:** HIV co-infection is high among clients treated for MDR-TB in Blantyre, but the HIV status has no significant influence on the MDR-TB treatment outcome. Follow-up monitoring increased in recent years, but low sputum smear and culture positivity will need to be investigated and improved locally.



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## Screening for Mental Health Disorders Among Vulnerable People Living With HIV: Lessons Learned From 11 Demonstration Facilities in Tanzania Can Inform Broader Integration

**Songoro J**<sup>1</sup>, Van de Ven R<sup>1</sup>, Kimambo S<sup>1</sup>, Haraka F<sup>1</sup>, Shigi R<sup>1</sup>, Genge C<sup>1</sup>, Bateganya M<sup>2</sup>, Lenz C<sup>3</sup>

<sup>1</sup>Elizabeth Glaser Pediatric AIDS Foundation, Dar Es Salaam, Tanzania, United Republic of, <sup>2</sup>United States Agency for International Development, Dar Es Salaam, Tanzania, <sup>3</sup>Elizabeth Glaser Pediatric AIDS Foundation, Washington DC, United States

**Background:** Integrating mental health screening within existing HIV programming is a global priority given the high risk of mental health disorders among people living with HIV (PLHIV). Mental health screening in Tanzania is not routinely done as recommended by the World Health Organization. The Elizabeth Glaser Pediatric AIDS Foundation, through the USAID-funded Afya Yangu Northern project, integrated mental health screening in 11 HIV clinics in Tanzania.

**Description:** Eleven HIV clinics were selected from 472 project-supported sites to serve as demonstration sites. Mental health screening tools for HIV care providers were adapted from existing national mental health diagnostic tools. Recording and reporting tools were developed, as well as referrals pathways. We screened for symptoms and signs of anxiety, depression, post-traumatic stress disorders (PTSD), psychosis, drug use, and dementia. Screening was prioritized for vulnerable PLHIV—namely, those with a high viral load, newly initiated on antiretroviral therapy (ART), returned to treatment (RTT), pregnant and breastfeeding women (PBFW), and gender-based violence survivors. Patient-level data were abstracted from routine clinic registers for the period of April 2023 to September 2023. Data analyzed included the proportions of individuals screened, disaggregated by sex; proportion with symptoms suggestive of mental health disorders; and proportions referred to mental illness care clinics.

**Lessons Learnt:** Among 2,129 vulnerable PLHIV 1,974 (88%) were screened for mental health disorders. Those screened included 1500 (80%) women, 749 (40%) PBFW, and 642 (34%) PLHIV newly initiated on ART. At least one symptom suggestive of a mental health disorder was identified in 769 (41%) individuals screened with 364 (47%) requiring referral to mental health providers. These individuals were escorted to the mental health clinics and completed referrals for diagnosis and treatment were confirmed by mental health providers. Depression and anxiety were the most frequently reported disorders at 33% (254/769) and 28% (216/769) respectively.

**Conclusions:** Integrated mental screening targeting vulnerable cohorts of PLHIV is feasible in routine care. Without screening, serious mental disorders could be missed. For full integration, systems are needed to ensure HIV providers are equipped with skills to manage common mental health disorders and refer those with serious illness.

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## Prevalence, Pattern and Predictors of Cardiovascular Event in People Living with HIV Attending Clinic and Admitted at Tertiary Hospital in Mwanza Region, Tanzania

**Mushi J**<sup>1</sup>, Peck R<sup>2,3</sup>

<sup>1</sup>Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania, <sup>2</sup>Department of Internal Medicine, Weill Bugando School of Medicine, Catholic University of Health and Allied Sciences, Mwanza, Tanzania, <sup>3</sup>Center for Global Health, Department of Internal Medicine and Pediatrics, Weill Cornell Medicine, New York, USA

**Background:** HIV has contributed to over 39 million deaths worldwide. Sub-Saharan Africa has accounted for more than 70% of global HIV burden, in Tanzania estimated total of 1.7 million People Living with HIV (PLHIV) in 2019. Worldwide it is estimated 17.9 million people died from cardiovascular diseases (CVDs) in 2015 of which PLHIV carries higher risk.



**Objective:** To determine the prevalence, pattern and predictors of cardiovascular event in People Living with HIV attending clinic and admitted at Bugando Medical Center (BMC).

**Materials and Methods:** A cross-section hospital-based study was conducted on January 2023 at Bugando Medical Centre (BMC) involving both outpatients and inpatients. A simple random sampling technique was used to recruit 203 participants with a minimum estimated sample size of 103. The study population were adult HIV infected patents above 18 years old attending CTC clinic and admitted at BMC. The participants were interviewed using a semi structured questionnaire. Weight, height, abdominal circumference and blood pressure were measured. Data collected was analyzed using IBM SPSS 20.0.0.0 program.

**Results:** Participants enrolled 25% (n=51) were male and 75% (n=152) were female with female to male ratio of 3:1. The overall prevalence of cardiovascular diseases among this population was 4.9% and the pattern of distribution were 4(40%) stroke, 3(30%) hypertensive heart diseases, 2(20%) heart failure and 1(10%) coronary artery disease. The prevalence of hypertension was 11.8%, (Body Mass Index) BMI was related to hypertension with  $P=0.000$  where by overweight was 25.1% (n=51) and obesity 22.2% (n=45). Alcohol consumption was related with hypertension  $P=0.038$  and more than half of the study population consumed alcohol 59.6% (n=121). History of hypertension is related to development of CVDs with  $P=0.000$  where by 25.1% (n=51) had history of hypertension and majority 66.7% (n=34) were not in regular medication, also 8(15.7%) seen a traditional healer for treating hypertension.

**Conclusions and Recommendations:** Stroke and hypertensive heart disease were leading CVDs in PLHIV while hypertension, alcohol consumption, obesity were risk factors. We need to integrate NCDs services in HIV care, community screening and awareness programs.

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## Prevalence of Depression Among Adolescents Living With HIV: A Hospital Based Cross-Sectional Study in Uganda.

**Nabatte V**<sup>1</sup>, Mukasa B<sup>2</sup>, Nakasujja N<sup>3</sup>, Ssewamala F<sup>4</sup>, Mckay M<sup>4</sup>

<sup>1</sup>Nakaseke general Hospital, Nakaseke, Uganda, <sup>2</sup>Mildmay Uganda, Kampala, Uganda, <sup>3</sup>Makerere University College of Health Sciences, Kampala, Uganda, <sup>4</sup>Washington University, St.Louis, , USA

**Background:** Uganda has 1.4 million people living with HIV, 11% of whom are young people. Depression among adolescents living with HIV is a rising public health concern affecting their well-being. The study aimed to identify the prevalence of depression and its associated factors among adolescents 10–19 years old living with HIV.

**Materials and Methods:** A cross sectional study was conducted between July and December 2022 among adolescents living with HIV and accessing care at Mildmay Uganda Hospital, a tertiary center of excellence in HIV care. Random sampling was used to select study participants. A pretested standardized questionnaire was used to collect data on socio-demographic characteristics of study participants. Assessment of depression was done using the Patient Health Questionnaire-9 (PHQ-9) which is a 9-question tool that assesses depression with scores ranging from 0 to 27. Depression was defined as a PHQ-9 score greater than 4 and reported as a proportion. Multivariate logistic regression analysis was used to establish predictors of depression. Statistical significance was established at  $p \leq 0.05$ .

**Results:** Of the 414 adolescents enrolled, 223 (54%) were female, all were on antiretroviral therapy, and the mean age was 16.2 years (SD 2.2). Further, 50 (12.1%) were double orphans; and 24 (5.8%) reported alcohol use. Viral suppression rate was at 93%. Of the 56 (13.5%) who reported being sexually active, 37 (66.1%) were female, and 24 (43%) reported risky sexual behavior. The prevalence of depression was 47% (95% CI: 42% - 52%). Depression was associated with the female gender (aOR = 1.77, 95% CI: 1.02 - 3.07).



**Conclusions:** The prevalence of depression among adolescents is high more so among females. There is need for deliberate routine screening and prompt management of depression at adolescent HIV care clinics with integration of adolescent mental health care in health programs.

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## Renal Insufficiency Among HIV Clients Receiving Care at Neno District Hospital, Rural Malawi. A Retrospective Descriptive Cohort Study

Zaniku H<sup>1,2</sup>, Banda Aron M<sup>3,4</sup>, Munyaneza F<sup>3</sup>, Mpinga K<sup>3</sup>, Thengo L<sup>3</sup>, Chafunya A<sup>1</sup>, Ndarama E<sup>1</sup>, Khongo B<sup>3</sup>, Ruderman T<sup>3</sup>, Dullie L<sup>3</sup>, Connolly E<sup>3,5,6</sup>

<sup>1</sup>Ministry of Health, Neno District Health Office, Neno P.O. Box 52, Malawi, Lilongwe, Malawi, <sup>2</sup>School of Global and Public Health, Kamuzu University of Health Sciences, Lilongwe, Malawi, <sup>3</sup>Partners In Health/Abwenzi Pa za Umoyo (PIH/APZU), Neno P.O. Box 56, Malawi, Lilongwe, Malawi, <sup>4</sup>Research Group Snakebite Envenoming, Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany, Hamburg, Germany, <sup>5</sup>Division of Pediatrics, University of Cincinnati College of Medicine, 3230 Eden Ave, Cincinnati, OH 45267, USA, Ohio, United States, <sup>6</sup>Division of Hospital Medicine, Cincinnati Children's Hospital Medical Center, 3333 Burnet Ave, Cincinnati, OH 45229, USA, Ohio, United States

**Background:** In Sub-Saharan Africa (SSA), kidney disease is common among the HIV-positive population, with a reported 14.6% pooled prevalence. However, the majority of HIV clinics do not regularly evaluate for of kidney disease. Here, we quantify and describe the kidney disease burden in a rural Malawian HIV cohort.

**Materials and Methods:** Utilizing a retrospective cohort study design, we reviewed 8958 HIV clients aged 18 years and older who received care at Neno District Hospital between January 2017 and August 2020. All clients receiving a creatinine test during the study period (n=172) comprised clients with co-morbidities such as hypertension, diabetes, and other chronic conditions. Renal insufficiency was defined as an estimated Glomerular Filtration (eGFR) of < 60 ml/min/1.73 m<sup>2</sup>. We calculated each client's eGFR using a CKD epidemiological formula without race. Descriptive

statistics utilizing STATA 15 were used to describe the data.

**Results:** Of the 172 clients included, 112 (65.12%) were females, the median age was 55 years IQR (46-62), and 55 (31.98%) were 60 years old and above. Most of the cohort had hypertension 157 (91.28%), 14 (8.14%) had diabetes, and 26 (15.12%) had other chronic conditions. We found that 108 (62.79%) had been receiving HIV treatment for 6-10 years, while 64 (37.21%) had been receiving care for less than five years. Of the clients, 68 (39.53%) were in stage 1 of HIV WHO staging, and most (n=149, 86.63%) were on a dolutegravir-based regime. Overall, the prevalence of renal insufficiency and CKD was 12.8% and 1.7% respectively. Among the HIV clients with hypertension, diabetes, and other chronic conditions, the prevalence of renal insufficiency was 86.4%, 0.0%, and 18.2%, respectively. Overall, we found 55.8% (n=96) of the patients had normal eGFR, 31.4% (n=54) had mildly decreased eGFR, 8.1% (n=14) moderately decreased eGFR, 2.9% (n=5) severely decrease eGFR, and 1.2% (n=2) had kidney failure.

**Conclusions:** We found a high prevalence of renal insufficiency among HIV-positive clients, especially with hypertension and other chronic conditions. This highlights the need for routine screening for kidney disease in HIV clients, especially those with co-morbidities or other at-risk conditions

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## Monitoring Psychosocial Burden of Integrated HIV Care Through Triple Diagnosis Assessment Among People Living with HIV and PrEP Users: Lessons from Zimbabwe

Choi H<sup>1</sup>, Zimuto N<sup>1</sup>, Munjoma M<sup>1</sup>, Nhando N<sup>1</sup>, Mavudze J<sup>1</sup>, Moga T<sup>1</sup>, Mutede B<sup>1</sup>, Tarubekera N<sup>1</sup>, Leuschner S<sup>2</sup>, Muchara A<sup>3</sup>

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe, <sup>2</sup>Population Services International, Harare, Zimbabwe, <sup>3</sup>USAID Zimbabwe, Harare, Zimbabwe

Zimbabwe is one of the highest HIV burden countries, with approximately 1.23 million people



living with HIV (PLHIV) in 2020. Previous researchers identified a complex relationship between HIV/AIDS, mental health (MH) conditions, and drug and substance abuse (DSA). From 2018 to 2023, Population Services International (PSI) and Population Solutions for Health (PSH) implemented the USAID-funded Last Mile project, a key population (KP) focused comprehensive HIV care program. In this program, we have experienced challenges such as low PrEP uptake and high treatment discontinuation rates among client cohorts. As we identified social determinants of HIV care among KPs, we recognised the importance of monitoring their psychosocial co-morbidities.

To identify optimal mental health and psychosocial support (MHPSS) for clients, we created a simultaneous 'Triple Diagnosis' - HIV, MH, and DSA - questionnaire using GAD-7, PHQ-9, and CAGE assessment. We screened every client aged 15 years or above at each visit to one of six New Start Centres, a PSH-run HIV care service delivery facility. This assessment was done by trained integrated HIV care nurses (IHCN) and recorded in Bahmni, an electronic health record system.

From December 2022 to January 2024, we screened 5,777 KPs (3,778 PLHIV, 1,999 on PrEP) using a Triple Diagnosis questionnaire. We identified 259 PLHIV (6.86%) and 93 PrEP users (4.65%) as clinically significant substance users, 2 PLHIV (1 male, 1 female) and 3 PrEP users (2 male, 1 female) with moderate to severe general anxiety disorders, and 2 PLHIV (all female) and 3 PrEP users (1 male, 2 female) with moderate to severe depression. IHCN referred individuals with MH conditions to specialists for coordinated institutional care, and those with a high risk of DSA were included in a tailored intervention for counselling.

The Triple Diagnosis assessment serves as a checkpoint for monitoring psychosocial co-morbidities and behavioural changes influencing KPs' treatment uptake and for providing support in HIV care continuum. While our current questionnaire lacks the variety of MH conditions for diagnosis and quantification of one's substance use, this finding underscores the need to incorporate DSA and MH monitoring into HIV diagnosis to increase the quality of care.

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## Lessons Learned on Implementation of Training, Support, and Mental Health Services for Key Populations in Southern, Eastern, and Western Provinces of Zambia

Silomba E<sup>1</sup>, Olowski P<sup>2</sup>, Adebayo A<sup>2</sup>, Baumhart C<sup>3,4</sup>, Lascko T<sup>3,4</sup>, Chipukuma J<sup>1</sup>, Mwango L<sup>1</sup>, Nkwemu K<sup>5</sup>, Claassen C<sup>2,3,4</sup>

<sup>1</sup>Ciheb Zambia, Lusaka, Zambia, <sup>2</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>3</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, USA, <sup>4</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>5</sup>The U.S. Center for Disease and Prevention, Division of Global HIV and TB, Lusaka, Zambia

**Background:** Key populations (KP) in Zambia face significant marginalization due to the legal environment and fear of criminalization, which can impact their mental health (MH). The discrimination KPs encounter at healthcare facilities leads to fear of, and challenges with, accessing quality and equitable care, including MH services. As part of the comprehensive wellness package, the Community Impact to Reach Key and Underserved Individuals for Treatment and Support (CIRKUIITS) project implemented a MH intervention in KP wellness centers for clients accessing HIV services in three provinces of Zambia.

**Materials and Methods:** Beginning October 2021, CIRKUIITS implemented the KP Investment Fund model to support KPs in Eastern, Western, and Southern provinces through KP-led initiatives. Between October 2022 and June 2023, we mapped MH nurses, psychologists, and clinicians, to develop a referral directory and network of MH service providers. We conducted technical orientation and trained 61 HIV providers in KP sensitivity, safety, and security, along with conducting routine MH screenings using standardized tools (PHQ-4 for depression, GAD-7 for anxiety, and CAGE for hazardous alcohol use). All screening results were documented, and each client was classified based on the score they received— or level of severity — on the screening tools. All KP clients who were identified at the KP safe spaces as requiring additional MH services



were referred to trained MH providers at the health facilities.

**Lessons Learnt:** Overall, 364 KPs were screened for anxiety and/or depression and 236 KPs were screened for hazardous alcohol use. Equipping healthcare workers with skills for routine MH screenings is crucial for successful implementation and referral of KPs to necessary services. Sensitivity trainings for MH service providers foster an inclusive and supportive environment for KPs to access services without discrimination and fear. Furthermore, establishing a network of MH professionals ensures KPs have access to specialized care, creating a comprehensive support system.

**Conclusions:** High-quality mentorship and training for providers on mental health and screening creates a friendly environment to reduce stigma and discrimination. Collaboration with diverse stakeholders is essential for adapting MH initiatives into local contexts and broadening the positive impact on the health of KPs.

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## Prevalence of Elevated Blood Pressure in People with Self-Reported Substance Use Accessing Care in Region F, Johannesburg

**Nyatela A<sup>1</sup>**, Nonyukela S<sup>1</sup>, Mohale R<sup>1</sup>, Lalla-Edward S<sup>1</sup>, Gumede S<sup>1</sup>

<sup>1</sup>*Ezintsha, University Of The Witwatersrand, Faculty Of Health Sciences, Johannesburg, South Africa*

**Background:** Hypertension, a risk for cardiovascular disease, is the leading cause of death in sub-Saharan Africa. Substance use is one of many risk factors for elevated blood pressure (BP) and hypertension. Here, we explore the prevalence of elevated BP and associated risk factors among individuals who self-reported substance use.

**Materials and Methods:** This was a cross-sectional study, using secondary data analysis. Data for 2199 patients who self-reported substance use between August 2022 - December 2023 were extracted

from iHEART-SA (ethics reference M211160) – an HIV/hypertension integration study conducted in nine public health facilities in Johannesburg. HIV status, age, and sex were assessed as covariates of elevated BP amongst substance users. Elevated BP was defined as two consecutive systolic blood pressure /diastolic blood pressure exceeding 140/85 mmHg. Analysis was completed using STATA version 17 software.

**Results:** The prevalence of elevated BP among participants (n= 2199) was 39% (n=849). In the test of association analyses, elevated BP was associated with substance use (p<0.001), with almost two-thirds of the participants with elevated BP self-reporting alcohol use (n=543, 64.0%). As expected, more older participants (≥ 50 years) had elevated BP than younger participants (18-29 years) (n=234, 28% versus n=86, 10%, p<0.001). In the multivariable analyses, participants aged 40-49 years (aOR=2.03, 95% CI=1.34-3.09) and ≥ 50 years (aOR=3.53, 95% CI=2.23-5.59) were more likely to have elevated BP than younger participants (18-29 years). More males were associated with elevated BP than females (n=526, 62% versus n=323, 38%, p<0.001). Elevated BP was associated with HIV, with negative participants (aOR=2.66, 95% CI=2.00-3.54) and those with unknown HIV status (aOR=2.26, 95% CI=1.11-4.61) more likely to have elevated BP than PLHIV (p<0.001). In multivariable analysis stratified by substance use, the same relationships were seen in the group who reported alcohol use compared to other substances.

**Conclusions:** There is an association between elevated BP and substance use, particularly alcohol usage. This study highlights a need for future research into the substance use associations with the development of hypertension, as well as the design of health interventions giving consideration to alcohol use on elevated BP and hypertension.



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## Time to Develop Dyslipidemia Post Art Initiation Among Patients Accessing Care at the 37 Military Hospital

**Adane H**<sup>1</sup>

<sup>1</sup>University of Ghana School of Public Health, Accra, Ghana

**Background:** The proportion of deaths from non-related HIV causes such as dyslipidemia and associated cardiovascular diseases is growing. Dyslipidemia is highly prevalent and can increase the risk of cardiovascular disease in HIV patients with or without antiretroviral therapy (ART). HIV infected patients on ART frequently experience lipid abnormalities, and accumulating evidence suggests an association between lipid abnormalities and cardiovascular morbidity and mortality.

**Objective:** To determine the prevalence and average time to develop dyslipidemia after being initiated on ART among HIV patients accessing care at the 37 Military Hospital.

**Materials and Methods:** A total of 408 patients out of the 1,300 patients who met the inclusion criteria were enrolled in this study. Data of HIV patients on ART was extracted from their medical folders. This was used to determine the prevalence of dyslipidemia, the average time it takes to develop dyslipidemia after ART initiation, and the extent to which the different regimens contribute to dyslipidemia. Descriptive analyses were used to summarize the data while Kaplan-Meier Survival estimates and adjusted odds ratio were used to determine time to develop dyslipidemia and associations.

**Results:** The prevalence of dyslipidemia among patients on ART was 45.3%. The average time to develop dyslipidemia among patients receiving ART was 23 months. Patients on Efavirenz based regimens were 2.9 times more likely to develop dyslipidemia than those on the Dolutegravir based regimens. About 75% of patients on ART may develop dyslipidemia after 43 months.

**Conclusions:** Prevalence of dyslipidemia among HIV patients on ART is high. Majority of patients on

Efavirenz and Dolutegravir based regimens may develop dyslipidemia after 3 years.

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## Mapping Evidence on Barriers to and Facilitators of Diagnosing Noncommunicable Diseases (NCDs) Among People Living with Human immunodeficiency virus (PLWH) in Low- And Middle-Income Countries (LMICs) in Africa: A Scoping Review

**Badacho A**<sup>1</sup>, Woltamo D<sup>2</sup>, Demissie D<sup>3</sup>, Mahomed O<sup>4</sup>

<sup>1</sup>Wolaita Sodo University, Wolaita sodo, Ethiopia, <sup>2</sup>Wolaita Sodo University, Wolaita Sodo, Ethiopia, <sup>3</sup>Saint Paul Millenium Medical College, Addis Ababa, Ethiopia, <sup>4</sup>University of Kwazulu Natal, Durban, South Africa

**Background:** The prevalence and incidence of non-communicable diseases (NCDs) are increasing among people living with human immunodeficiency virus (PLWH). Thus, strengthened and sustained diagnosis and management of NCDs through integrated NCDs and HIV care are needed to improve patient outcomes. However, there is a paucity of evidence on barriers to and facilitators of the diagnosis of NCDs among PLWH in low- and middle-income countries (LMICs).

**Materials and Methods:** The Arksey and O'Malley methodological framework was used to map evidence on barriers and facilitators of diagnosing NCD among PLWH. A comprehensive systematic search was conducted in MEDLINE, Academic Search Complete, APA PsycInfo, CAB, and Health Source/nursing academic databases accessed through the EBSCO search and PubMed. Three reviewers independently screened the articles. The results were structured using the Capability-Opportunity-Motivation-Behavior model (COM-B) and Theoretical Domains Framework (TDF).

**Results:** A total of 152 articles were retrieved for full-text review. Forty-one articles met the



inclusion criteria (16 cross-sectional, 2 cohort, 1 case-control, and 5 RCTs, as well as 9 qualitative, 4 mixed, 2 commentary, and 2 review studies). The barriers and facilitators identified were relevant to all of the COM-B constructs and 14 TDF domains. Lack of knowledge and awareness of NCDs, fear of the stigma, financial problems and out-of-pocket (OOP) payments were most cited as patient-level barriers. whilst health care providers (HCP) (knowledge and awareness gap, skill and competence deficiencies, unwillingness, burnout, low motivation, and apathy) were frequently cited. Whereas lack of equipment, scarcity of NCD medications and supply chain challenges, lack of integrated NCD and HIV care, low health system readiness and shortage of trained HCP were identified as health system level barriers.

**Conclusions:** This scoping review is the first to identify barriers and facilitators using a theoretical domain. The most cited barriers including lack of integrated HIV and NCD care, equipment and logistics chain challenges for NCDs, patient and HCP lack of knowledge and awareness on NCD, and HCP skill and competencies deficiencies. Addressing these issues is crucial to improve patient outcomes and reduce the burden on HCPs in LMICs' health systems struggling with acute care.

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## Community Contribution to NCD Screening Through Lay Cadres: Lessons from a Programming Perspective in Zimbabwe

Takarinda K<sup>1</sup>, Dhodho E<sup>1</sup>, Chimberengwa P<sup>1</sup>, Hove M<sup>1</sup>, Bepe T<sup>1</sup>, Masiye K<sup>1</sup>, Page-Mtongwiza S<sup>1</sup>, Webb K<sup>1</sup>

<sup>1</sup>Organization For Public Health Interventions & Development (OPHID), Harare, Zimbabwe

**Background:** Zimbabwe expanded HIV treatment and care services beyond facility-based testing to the community in efforts towards reaching the UNAIDS 95-95-95 goals. Community lay-cadres (community outreach agents (COAs)) have been recruited and supported to work with community health nurses to screen index case clients for HIV,

trace defaulter clients and mobilise PLHIV for various HIV care services. Given the demographic shift towards older ages among PLHIV, there has been growing concern of multi-morbidities with non-communicable diseases (NCDs) such as hypertension diabetes and mental health.

**Description:** As part of an NCDs integration programme in two urban districts of Chitungwiza and Bulawayo, 150 high performing community outreach agents (COAs) were trained on integration of f hypertension and diabetes screening among PLHIV and at-risk adults (aged ≥40 years old) from the general population. Screening was based on a decision-aid 10-item NCD screening tool administered in English through a DHIS-2 application on mobile electronic gadgets. This was coupled with deployment of digital blood pressure machines to COAs and to health facilities. Hypertension screening involved 3 measurements taken 5 minutes apart. Other parameters screened included random blood sugar, weight, height measurement; risk assessment screening for alcohol use, smoking, physical activity and dietary patterns.

**Lessons Learnt:** Between January -December 2023, 113,786 adult (>40 years) clients were screened of whom 42% were PLHIV and 63% were females. Overall, 37,503 (33%) were screened by COAs of whom (39%) were hypertensive and referred to treatment. The prevalence of hypertension was higher among PLHIV in ART care (43.1%) versus the general population (36.7%). Overall, there were 53,622 hypertension clients diagnosed of whom 14,569 (27%) were screened and referred by COAs in the community Of the 696 further screened by health workers at health facility with documentation of being community referrals, 683 (98%) were confirmed as hypertensive.

**Conclusions:** Community NCD screening approaches are vital in diagnosis and referral of clients with hypertension who may potentially be missed at the health facilities. Training coupled with the use of an electronic decision-aid screening tool ensures standardized screening through lay cadres resulting in increased community contribution towards NCD diagnosis.





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## Connaissances, Attitudes et Pratiques (CAP) du pPersonnel en Pharmacie dans les Officines de Cotonou sur les Infections Sexuellement Transmissibles avec Écoulement urétral et/ou Vaginal en 2023

**Akpadjan G**<sup>1,3</sup>, ALI H<sup>2</sup>, ADEGBIDI H<sup>1,4</sup>, ATADOKPEDE F<sup>1,4</sup>

<sup>1</sup>FSS/UAC, Cotonou, Benin, <sup>2</sup>UFR en Pharmacie, Faculté des Sciences de la Santé de Cotonou, UAC, Bénin, Cotonou, Bénin, <sup>3</sup>Service de Dermatologie-Vénérologie, Centre de Dépistage et du Traitement de l'Ulcère de Buruli d'Allada (CDTUB\_Allada), Bénin, Allada, Bénin, <sup>4</sup>Service de Dermatologie-Vénérologie du CNHU-HKM de Cotonou, Bénin, Cotonou, Bénin

**Contexte** : Les infections sexuellement transmissibles restent un problème de santé publique majeur partout dans le monde. La plupart de ces infections peuvent être diagnostiquées et traitées facilement. La méconnaissance du diagnostic et l'absence de traitement des IST dès le début pourraient être à l'origine de complications et de séquelles graves. Ainsi, notre étude a pour but d'évaluer les connaissances, attitudes et pratiques du personnel en pharmacie dans les officines de Cotonou sur les IST avec écoulement urétral et/ou vaginal en 2023.

**Matériels et Méthodes** : Il s'agit d'une étude transversale à visée descriptive et analytique qui s'est déroulée sur la période du 02 Septembre au 15 octobre 2023 ; réalisée sur un échantillonnage exhaustif et portant sur le personnel en pharmacie exerçant dans les officines de Cotonou impliqué dans la dispensation des médicaments. Les données ont été recueillies au moyen d'un questionnaire établi sur une fiche d'enquête et analysées à l'aide du logiciel STATA version 15. Les facteurs associés ont été recherchés au moyen d'une régression logistique.

**Résultats** : Au total, 94 pharmacies ont été incluses dans l'étude, 732 Personnes avaient répondu au questionnaire d'enquête. L'âge moyen était de 27,9 ans avec un écart type de 5,6. Le sexe féminin était le plus représenté avec une sex-ratio de 0,4. Les auxiliaires en pharmacie étaient

majoritaires (81%) et le personnel ayant moins de 10 ans d'expérience était le plus représenté (91%). Le score moyen de connaissances était de 11 ±3,1 ; le score moyen d'attitudes de 3,1±1,4 et le score moyen de pratiques de 6,8±1,4. Le niveau CAP global du personnel en pharmacie était moyen dans 50,7%. Le faible niveau CAP était significativement associé à l'âge, la qualification professionnelle, le stage ou une formation sur les IST et le fait d'avoir reçu des cas d'IST au comptoir.

**Conclusions** : Le score CAP global du personnel en pharmacie est moyen dans 50,7%. Ce score est influencé par certaines caractéristiques qu'il est nécessaire de prendre en compte dans les décisions pouvant permettre d'améliorer cette situation.

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Abstract Number 514 has been withdrawn.

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## Metabolic Syndrome (MetS) and Metabolic Risk Profile among People With (PLWH) or Without HIV (PLWoH) in Nigeria: A Single Center Study

**Ajayi O**<sup>1</sup>, Okonkwo P<sup>1</sup>, Ajayi O<sup>2</sup>, Osayi E<sup>1</sup>, Ogwuche J<sup>3</sup>, Elujoba M<sup>3</sup>, Ogunsola O<sup>1</sup>, Onwuatuelo I<sup>1</sup>, Samuels J<sup>1</sup>

<sup>1</sup>Apin Public Health Initiatives, Nigeria, Abuja, Nigeria, <sup>2</sup>Community Medicine Department, University College Hospital, Ibadan, Nigeria, <sup>3</sup>ART Clinic, Our Lady of Apostle Hospital, Jos, Nigeria

As HIV therapeutics and care advance, there is emerging evidence of increased risk of cardiometabolic diseases attributed to increased life expectancy and longevity among PLWH. This study compared the prevalence of MetS and metabolic risk profile between PLWH and PLWoH in Nigeria

A cross-sectional analysis from baseline data of a prospective cohort study conducted among age-



matched adults PLWH and PLWoH in an HIV clinic in Plateau State. Data collected included sociodemographic history, lifestyle factors, and relevant clinical parameters. MetS was defined using a modification of the third report of the National Cholesterol Education Program Adult Treatment Panel (NCEP ATP III) criteria. Participants with  $\geq 3$  of the criteria as classified as having MetS; HbA1c  $\geq 5.7\%$  or RBS  $\geq 140$  mg/dl (used in place of FBS  $\geq 100$  mg/dl); serum triglyceride level (TGA)  $\geq 1.7$  mmol/L; HDL-C  $\leq 1.04$  mmol/L for males and  $\leq 1.3$  mmol/L for females; Abdominal adiposity was defined as waist-to-hip ratio(WHR)  $\geq 0.85$  for females and  $\geq 0.9$  for males; and systolic BP  $\geq 130$  mmHg or diastolic BP  $\geq 85$  mmHg.

Of the 239 PLWH and 234 PLWoH sampled, 71.5% and 77.8% were women ( $p < 0.01$ ), with a median age of 40 years and 37 years ( $p = 0.02$ ) respectively. The prevalence of MetS was 33.5% in PLWH and 28.2% in PLWoH (Odd Ratio = 1.28,  $p = 0.22$ ). Independent associations for MetS were female sex (OR = 0.55,  $p < 0.01$ ) and alcohol use (OR = 1.99,  $p = 0.02$ ). The proportions with the metabolic risk components in PLWH vs PLWoH were: Abdominal adiposity (74.5% vs 62.0%,  $p < 0.01$ ), prediabetes (13.8% vs 9.4%,  $p = 0.14$ ), diabetes (3.3% vs 1.7%,  $p = 0.27$ ) hypertriglyceridemia (8% vs 18%,  $p < 0.01$ ), low HDL (59.2% vs 49.4%,  $p = 0.03$ ). After adjusting for age and sex; abdominal adiposity, hyperglyceridemia, and low HDL were significantly associated with HIV status.

Our study showed a higher burden of MetS and its metabolic risk components in PLWH than in PLWoH. An integrated care approach for the prevention of cardiometabolic risk and disease is needed in the HIV care setting.

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## Navigating Barriers to Hypertension Treatment Adherence Among People Living with HIV in South African Primary Healthcare: A Theoretical Domains Framework Perspective

Maruma W<sup>1,2</sup>, Oladimeji E<sup>3</sup>, Heine M<sup>2,4</sup>, Nyathela A<sup>3</sup>, Venter F<sup>3</sup>, Lalla-Edward S<sup>3</sup>, Klipstein-Grobusch K<sup>2,5</sup>

<sup>1</sup>Division of Public Health Surveillance and Response, National Institute of Communicable Diseases, Johannesburg, South Africa, <sup>2</sup>Julius Global Health, Julius Center for Health Sciences and Primary Care, Utrecht Medical Center, Utrecht University, Netherlands, Utrecht, Netherlands, <sup>3</sup>Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa, <sup>4</sup>Institute of Sport and Exercise Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University, Stellenbosch, South Africa, <sup>5</sup>Division of Epidemiology and Biostatistics, School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa

**Background:** Evidence informed insights have demonstrated the need to reduce hypertension (HTN) rates among people living with HIV (PLHIV) to lower cardiovascular risk. HTN control can be achieved through a combination of strategies including medication adherence, however, implementation gaps continue to persist. Barriers exist at the healthcare client, provider, and system levels contributing to these gaps. To describe a range of potential mediators of behavior change, an evidence-informed theoretical domains framework (TDF) provides an opportunity to understand behavioral determinants. Guided by the TDF, this study explored ways to navigate barriers to HTN detection, monitoring, and treatment among PLHIV in established HIV treatment programs.

**Materials and Methods:** In this qualitative study, focus group discussions (FGD) were conducted March-August 2023 with purposively sampled PLHIV from three selected primary healthcare clinics in Johannesburg, South Africa. In-depth interviews (IDI) were conducted with facility managers and healthcare workers. Interview guides were developed guided by the TDF domains. Thematic analysis was conducted using the framework analysis approach. Data were



transcribed verbatim and analyzed using MAXQDA software.

**Results:** Three FGDs (13 participants) and six IDIs were analyzed. Several key (sub)themes emerged: Partial integration (screening, diagnosis; not management) of HTN care into HIV care services, HIV/HTN comorbidity and high pill burden, medication side effects and social support encourages treatment adherence. There are more resources allocated towards HIV care compared to HTN. Epidemiological estimates for HIV/HTN are scarce owing to lack of an integrated disease surveillance system. PLHIV diagnosed with HTN have more pills to integrate in their treatment plan, which may lead to side effects. Social support facilitates treatment adherence. One of the sub-themes that mediated the relationship between treatment adherence and partner support was acceptance of diagnosis.

**Conclusions:** System level factors require multisectoral collaboration to strengthen the integration of HTN services into routine HIV clinical services. Advancement in therapeutics has reduced pill burden for some chronic diseases with the aim of improving treatment adherence, particularly for PLHIV with other chronic comorbidities. The support of a partner can positively influence a person's commitment to following prescribed treatments and may help in supporting behavioral interventions reduce HTN risk.

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## Improving Medication Adherence as Part of a Hypertension and HIV Integrated Intervention Package: Systematic Approach Using the Theoretical Domains Framework

Maruma W<sup>1,2</sup>, Olidameji E<sup>3</sup>, Klipstein-Grobusch K<sup>2,4</sup>, Nyathela A<sup>3</sup>, Venter F<sup>3</sup>, Lalla-Edward S<sup>3</sup>, Heine M<sup>2,5</sup>

<sup>1</sup>Division of Public Health Surveillance and Response, National Institute of Communicable Diseases of the National Health Laboratory Service, South Africa, Johannesburg, South Africa,

<sup>2</sup>Julius Global Health, Julius Center for Health Sciences and

Primary Care, Utrecht Medical Center, Utrecht University, Netherlands, Utrecht, Netherlands, <sup>3</sup>Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa, <sup>4</sup>Division of Epidemiology and Biostatistics, School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, Johannesburg, South Africa, <sup>5</sup>Institute of Sport and Exercise Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University, Stellenbosch, South Africa

**Background:** Considering the synergies in health care delivery and scope of treatments for various conditions, integration of hypertension services in routine HIV clinical care is an efficient strategy to manage various chronic conditions in sub-Saharan Africa. Despite efforts to increase access to care and treatment, adherence to hypertension medication remains suboptimal. A number of factors can influence uptake of medication adherence. To fully integrate hypertension services into routine HIV clinical services, a theory-informed framework provides an opportunity to understand behavioral determinants to hypertension treatment adherence in people living with HIV (PLHIV).

**Materials and Methods:** This qualitative study was nested within a larger effectiveness implementation study (iHEART-SA) seeking to inform best practices for effective integration and sustainable strategies for detection and management of hypertension among PLHIV in established HIV treatment programs. Three focus group discussions with PLHIV (n=13) and six in-depth interviews with facility managers and healthcare providers were conducted between March - August 2023 in three selected primary healthcare clinics in Johannesburg, South Africa. Data were coded inductively by two reviewers and any codes, categories and emerging themes were mapped against the Theoretical Domains Framework (TDF).

**Results:** Of the 14 TDF domains, eight emerged from the analysis as domains affecting behavior: Knowledge, beliefs about capabilities, social influences, beliefs about consequences, environmental context and resources, intentions, goals and emotion. Knowledge of various aspects of hypertension including screening, diagnosis and management is provided through health education sessions. When PLHIV regulate their emotions in response to various socio-economic and environmental stressors, and the environment they live in; they are more likely to adhere to medication.



**Conclusions:** In order to improve medication adherence as part of an integrated package of care, understanding of the various domains affecting behavior is required to improve the effectiveness of the broader IHEART-SA intervention package, The TDF provided a useful framework for the integration of hypertension services into HIV care in South Africa. This study provides many actionable and behavioral determinants for improving hypertension outcomes among PLHIV.

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## PrEP Access among Adolescent Girls and Young Women and Key Populations Receiving HTS at Service Delivery Points in Nigeria: A Cross-Sectional Study in Six States

Aguolu R<sup>1</sup>, Zachariah Kums T<sup>1</sup>

<sup>1</sup>National Agency for the Control Of AIDS, Abuja, Nigeria

**Background:** Recent studies show that adolescent girls and young women (AGYW) and key populations (KPs) contribute largely to new HIV acquisitions in Nigeria. Pre-exposure prophylaxis (PrEP) has proved to be effective in reducing new HIV acquisitions, but how well are the KPs and AGYW groups being able to access this service? This paper aims to assess PrEP access among KPs and AGYW at HIV testing service delivery points in Nigeria.

**Materials and Methods:** This was a cross-sectional study conducted in six states (Abia, Kaduna, Akwa Ibom, Lagos, Taraba, and Benue) across the six geo-political zones in November 2021. States were selected based on existing KP and AGYW interventions and by their HIV prevalence. Quantitative data were collected through client exit interviews from AGYWs, and KPs including men who have sex with men (MSM), female sex workers (FSW), People who Inject drugs (PWID), transgender persons (TG), correctional inmates, who were receiving HTS and tested negative at the service delivery points (SDP). SDPs were randomly selected, and STATA was used for data analysis.



**Results:** Of the 4905 clients interviewed, 2520 were AGYW, and 2385 were KPs. The mean ages for AGYW and KPs were 18.9±3.7 years and 28.7±7.8 years respectively. The highest proportion of clients offered PrEP services were those who had HTS done at the OSS/DIC (75.6%) followed by those who received services through community outreach (62.4%) while those who received services at the correctional facilities had the least proportion (7.1%). In two-thirds of the states studied, less than 50% of AGYW who had tested negative were offered PrEP with Lagos having the lowest proportion (18%). Among KPs, Abia had the lowest proportion (29.4%) offered PrEP while Lagos had the highest proportion (91.8%). Across the KP typologies, TGs had the highest proportion offered PrEP (86.0%), followed by MSM (77.5%), and correctional inmates the lowest (7.3%).

**Conclusions:** PrEP access varied in proportion across KP typologies, SDPs, and states, hence the need to design and implement location-population strategies to address this. Nigeria has however now integrated PrEP services indicators into its national program HTS data collection tool.

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## Take Your PrEP Away: Reflections on Why Some Key Populations Decline PrEP in Liberia

Reeves G. H<sup>1</sup>, Lyimo R<sup>1</sup>, Odo M<sup>1</sup>, Kerbay C<sup>1</sup>, Kamanga G<sup>1</sup>, Leeshar C<sup>1</sup>, Thakur Kumar P<sup>1</sup>, Tonorlah J<sup>1</sup>, Darrow de Mora, D<sup>1</sup>, Dolo T<sup>1</sup>, Fosua Clement N<sup>1</sup>, Nyanplu<sup>2</sup>, Flomo J<sup>2</sup>

<sup>1</sup>FHI360, Monrovia, Liberia, <sup>2</sup>National AIDS Control Program (NACP), Monrovia, Liberia

In Liberia, key populations (KPs) are mostly affected by HIV, with a prevalence of 37.9% among men who have sex with men (MSM), 16.7% among female sex workers (FSWs), and 27.6% among transgender persons (TG) (IBBSS 2020). KP could greatly benefit from Pre-Exposure Prophylaxis (PrEP) as part of combination prevention to mitigate HIV transmission. The PEPFAR/USAID-funded and FHI 360-led EpiC project collaborated with the National AIDS Control Program (NACP) to

launch oral PrEP for KPs in Liberia. We evaluated the reasons why some KPs refused PrEP to ensure client-centered services are provided to the program.

In Liberia, PrEP is provided to KPs through “hub and spoke” approach using health facility as a coordinating delivery center with outreach delivery support. Demand creation is jointly done through health facilities and peer outreach in the communities. A retrospective cross-sectional review of routinely collected program data from April 2022 to September 2023 in the District Health Information Software (DHIS-2), PrEP screening tool in four health facilities with the highest PrEP enrolment. We used descriptive statistics to compare the proportion of KPs linked to PrEP and the reasons for refusal among those that were offered by refused.

All 7178 HIV-negative KPs were offered PrEP, and 4255 (59.27%) initiated PrEP, while 2923 (41%) refused. Of the 2923 that refused PrEP, 300 (7%) had available data on the reasons for refusal and were included in this review; 169 (56%) were FSWs, 111 (37%) were MSM, and 20 (7%) were transgender. The major reason for refusal was anxiety about taking daily medication (37%), with FSW at 53%, MSM at-15%, and TG at -20%. The other notable reasons were self-perception of not needing PrEP (18%), fear of side effects (15%), and concerns about adherence schedules of oral PrEP (11%).

The main reasons for PrEP refusal should be used to inform PrEP demand generation and counseling at the time of initiation with focus on providing information on side effects of PrEP medications and other related issues. Efforts should be made to introduce new HIV prevention options, such as PrEP ring and CAB-LA to help address some of the identified challenges.

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## Adolescents, Parents/Guardians and Community Perceptions of Contraception Use and Its Impact on Recruitment for HIV Prevention Trials; A Case Study of the HPTN 084-01 Study

**Nambusi M**<sup>1</sup>, Nakabiito C<sup>1</sup>, Kamira B<sup>1</sup>, Etima J<sup>1</sup>, Nakyanzi T<sup>1</sup>, Kemigisha D<sup>1</sup>, Ssemere H<sup>1</sup>, Nanyonga S<sup>1</sup>, Mulumba E<sup>1</sup>, Gati Mirembe B<sup>1</sup>

<sup>1</sup>Makerere University-Johns Hopkins University Research Collaboration, Kampala, Uganda

**Background:** HPTN 084-01, a clinical trial examining the safety, tolerability, and acceptability of Long-Acting Cabotegravir (CAB LA) for prevention of HIV among adolescent females. To participate in HPTN 084-01, it was required that girls agree to use a reliable method of long-acting contraception. In Uganda, contraceptive nonuse is estimated at 40%. Modern contraceptive utilization is 9.4% among Ugandan female adolescents aged 15–19 years. Adolescents 16-17 years were less likely to use contraceptive methods than adult women due to issues surrounding parent/guardian consent, insufficient knowledge and a lack of experience. This study explored the reactions of parents/guardians and community on adolescent contraception uptake.

**Materials and Methods:** The site held a dialogue and community capacity building session with parents/guardians (6-7 August 2020, onsite and via zoom), discussing concerns, perceptions, reactions and experiences around contraception and sexual activity messaging. Community door to door sensitizations were also utilized. The prescreening clinic log captured adolescents already on contraception and willingness for continued use, as well as uptake. A contraception sessions log captured opinions and reactions and the clinic contraception log captured choice of contraception. The HPTN 084-01 prescreen checklist was used to prescreen for willingness to use contraception.

**Results:** Parents/Guardians (96%) had concerns about contraception including: safety for adolescents, ability to conceive after use, driver of



promiscuity, and promotion of sex before marriage. Within the community, the site led 45 sensitizations, 177 were prescreened, 45 presumptively eligible, and 132 were ineligible; 53% not willing to use contraception and 47% other factors. Of the 56 prescreened at the clinic, 16 (29%) were already on contraception and 40 (71%) were not. 21 adolescents and 4 parents/guardians received contraception at the clinic and 19 declined. Different thoughts stood out about contraception: it being for adults, should not be used before childbirth and adolescents' preference to use waist beads, a black market pill once a month, and traditional methods (e.g. putting the first menstrual pad in the roof and drinking herbals).

**Conclusions:** Despite several community perceptions about contraception use among adolescents, systematic contraception engagements with parents/guardians and the community at large enhanced adolescent recruitment for HPTN 084-01, which required contraception use.

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## Clients' Perspectives on the Feasibility of Pre-exposure Prophylaxis (PrEP) Uptake in Private Pharmacies in South Africa

Oladimeji K<sup>1</sup>, Nyatela A<sup>1</sup>, Tembo A<sup>1</sup>, Ntombela N<sup>1</sup>, Phahla C<sup>1</sup>, Nthulana M<sup>1</sup>, Madzebu M<sup>1</sup>, Kubeka P<sup>1</sup>, Tinzi S<sup>1</sup>, Mkansi M<sup>1</sup>, Lalla-Edward S<sup>1</sup>

<sup>1</sup>*Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa*

**Background:** Pre-exposure prophylaxis (PrEP) is a highly effective strategy for preventing HIV infection. Still, there are obstacles to its accessibility and uptake, especially for populations at risk of contracting HIV. Provision of PrEP offers an opportunity to impact HIV by increasing PrEP uptake and reducing the incidence of HIV. This study explored the feasibility of PrEP uptake through private pharmacies (independent pharmacist-owned, privately held businesses) in South Africa.

**Materials and Methods:** A qualitative research approach was employed to gather insights from private pharmacy clients regarding their perspectives on accessing PrEP through private pharmacies. In-depth interviews (IDIs) were conducted between May and July 2023 using an open-ended question guide to understand the opinions of private pharmacy clients in relation to PrEP uptake in pharmacies. Enrolment of consenting participants was through purposive sampling from eight participating private pharmacies located in two major cities (Johannesburg and Cape Town) in South Africa. Data management and analysis involved verbatim transcription and thematic analysis on MAXQDA version 22 software.

**Results:** A total of 30 participants, of which median age was 22 years (interquartile range: 20-30 years) and 8 (27%) were males. Emerged themes included awareness and knowledge on PrEP and barriers (social and health systems related) to PrEP uptake. Social considerations, such as stigma and privacy concerns, and health system factors, such as perceived service quality and convenience of access, influenced the feasibility of obtaining PrEP from private pharmacies. Private pharmacy clients' perceptions of PrEP's affordability and cost were other facilitators identified as potentially influencing the feasibility of PrEP uptake at pharmacies. Almost all the participants stated that low cost/increased affordability, and convenience (easier accessibility) would enhance uptake of PrEP provided through private pharmacies and in general.

**Conclusions:** There are both opportunities and challenges for PrEP uptake in South Africa's private pharmacies. Addressing awareness gaps, reducing stigma, ensuring affordability, and integrating PrEP services into private pharmacy settings are critical to increasing the feasibility of PrEP uptake. These findings could inform the development of tailored interventions and policies to improve PrEP delivery through private pharmacies, ultimately contributing to the expansion of HIV prevention efforts in South Africa.



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## “I Felt Shy That My Friends Will See Me”: Understanding the Low Uptake of HIV Testing Within DREAMS Centers in Zambia

Mwale M<sup>1</sup>, Bwalya C<sup>2</sup>, Stobenau K<sup>2</sup>, Toussant S<sup>2</sup>, Muchanga G<sup>1</sup>, Maambo C<sup>1</sup>, Mwamba M<sup>3</sup>, Kashyap A<sup>2</sup>, Baumhart C<sup>4,5</sup>, Muleya C<sup>6</sup>, Mwila A<sup>6</sup>, Claassen C<sup>1,4,5</sup>

<sup>1</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>2</sup>University of Maryland College Park, College Park, United States, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, United States, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>6</sup>U.S Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

**Background:** In sub-Saharan Africa, including Zambia, adolescent girls, and young women (AGYW) face a heightened risk of contracting HIV. To address this problem, the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program provides a comprehensive approach to HIV prevention, including social and economic empowerment, and youth-friendly sexual and reproductive healthcare, with an emphasis on creating demand and offering HIV testing services (HTS) along with other biomedical prevention services. HTS is offered in-house in an AGYW-friendly environment to promote testing uptake. However, in Zambia, DREAMS program data shows a suboptimal uptake with some eligible beneficiaries not testing for HIV at the centers. We sought to understand the reasons for this low uptake.

**Materials and Methods:** Between April and July 2023, we conducted a three-site qualitative case study assessment of DREAMS in three districts of Zambia. Sites were purposively selected to include a mix of urban, peri-urban, and rural settings as well as a mix of DREAMS implementing partners. Audio-recorded interviews with AGYW beneficiaries (n=38) aged 16-21 were conducted between April and July 2023 to understand the testing experiences of beneficiaries. Data was transcribed then written up in narrative summaries, which were analyzed using a thematic analysis approach.

Results: Beneficiaries reported that DREAMS had improved their understanding of the significance of testing and increased their motivation to test. Despite this, gender and power dynamics served as barriers, with male partners dictating where some AGYW were to be tested from - participants described "being taken" to a local clinic rather than the DREAMS center. AGYWs further described hesitation to get tested at the center due to anticipated stigma and shame, the fear of being seen by fellow beneficiaries, and the negative perceived reaction of mentors. Girls younger than 18 needed to obtain parental consent before they could be tested and this also acted as a barrier.

**Conclusions:** DREAMS is successfully increasing the demand for HIV testing among AGYW beneficiaries. More activities targeting relationship dynamics to empower young women in decision-making, and engagement of parents on the importance of testing may further improve HIV testing rates among this critical vulnerable population.

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## Providers Preferences on Injectable Prep Scale-up in Malawi: A Qualitative Study

Jere N<sup>1</sup>, Hoeghe D<sup>2</sup>, Msumba L<sup>1</sup>, Chilongosi R<sup>3</sup>, Saidi F<sup>1</sup>, Murombedzi K<sup>4</sup>, Hill L<sup>5</sup>, Hosseinipour M<sup>1</sup>, Schwartz S<sup>6</sup>, Afirima B<sup>7</sup>, West B<sup>8</sup>, Nyirenda R<sup>9</sup>, Kamgwira Y<sup>7</sup>, Nkhonjera J<sup>9</sup>, Ozituosauka W<sup>9</sup>, Holmes C<sup>1</sup>, Bula A<sup>1</sup>

<sup>1</sup>UNC Project-Malawi, Lilongwe, Malawi, <sup>2</sup>Georgetown University, Washington, USA, <sup>3</sup>Family Health Services, Lilongwe, Malawi, <sup>4</sup>Population Services International, Blantyre, Malawi, <sup>5</sup>University of North Carolina, Chapel Hill, USA, <sup>6</sup>Johns Hopkins University, Baltimore, USA, <sup>7</sup>National AIDS Commission, Lilongwe, Malawi, <sup>8</sup>Ipsos, London, United Kingdom, <sup>9</sup>Department of HIV & AIDS, Ministry of Health, Lilongwe, Malawi

**Background:** Injectable PrEP promises to substantially impact HIV incidence in Malawi, however, its rapid and efficient scale-up is dependent on rapidly identifying issues that may facilitate or hinder effective service delivery and demand creation. This paper examines and describes health care worker preferences, perceived challenges, and enablers in delivering and scaling up injectable PrEP in Malawi.



**Materials and Methods:** From May to December 2023, we conducted 20 in-depth interviews with healthcare workers providing oral PrEP as part of a pre-implementation mixed-methods study to assess preferences for injectable PrEP delivery. The interview guide included questions to explore providers' experiences with oral PrEP and how that can be used to facilitate the scale-up of injectable PrEP, as well as any anticipated barriers and facilitators. Interviews were translated and transcribed into English, followed by a rapid analysis of interview summaries. Data were then coded and analysed using Nvivo 1.7.

**Results:** Respondents felt that injectable PrEP had a relative advantage compared to oral PrEP, including reducing pill burden, promoting adherence, ensuring privacy and reducing stigma toward users. All but one provider were willing to recommend injectable PrEP to clients, suggesting high acceptability of injectable PrEP. Respondents believed that injectable PrEP could be easily introduced and built from the experience of oral PrEP integration with other services, including family planning, antenatal and postnatal care, STI clinics and drop-in centres. Respondents did not recommend integration with ART and OPD services due to concerns that these channels may promote stigma. Despite indicating high feasibility, providers also noted potential barriers to injectable PrEP delivery and scale-up, including increased workload, overcrowding at clinics, and expressed the need for additional training and client education.

**Conclusions:** Despite barriers remaining to be addressed, injectable PrEP was found to be more acceptable and feasible to integrate with other services, including oral PrEP. Injectable PrEP can leverage a strong existing platform for rapid scale-up in Malawi.

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## Evaluating the Feasibility of Self- Collected Samples for HIV Testing Among Men and Women Continuing Pre-exposure Prophylaxis (PrEP) on an Online Platform in Gauteng Province, South Africa

**Mkansi M<sup>1</sup>**, Nyamuzihwa T<sup>1</sup>, Phahla C<sup>1</sup>, Mkhize A<sup>1</sup>, Wonderlik T<sup>1</sup>, Tembo A<sup>1</sup>, Guramatunhu T<sup>2</sup>, Motsoari M<sup>2</sup>

<sup>1</sup>Ezintsha, Johannesburg, South Africa, <sup>2</sup>King Online, Johannesburg, South Africa

**Background:** Individuals initiated on PrEP (pre-exposure prophylaxis) are required to have three monthly visits to renew medication prescriptions and obtain routine HIV testing. PrEP scale-up efforts can be supported by the use of self-collected samples overcoming challenges such as fitting visits around work schedules, stigma and transport costs. We will be reporting on the feasibility of self-collected samples for HIV testing in individuals provided with PrEP through an online platform for 13 months.

**Materials and Methods:** Ezintsha has partnered with King Online, a health and wellness retailer to offer PrEP online. Participants access online survey and once-off nurse visit for baseline laboratory investigations is scheduled, at this visit the participants receive a self-care package they need to use for month one visit and are demonstrated how to fill the dried spot card with blood drops and drying. The Dried Blood Spot (DBS) is used to confirm HIV status. For consecutive visits King Online couriers PrEP and the self-care package. Participants perform an HIV self-test and self-collect sample for the DBS before PrEP refill. DBS cards are collected from the participants to the laboratory for HIV viral load testing.

**Results:** The project started in July 2023, 75 participants voluntarily reported their HIV self-test results, 56 (75%) requested a nurse visit, 54 (72%) screened and 53 (71%) initiated on PrEP. For month 1 follow-up visit 22 (42%) of the participants reported their HIV self-test results and collected the DBS sample which was couriered to the laboratory and received their PrEP refills and





self-care packages through courier. Five (23%) participants completed the month 4 visit. DBS cards received by the Lab were used correctly by participants with adequate blood provided, indicating the feasibility of the self-collected samples for PrEP continuation.

**Conclusions:** Self-collection samples for PrEP continuation are an alternative to clinic based testing has a potential to maximizing PrEP persistence with less support from healthcare workers as they offer flexibility in monitoring. Barriers such as constraints on healthcare systems, waiting time in facilities and need for in-person monitoring are overcome

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## “We Don’t Know What PrEP Is and That It Exists” Insights into Pre-exposure Prophylaxis (PrEP) Awareness and Health Care Setting Preferences for Uptake by Individuals Aged 18-40 Years in South Africa: Implications for Pharmacy-Based Initiatives

Oladimeji K<sup>1</sup>, Nyatela A<sup>1</sup>, Tembo A<sup>1</sup>, Ntombela N<sup>1</sup>, Phahla C<sup>1</sup>, Nthulana M<sup>1</sup>, Madzebu M<sup>1</sup>, Kubeka P<sup>1</sup>, Tinzi S<sup>1</sup>, Mkansi M<sup>1</sup>, Lalla-Edward S<sup>1</sup>

<sup>1</sup>*Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa*

**Background:** Evidence-informed insights on pre-exposure prophylaxis (PrEP) awareness and preferred healthcare settings can improve pharmacy-based programs and progress toward the global HIV reduction objective. Research shows that there is a lack of awareness about PrEP availability and barriers to access in the public health system. To further understand views on PrEP knowledge and uptake considerations, this study explored pharmacy clients' perspectives on the implementation of pharmacy-led PrEP programmes in South Africa.

**Materials and Methods:** Using qualitative research methods, in-depth interviews (IDIs) were

conducted between May and July 2023. An open-ended question guide was used to gather information on awareness, knowledge, and health system characteristics that potentially affect PrEP uptake. Convenience sampling was used to enroll pharmacy clients from eight selected private pharmacies located in two metropolitan cities in South Africa: Johannesburg and Cape Town. The data was transcribed verbatim and analyzed thematically using MAXQDA version 22 software.

**Results:** A total of 30 IDIs were conducted, 22 (73%) were females. Participants' median age was 22 years (interquartile range: 20-30 years). The study found three themes: reported PrEP awareness and knowledge, barriers to access, and health system factors influencing pharmacy preferences. Participants reported low PrEP awareness, particularly in rural areas where some reside. Some misinterpreted it as a way to avoid pregnancy (don't take morning after pill, take PrEP), while others thought it only applies to certain genders (I thought PrEP was for only males). Privacy and confidentiality were also seen to play a significant role in motivators to influencing PrEP uptake in private pharmacies versus over public clinics because of stigma and discrimination (People are ashamed of going to public clinic because of watchful eyes and side comments... nurses are not confidential; everyone can hear your business unlike in pharmacies). Participants advocate for promoting PrEP through social media and healthcare professional health talks, particularly in key locations such as schools, social clubs, and malls.

**Conclusions:** The study provides insights into the perceptions and preferences for provision of PrEP in pharmacy settings. These findings are critical for developing effective strategies to promote PrEP access and use in South Africa and globally.



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## Men's Clinic Improves HIV Prevention Service Uptake in Northwestern Province of Zambia

Musachi E<sup>1</sup>, Sampa K<sup>1</sup>, Sakala H<sup>2</sup>, Mwamba T<sup>3</sup>, Michelo J<sup>3</sup>, Longwe B<sup>3</sup>

<sup>1</sup>Ministry of Health, Solwezi, Zambia, <sup>2</sup>National AIDS Council, Solwezi, Zambia, <sup>3</sup>Clinton Health Access Initiative, Lusaka, Zambia

**Background:** Globally, men experience significantly worse health outcomes than women, in part due to delayed health-seeking behavior among men. In Zambia in particular, average life expectancy at birth was 63.93 years for women and 58.49 years for men. The national mortality rate stood at 368.6 per 1000 for adult males and 250.21 per 1000 for adult females in 2021, which led to the introduction of a national men's clinic strategy, one of which is in the North-Western Province of Zambia, where male outpatient clinic attendance ranges from 25% to 35%, highlighting the need for improved access to health services.

**Description:** In June 2022, Zambia established a Men's Clinic at Kasempa Urban Clinic, providing specialized services exclusively for men. The clinic offers a range of services, including HIV testing, condom distribution, general outpatient care, and testing and treatment for sexually transmitted infections (STIs). Staffed by male service providers, the clinic employs a fast-tracking approach, ensuring swift access to all services for male clients. Clinicians and nurses at the clinic undergo training in men-friendly services, following the Ministry of Health (MoH) approved curriculum for men's clinics. Sensitization and demand generation initiatives were conducted through community radio and interpersonal programs. Data was collected using tally sheets.

**Results:** Between FY22 Q3 – FY23 Q3, outpatient department (OPD) attendance showed a 43% increase with HIV testing increasing from 730 to 1311(54%). The number of men screened and treated for sexually transmitted infections (STIs) rose from 11 to 83 while Condom distribution efforts saw a fourfold increase from 900 to 3600. Within the reporting period, 413 male circumcision were conducted surpassing the 400 target. Furthermore, a slight increase in new PrEP

new from 25 men in FY Q3 to 100 (16%) in FY23, indicating a need to enhance sensitization on PrEP as a prevention method that men can access.

**Conclusions:** The men's clinic approach has shown success in promoting proactive health-seeking behavior, improving access to HIV preventive measures, highlighting areas that require further engagement of men such as PrEP and addressing various aspects of men's health, ultimately contributing to the overall well-being of the male population.

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## Differentiated HIV Case Finding Approaches Towards Achieving Sustainable Epidemic Control

Onsomu J<sup>1</sup>

<sup>1</sup>PATH Kenya, Kisumu, Kenya

**Background:** Differentiated case-finding is a case-based approach aimed at tailoring services for different outcomes. Classifications include HIV Negative, HIV positive re-diagnosis, HIV positive not previously linked, and HIV positive re-engaging to treatment. The Kenyan Ministry of Health (MoH) has prioritized linkage of these groups to tailored services offering care and treatment, return to care package for those re-engaging and appropriate prioritized effective prevention options for those who turn HIV negative. This aims at evaluating the magnitude of re-diagnosis and re-engagement to ART and the associated client factors in four counties in Western Kenya.

**Materials and Methods:** We collected prospective data using a structure tool on ODK, Data was collected from the facility HIV testing register using an ODK form and was analyzed using Stata 15.1. We compared the characteristics of clients newly diagnosed with HIV with those who had had a previous HIV diagnosis using descriptive statistics and determined the factors associated with new HIV re-diagnosis and re-engagement to treatment using univariable logistic regression.

**Results:** Among the 1,460 clients who tested HIV positive (October 2023 to December 2023), 1,233



(84.5%) were categorized of whom 65 (5%) had previously been diagnosed and of those 54% (36) had previously started ART. Clients characterized as re-diagnosed or re-engaged positives were more likely to be aged 35 years or older (61.5% vs. 43.6%) and divorced or widowed (27.7% vs. 17.4%), compared to clients who had no prior HIV diagnosis ( $p=.024$ ,  $p=.048$ ). Previous HIV diagnosis was not statistically significantly associated with gender, occupation, and county of residence. Divorced or widowed clients were 2.6 times more likely to have a previous HIV diagnosis compared to the unmarried clients (Odds Ratio (OR): 2.62, 95% confidence interval (CI): 1.18-5.78). For a one-unit increase in the age of client in years, there was a 3% increase in the odds of having a previous HIV diagnosis (OR: 1.03, 95%CI: 1.01-1.05).

**Conclusions:** The study revealed that marital status and age are key factors associated with disengagement and re-engagement to ART among clients presenting for HTS, with the divorced or widowed and the older population >35 years of age being most at-risk.

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## Factors Associated with Retention and Adherence on Pre-exposure Prophylaxis Among Men Who Have Sex with Men in Kigali, Rwanda: A Cross-Sectional Study

Mubezi S<sup>1</sup>, Malamba S<sup>4</sup>, Rwibasira G<sup>2</sup>, Uwineza J<sup>1</sup>, Kayisinga J<sup>1</sup>, Remera E<sup>2</sup>, Ikuzo B<sup>2</sup>, Ndengo E<sup>3</sup>, Umuhozo N<sup>4</sup>, Sangwayire B<sup>4</sup>, Mwesigwa R<sup>4</sup>, Stamatakis C<sup>4</sup>, Wandera M<sup>1</sup>, Oluoch T<sup>4</sup>, Kayirangwa E<sup>4</sup>

<sup>1</sup>Society for Family Health (SFH), Kigali, Rwanda, <sup>2</sup>Rwanda Biomedical Center (RBC), Ministry of Health, Kigali, Rwanda, <sup>3</sup>United States Agency for International Development (USAID), Kigali, Rwanda, <sup>4</sup>Division of Global HIV and TB, Global Health Center (GHC), US Centers for Disease Control and Prevention (CDC), Kigali, Rwanda

**Background:** Pre-Exposure Prophylaxis (PrEP) is recommended as an HIV prevention measure for men who have sex with men (MSM). We assessed factors associated with PrEP retention and adherence among MSM in Kigali, Rwanda.

**Materials and Methods:** We undertook a cross-sectional study and used a questionnaire to obtain PrEP retention and adherence history from MSM enrolled that attended follow-up visits from four (4) health facilities between April 2021 to June 2021. We used multivariable cox regression to determine factors associated with 3-month retention and principal component analysis (PCA) to determine factors associated with self-reported adherence. Data were analyzed using STATA (version 16.0).

**Results:** We interviewed 439 MSM aged 18 years and above that were initiated on PrEP. Majority were employed (57%,  $n=251$ ), between ages 25-34 years (49%,  $n=217$ ), close to half completed primary level education (47%,  $n=206$ ), were involved in sex work (42%,  $n=184$ ), and over a half lived in household of 1-2 members (55%,  $n=241$ ). Ninety percent of the MSM respondents ( $n=393$ ) were retained on PrEP at 3 months and among those retained, 287 (73%) had good adherence. Multivariable cox regression revealed that MSM more likely to be retained on PrEP, were those that are sex workers (adjusted Hazard Ratio (aHR)=4.139; 95% Confidence Interval (95%CI): 1.569, 10.921), had more than one (1) regular sexual partners (aHR=3.949; 95%CI: 2.221, 7.022), lived in households of 3-5 members (aHR=3.755; 95%CI: 1.706, 8.261), completed secondary school education (aHR=2.154; 95%CI: 1.130, 4.108), and were circumcised (aHR=2.218, 95%CI: 1.232, 3.993). Employed MSM had a 66% decreased likelihood to be retained on PrEP (aHR=0.345; 95%CI: 0.168, 0.707). Similarly, MSM that used condoms consistently had an 85% decreased likelihood to be retained on PrEP (aHR = 0.149; 95%CI: 0.035, 0.632). Principal component regression analysis showed that the component with MSM with higher numbers of regular sexual partners had increased odds of adhering to PrEP (Crude Odds Ratio (cOR)=1.32; 95%CI: 1.144, 1.530).

**Conclusions:** Our study highlighted that MSM using PrEP as the main method of HIV prevention were more likely to be retained and adherent to PrEP. There is need to emphasize PrEP use alongside other HIV prevention methods like condoms.



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## Gender Differences in Partner Notification Preferences among Index Testing Clients in Western Region, Ghana

Dotse O<sup>1</sup>, Kwashie M<sup>1</sup>, Kodua Nyanor A<sup>1</sup>, Nartey D<sup>1</sup>, Adiibokah E<sup>1</sup>, Tagoe H<sup>1</sup>, Abdul-Wahab I<sup>1</sup>, Abdul-Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>

<sup>1</sup>JSI, Takoradi, Ghana

**Background:** The selection of a suitable partner notification (PN) strategy to ensure safe and ethical tracing and testing of index contacts is critical to the success of index testing activities. PN approaches can be passive or client-driven (client-referral); or provider-assisted (provider, contract or dual) referral, whereby the health care provider supports the index client to trace contacts elicited. Understanding and supporting the PN preferences of index clients can help assure the safety of index clients, and improve the HIV testing and linkage experience among contacts. The study aimed to examine the gender differences in PN preferences among index testing clients in the Western Region of Ghana.

**Materials and Methods:** Data were extracted from the project DHIS2-based index testing register from 2020-2023. Incomplete data sets were excluded from the analysis. The final data set included 2,818 index testing clients. A descriptive analysis using percentages and the Pearson chi-square test of independence was conducted.

**Results:** Of the 2,818 index clients, 2,191 (77.8%) were females. The average age of the clients was 25.2 years with a range of 15-71 years. Health facilities tested 2,122 (75.3%), and 696 (24.7%) were tested by Civil Society Organizations (CSOs). More than two-thirds (76.3%) of clients offered index testing preferred provider-assisted partner notification; provider referral 1,574 (55.9%), and contract referral 574 (20.4%). Client referral was least preferred by 670 (23.8%) of the index clients. Majority 1,792 (63.6%) of the 2,818 index clients were sexual partners of the contacts elicited, and 1,027 (36.4%) were parents of the contacts elicited. There was a statistically significant difference between female and male preferences for PN approaches with a Pearson chi-square value of 21.4 ( $p < 0.001$ ).

**Conclusions:** Provider-assisted PN approaches were the most preferred among index clients. However, gender differences exist in preference for the PN type. Females preferred provider referral more than males, while males preferred contract referral more than females. Results suggest the influence of gender dynamics, sociocultural contexts, and considerations of possible intimate partner violence in clients' selection of a PN approach. Further research is recommended to gauge the reasons behind gender differences and implications for index contact tracing and HIV testing outcomes.

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## Trading Risks for Protection: The Role of Age, Sex Work, and Discordant Partnerships in Oral Pre-exposure Prophylaxis Persistence Among High-Risk Populations in Blantyre and Zomba, Malawi

Gent F<sup>1</sup>, Chingati Phiri A<sup>1</sup>, Kalitera L<sup>1</sup>, Makonokaya L<sup>1</sup>, Chamanga Kanyenda R<sup>1</sup>, Singano V<sup>2</sup>, Singini G<sup>1</sup>, Maida A<sup>2</sup>, Maphosa T<sup>1</sup>

<sup>1</sup>Elizabeth Glaser Pediatric AIDS Foundation, Lilongwe, Malawi, <sup>2</sup>Division of Global HIV and TB, U.S. Centers for Disease Control and Prevention, Lilongwe, Malawi

**Background:** The use of pre-exposure prophylaxis (PrEP) plays a pivotal role in lowering HIV incidence among populations at high-risk for HIV. In Malawi, the Elizabeth Glaser Pediatric AIDS Foundation supported oral PrEP implementation across 46 health facilities in 9 districts. We investigated adherence levels and factors influencing sustained PrEP usage among eligible individuals provided with PrEP in two urban districts.

**Materials and Methods:** This retrospective study focused on 10 high-volume facilities from two districts. PrEP was administered to high-risk groups, including individuals in discordant HIV relationships, adolescent girls and young women with sexual partners who were  $\geq 5$  years older, individuals who engage in transactional sex, and individuals who had a recent sexually transmitted



infection (STI). Data were extracted from PrEP records for all clients who initiated PrEP between October 2021 and September 2022, and tracked until March 2023. Continuous PrEP use was defined as attending at least one refill visit, while adherence was measured by missing < 7 doses monthly by self-report. Logistic regression was employed to outline factors correlating with sustained PrEP use, encompassing sex, age, circumcision status, HIV risk, and clinic location.

**Results:** Among 937 PrEP clients, 75.2% (n=705) were female, with a median age of 24 years; 55.2% (n=517) were between 15 and 24 years of age. Only 34.3% (n=321) revisited for refills after one month; of these, 92% (n=295) reported being adherent. Clients >45 years (n=22) had significantly higher odds of continuing PrEP compared to those 15-24 years (aOR 3.69 (1.98-6.90)). Similarly, individuals who engaged in sex work (n=6) had increased likelihood of continued PrEP usage compared to those who did not (aOR 3.03 (1.19-7.69)). Moreover, clients with partners living with HIV (n=116) had a twofold increase in the odds of continued PrEP use compared to those without discordant partners. (aOR 2.08 (-1.14-2.94)).

**Conclusions:** Overall PrEP continuation rates were suboptimal, with older age, engagement in sex work, and being in discordant relationships associated with increased likelihood of continuing PrEP. Customized interventions tailored to these high-risk populations could help improve PrEP adherence and continuation.

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## Understanding Reasons for Refusal of HIV Pre-Exposure Prophylaxis Among Sero-Different Partners in Tanzania: A Cross-Sectional Analysis

Nnko C<sup>1</sup>, Van de Ven R<sup>1</sup>, Lyimo F<sup>1</sup>, Mkumbo J<sup>1</sup>, Tsuhhay A<sup>1</sup>, Timba J<sup>1</sup>, Akyoo N<sup>1</sup>, Miti B<sup>1</sup>, Ngeleja F<sup>1</sup>, Kimambo S<sup>1</sup>, Bateganya M<sup>2</sup>

<sup>1</sup>Elizabeth Glaser Pediatric Aids Foundation, Dar es salaam, Tanzania, <sup>2</sup>United States Agency for International Development, Dar es salaam, Tanzania

**Background:** Pre-exposure prophylaxis (PrEP) was included in HIV combination prevention in Tanzania in September 2021, but uptake remained low among sero-different partners. To increase uptake, the Elizabeth Glaser Pediatric AIDS Foundation under USAID Afya Yangu Northern project introduced a feedback mechanism by documenting the primary reason for PrEP refusal among individuals willing to report in PrEP registers.

**Materials and Methods:** A cross-sectional analysis conducted in 119 health facilities implementing PrEP across five regions in Tanzania. Data was extracted from PrEP registers for the period October 2021 to September 2023. Reasons for refusing PrEP were extracted from PrEP registers. The reasons were categorized into six major groups: (1) separated or divorced after identification of discordant results, (2) not willing to take pills daily, (3) prefer condoms, (4) afraid of drug side effects, (5) partner very sick, and (6) stigma. The reasons were analyzed using a Pareto chart to show frequency.

**Results:** A total of 325 out of 1,654 (20%) clients refusing PrEP disclosed reasons for refusal: 123 (38%) clients cited separation or divorce after identification of discordant results, 101 (31%) clients were not willing to take PrEP daily, 73 (22%) preferred condom as method of prevention, 11 (3.38%) were afraid of drug side effects, 9 (2.77%) had partners who are very sick, and 3 (0.92%) cited stigma as reason for refusal. The uptake of PrEP increased from 331 in October – December 2021 to 1,634 in July – September 2023, reflecting an 85% (1,634/1,916) uptake of PrEP among eligible clients in the last quarter.

**Conclusions:** Documentation of clients' reasons for refusing PrEP among sero-different partners in this subset of refusers enabled the understanding of clients' perspective. This study suggests that reasons obtained through the feedback mechanism be used to improve counselling for new clients. Creating avenues for open feedback is essential to help redesign interventions to cater to clients' needs.



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## The Impact of Stigma on Women's Adherence to Oral Pre-exposure Prophylaxis (PrEP) During Pregnancy and Breastfeeding Period in Lilongwe, Malawi: A Qualitative Analysis

Phanga T<sup>1</sup>, Saidi F<sup>1,3</sup>, Bula A<sup>1</sup>, Tseka J<sup>1</sup>, Mmodzi P<sup>1</sup>, Baluwa C<sup>1</sup>, M. Young A<sup>2</sup>, H. Chi B<sup>3</sup>, D. Pearce L<sup>4</sup>, Maman S<sup>5</sup>, E. Golin C<sup>5,6</sup>, Mutale W<sup>7</sup>, M. Hill L<sup>5</sup>

<sup>1</sup>University Of North Carolina Project, Lilongwe, Malawi,

<sup>2</sup>Department of Maternal and Child Health, University of North Carolina, Chapel Hill, USA, <sup>3</sup>Department of Obstetrics and Gynecology, School of Medicine, University of North Carolina, Chapel Hill, USA, <sup>4</sup>Department of Sociology, University of North Carolina, Chapel Hill, USA, <sup>5</sup>Department of Health Behavior, University of North Carolina, Chapel Hill, USA, <sup>6</sup>Department of Medicine, University of North Carolina, Chapel Hill, USA,

<sup>7</sup>Department of Health Policy, University of Zambia School of Public Health, Lusaka, Zambia

**Background:** Women experience elevated HIV risk during pregnancy and breastfeeding, particularly in sub Saharan Africa (SSA). PrEP is effective in preventing HIV infection during this critical period, yet adherence to oral PrEP remains low among this population.

**Materials and Methods:** We conducted a qualitative study to understand the sources and types of stigma that pregnant and breastfeeding women using oral PrEP experienced, and how stigma affected their adherence to PrEP. We purposively recruited participants from a PrEP clinical trial in Lilongwe, Malawi including: 30 HIV-negative pregnant women using PrEP, 5 HIV-negative Pregnant women that declined PrEP, and 10 health care workers (HCWs) i.e. counsellors and clinician working with women accessing PrEP. All participants completed an individual in-depth interview in Chichewa. We followed a thematic approach to analyze the interview data.

**Results:** Both women and HCWs reported anticipated stigma as one of the barriers to oral PrEP adherence. Women taking PrEP expressed concerns that people might think PrEP is the same as ART for HIV treatment. They feared being perceived as promiscuous when taking PrEP by their partners/family. Three, women feared

disclosing the reason they were eligible for PrEP to their partners/family e.g. resent sexually transmitted infection. As a result, many did not disclose to their partners/family they were taking PrEP which had a direct impact on adherence causing some women to temporarily or permanently discontinue PrEP whenever the risk of discovery became high. Women reported leaving PrEP at home when they travelled or when going to the hospital for delivery. Women also reported having challenges with drug storage and taking PrEP secretly at home. Leading to extended periods of missed doses.

**Conclusions:** Women reported anticipated PrEP stigma, which they related to barriers to PrEP use during pregnancy and breastfeeding. Strategies at both the facility and community levels to clarify the difference between PrEP and ART may mitigate anticipated stigma. Strategies to support family disclosure and involving male partners in PrEP use may enable families to better support the women's PrEP use. Evidence-based strategies to reduce PrEP-related stigma are urgently needed.

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Abstract Number 533 has been withdrawn.

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## Assessing Pre-exposure prophylaxis uptake and continuation among high-risk individuals -Experience of Lighthouse clinics Lilongwe Malawi.

Kachere L<sup>1</sup>, Sande O<sup>1</sup>, Bisani P<sup>1</sup>, Huwa J<sup>1</sup>, Rambiki E<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi

**Background:** Pre-exposure prophylaxis (PrEP) is an effective evidence-based medicine for HIV prevention among high-risk HIV-negative individuals. Since 2020 Malawi has rolled out PrEP targeting high-risk groups which include



adolescent girls and young women, men who have sex with men, and female sex workers.

Information Challenges on where to access PrEP among high-risk groups has negatively affected uptake. Lighthouse rolled out PrEP and intensified demand-creation activities to improve uptake and continuity in its clinics. We aim to describe the characteristics and risk categories of Individuals who access PrEP in Lighthouse clinics.

**Materials and Methods:** We retrospectively extracted demographic characteristics of clients who were screened and initiated on PrEP in 14 Lighthouse-supported facilities, from October 2022 to September 2023. Data on age, gender, and other risk categorization was extracted from the PrEP database, which is updated using PrEP registers and MasterCard which are used in facilities under the Ministry of Health. Analysis was conducted using descriptive statistics

**Results:** A total of 2773 HIV-negative clients were assessed as having ongoing risk of HIV and were referred for PrEP initiation. Out of these, 2759 (99%) accepted PrEP; 1412 (51%) were females and 1347 (49%) were males. Two hundred and forty-four (9%) were adolescent girls and young women aged 15-24 years. Among PrEP initiates, 684 (25%) confirmed buying or selling sex. Out of these, 455 (67%) were males, and 229 (33%) were females. Among clients who confirmed buying or selling sex, 450 (66%) reported having a sexually transmitted infection (STI) in the last six months before PrEP initiation. At the end of one year, PrEP outcomes were 1946 (71%) continuation, 563 (20%) lost to follow-up, 93 (3%) quit, and 136 (5%) unknown PrEP outcomes.

**Conclusions:** There was good PrEP uptake among high-risk individuals who were screened and offered prep in all risk categories with men on top of the list. The majority of prep clients were involved in transactional sex. Low prep continuation was observed due to loss to follow-up and quitting. There is a need for focused demand creation and passive follow-up of clients to understand reasons for discontinuity.

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## Community Pharmacist: A Cross-Sectional Comparative Assessment of Their Knowledge, Acceptability and Willingness to Pay For Long-Acting Cabotegravir, Dapivirine Vagina Ring, and Oral PrEP in Enugu State, Nigeria

Onyehalu J<sup>1,2</sup>, Isah A<sup>1,2</sup>, Ezenri G<sup>1,2</sup>, Ugochukwu E<sup>1,2</sup>, Ugwu D<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Imam M<sup>2,3</sup>, Umeh A<sup>1,2</sup>, Nnam M<sup>1,2</sup>, Ugwuja A<sup>1,2</sup>, Nwachuya C<sup>1,2</sup>

<sup>1</sup>Person-Centered HIV Research Team, University of Nigeria, Nsukka, Nigeria, <sup>2</sup>Person-Centered HIV Research Team, University of Nigeria, Nsukka, Nigeria, <sup>3</sup>Medical college of Wisconsin, Milwaukee, United States

**Background:** While advancements in pre-exposure prophylaxis (PrEP) offer diversified options, the successful integration of these innovations into HIV prevention strategies relies on the comprehensive understanding and support of community pharmacists since they are frontline healthcare providers. This study aimed to assess the knowledge, acceptability, and willingness to pay (WTP) for three different PrEP strategies among community pharmacists in Enugu state.

**Materials and Methods:** This study was conducted using a cross-sectional design. A validated 78-item self-administered questionnaire was employed in data collection in August, 2023 using simple random sampling technique. Descriptive statistics (frequency, percentage, mean and standard deviation) was used to present demographic variables and item responses. Chi-square test was used to determine the relationship between the study variables.

**Results:** A total of 105 questionnaires were completed and returned, with 63 (60.0%) respondents identifying as females. Majority of the respondents, 83 (79.5%), had BPharm/PharmD as their highest qualification while 44 (41.9%) had less than 5 years' experience in clinical practice. On knowledge of the PrEP strategies, 91 (86.7%), 78 (74.3%) and 90 (85.7%) community pharmacists had good knowledge about long-acting cabotegravir, dapivirine vagina ring, and oral PrEP,



respectively ( $p=0.550$ ). All the community pharmacists (100.0%) were willing to accept the various PrEP strategies if they were indicated for them. For WTP, 'yes' response was given by 68 (64.8%), 43 (41.0%) and 53 (50.5%) community pharmacists for long-acting cabotegravir, dapivirine vagina ring, and oral PrEP, respectively ( $p=0.75$ ). Mean WTP amount of N588.4  $\pm$  4093.2, N2397.0  $\pm$  2253.4 and N17481.1  $\pm$  6550.1 for long-acting cabotegravir, dapivirine vagina ring, and oral PrEP respectively ( $\$1=$  N870.5). No socio-demographic characteristics was a predictor of the respondents' knowledge, acceptability and WTP for the three PrEP strategies ( $p>0.005$ ).

**Conclusions:** The community pharmacists who participated in this study had good knowledge of the three PrEP strategies and would accept to use any of long-acting cabotegravir, dapivirine vagina ring, and oral PrEP if it was indicated for them. They were also willing to pay out-of-pocket to be provided the PrEP services. The findings suggest that the community pharmacists in the study settings would cooperate with initiatives to roll out PrEP for use by the public.

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## "I Have Many Sexual Partners, and I Can't Tell Them to Go and Get Tested..." Motivations for PrEP Uptake Among Adolescent Girls and Young Women in Kampala, Uganda

Mujumbusi L<sup>1</sup>, Kayesu I<sup>1</sup>, Nabalwany Z<sup>1</sup>, Mayanja Y<sup>1</sup>

<sup>1</sup>Medical Research Council/Uganda Virus Research Institute & London School of Hygiene and Tropical Medicine Uganda Research Unit, Uganda

**Background:** Pre-exposure prophylaxis (PrEP) is highly efficacious in HIV prevention. However, its uptake is still low among groups at risk. Understanding motivations for PrEP uptake would inform HIV prevention messages. We, therefore, aimed to identify motivations for PrEP uptake among AGYW in Kampala.

**Materials and Methods:** This was a qualitative study conducted among 14-24-year-old HIV-

negative AGYW at high risk of HIV in Kampala between January-July 2023. Participants were purposively selected from a randomized control trial being conducted in Kampala, Uganda, to assess the effect of peer support on PrEP uptake and adherence among AGYW. Motivations for PrEP uptake were explored using 36 semi-structured in-depth interviews and data were analyzed thematically using iterative categorization.

**Results:** Generally, preliminary analyses show high HIV risk awareness and future marriage prospects as major motivators for PrEP-uptake. Firstly, AGYW's awareness of their high HIV risk motivated PrEP-uptake. The risk factors mentioned included having sex with multiple partners of unknown HIV status whom they could not ask to get tested for HIV and having sex while drunk. AGYW also reported that some clients did not like using condoms and feared that some men would tear or remove condoms during sexual intercourse. Furthermore, some AGYW reported that they received more money from clients who preferred unprotected (condomless) sex, which encouraged them to use PrEP to get more money from such clients. And some girls were unsure about when they would stop sex work, which also motivated PrEP uptake. Also, future marriage prospects motivated AGYW to use PrEP to stay HIV-negative so that, in the future, when they decide to settle down or pursue long-term relationships, they can confidently navigate HIV testing with their partners. A few mentioned that observing peers who have embraced PrEP coupled with explanations provided by healthcare workers motivated PrEP-uptake.

**Conclusions:** In conclusion, the study revealed that future marriage prospects and awareness of HIV risks, particularly associated with multiple partners, unprotected sex, and concerns about condom use, serve as a significant motivation for PrEP uptake among AGYW. The findings highlight the importance of tailoring HIV prevention messages for AGYW based on these risks and motivations.





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## Willingness to Use HIV Pre-exposure Prophylaxis Among HIV-serodifferent Couples in Seven African Countries, 2019–2022

**Sharpe D**, Laws R<sup>1</sup>, West C<sup>1</sup>, Djomand G<sup>1</sup>, Omolo J<sup>2</sup>, Ramaabya D<sup>3</sup>, Li M<sup>4</sup>, Dlamini S<sup>5</sup>, Motebang M<sup>6</sup>, Singano V<sup>7</sup>, McCabe C<sup>8</sup>, Seleme J<sup>9</sup>, Kancheya N<sup>10</sup>, Malaba R<sup>11</sup>, Ncube G<sup>12</sup>, Philip N<sup>13</sup>, Biraro S<sup>14</sup>, Charurat M<sup>15</sup>, Voetsch A<sup>1</sup>

<sup>1</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Atlanta, United States, <sup>2</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Gaborone, Botswana, <sup>3</sup>Ministry of Health, Gaborone, Botswana, <sup>4</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Mbabane, Eswatini, <sup>5</sup>Ministry of Health, Mbabane, Eswatini, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Maseru, Lesotho, <sup>7</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lilongwe, Malawi, <sup>8</sup>MassGenics assigned to U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Maputo, Mozambique, <sup>9</sup>Ministry of Health, Maputo, Mozambique, <sup>10</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia, <sup>11</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Harare, Zimbabwe, <sup>12</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>13</sup>ICAP at Columbia University, New York, United States, <sup>14</sup>ICAP at Columbia University, Kampala, Uganda, <sup>15</sup>University of Maryland, Baltimore, United States

**Background:** HIV-serodifferent couples represent an estimated one-third of new HIV infections in sub-Saharan Africa (SSA). HIV pre-exposure prophylaxis (PrEP) is effective for preventing HIV infection, but rollout has lagged across SSA. We assessed determinants of PrEP willingness among HIV-serodifferent couples to guide PrEP interventions.

**Materials and Methods:** We analyzed cross-sectional data from 1,738 persons without HIV aged  $\geq 15$  years in HIV-serodifferent couples who participated in HIV-focused household surveys in Botswana, Eswatini, Lesotho, Malawi, Mozambique, Zambia, and Zimbabwe during 2019–2022. Interviewer-administered questionnaires, home-based HIV rapid testing, and HIV viral load testing were conducted. We defined PrEP need as being unaware of a partner's HIV-positive status or having a virally unsuppressed partner ( $\geq 200$  copies/mL); no PrEP need was defined as both being aware of a partner's HIV-

positive status and having a suppressed partner ( $< 200$  copies/mL). We used survey weights and jackknife variance estimation to conduct multivariable logistic regression and calculate adjusted odds ratios (aOR) to assess PrEP willingness.

**Results:** Overall, 69.1% of persons without HIV in HIV-serodifferent couples were willing to use PrEP. Persons without PrEP need had higher odds of PrEP willingness than those with PrEP need (76.4% vs. 68.0%; aOR: 1.76; 95% CI: 1.12–2.77). Those who were previously aware of PrEP had higher odds of PrEP willingness than those who learned about PrEP during the survey (83.2% vs. 66.0%; aOR: 2.29; 95% CI: 1.28–4.10).

**Conclusions:** Persons in HIV-serodifferent couples at lower HIV risk were more willing to use PrEP than those at increased risk for HIV. PrEP willingness was higher among persons in HIV-serodifferent couples who were previously aware of PrEP; however, two-thirds who learned of PrEP during the survey became PrEP willing. These results highlight the need to increase PrEP awareness during couples HIV testing and counseling to improve PrEP willingness among HIV-serodifferent couples disproportionately affected by HIV.

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## Reasons for PrEP Discontinuation Among Women Receiving PrEP Integrated in Public Family Planning Clinics in Kenya

**Matemo D**<sup>1</sup>, Kinuthia J<sup>1</sup>, Kemunto V<sup>1</sup>, Wandera C<sup>1</sup>, Schaafsma T<sup>2</sup>, Urusaro S<sup>2</sup>, Lee A<sup>2</sup>, Morton J<sup>2</sup>, Owaga D<sup>2</sup>, Mugwanya K<sup>2</sup>

<sup>1</sup>Kenyatta National Hospital, Nairobi, Kenya, <sup>2</sup>University of Washington, Seattle, United State of America

A Daily oral pre-exposure prophylaxis (PrEP) is highly efficacious in preventing HIV infections. However, high rates of PrEP discontinuation, can reduce effectiveness and therefore hinder the ability to reduce incident among individuals at high risk Data are from a stepped-wedge cluster-randomized project assessing integration of PrEP



delivery within 12 public family planning clinics in Kisumu, Kenya. Between 2021 to 2024 we administered a phone structured quantitative surveys to women who initiated but later discontinued taking PrEP to assess factors and reasons for PrEP discontinuation. Univariable logistic model was used to estimate correlates of PrEP discontinuation between women who discontinued within a month versus those who discontinued after a month.

Of the 510 study participants who were interviewed, median age was 26.0 (IQR 23.0-31.0), 368 (72%) were married while 159(31%) were breastfeeding. Approximately, half 244 (50%) discontinued PrEP within a month of initiation and median duration of use was 1.5 (IQR 1.0- 4.0) month. Overall, 277 (54%) reported that change in risk for HIV (feeling no longer at risk, virally suppressed partner, or no partner) was the primary reason for stopping PrEP. Other less frequently reported factors included individual concerns (side effect, pill burden) (12%), stigma 40 (7.8%), facilities barriers 31(6.1%), opportunity cost 31 (6.1%), relocation 18 (3.5%), run out of pills 14(2.7%), intimate partner violence 11 (2.2%), and partner influence 10 (2.0). compared to those who stopped PrEP within a month, women who had prolonged use of PrEP were likely to be married (OR= 1.90;95% CI 1.28-2.83), breastfeeding (OR= 1.56;95% CI 1.07, 2.28) and more likely to report that it was their own decision to initiate PrEP (OR= 2.89;95% CI 1.80, 4.72) while those who agreed with their providers to initiate PrEP were more likely to discontinue within one month (OR= 0.28;95% CI 0.28-0.67).

With a large Kenyan public health PrEP program, a more than half of the women discontinued PrEP within one-month post-initiation primarily due to perceived low risk prompted by change in relationship and life circumstances. However, there is an urgent need to address reasons of those who stopped PrEP not necessary because they were not at risk.

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## Empowering Prevention: Patient-Centered Self-Collection for STI Screening and Its Implications for HIV Prevention and New Technologies in Kenyan Women

**Nyakambi M<sup>1</sup>**

<sup>1</sup>GPRT, Kisumu, Kenya

**Background:** Chlamydia trachomatis poses a significant public health challenge among sexually active women, exacerbated by limited disease awareness. Traditional STI screening methods face barriers due to the intimate nature of the procedure, prompting the exploration of innovative approaches. Recognizing the critical link between STIs and heightened HIV risk in women, targeted STI screening and treatment are advocated as integral components of comprehensive HIV prevention efforts. Concurrently, the global approach to HIV testing has embraced increased accessibility through HIV self-testing. This study delves into the acceptability of self-vaginal swab collection, examining its potential contribution to HIV prevention and alignment with advancing technologies, focusing on Chlamydia.

**Materials and Methods:** Conducted at Kisumu County Referral Hospital, Kenya, this cross-sectional study enrolled 385 women who provided informed consent. The study employed the Rapid Diagnostic Kit to detect Chlamydia trachomatis, utilizing electronic questionnaires to gauge preferences for self-collection. Practical demonstrations, including video clips and visual charts, familiarized participants with the self-vaginal swab collection process, featuring the Rapid Diagnostic Kit. Statistical analyses, including descriptive statistics, were employed to quantify participant preferences and experiences.

**Results:** The 90.3% preference for self-vaginal swab collection over health worker collection demonstrated the high acceptability of self-vaginal swab collection for Chlamydia screening. The use of the Rapid Diagnostic Kit played a pivotal role in confirming Chlamydia infection, aligning



participant preferences, particularly for privacy and non-invasiveness. Participants valued the confidential nature of self-collection, contributing to a heightened sense of comfort and acceptability. Practical demonstrations facilitated a better understanding of the self-collection process, and the absence of invalid samples underscored the feasibility and reliability of self-collection.

**Conclusions:** This study, strategically aligning with the global evolution of HIV testing approaches, showcases the acceptability and feasibility of self-vaginal swab collection for Chlamydia screening. The findings emphasize the importance of aligning screening programs with patient preferences, advocating for the integration of innovative diagnostic tools, such as the Rapid Diagnostic Kit, into routine healthcare practices for enhanced effectiveness in sexual health outcomes.

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## La Relation D'Aide à Distance : Quelle Place Pour L'Atteinte du 1ER « 90 »

**Ka S<sup>1</sup>**, Ngom N<sup>2</sup>, THIAM S<sup>3</sup>, Diagne A<sup>1</sup>, Konare Z<sup>1</sup>, Mbaye A<sup>1</sup>, NGOM N<sup>2</sup>, Thiam S<sup>3</sup>

<sup>1</sup>Cta-opals-senegal, Dakar, Senegal, <sup>2</sup>Université Alioune Diop de Bambey, Dakar, Sénégal, <sup>3</sup>Conseil National de Lutte contre le SIDA, Dakar, Sénégal

**Contexte :** L'épidémie du sida est de type concentrée au Sénégal avec une baisse progressive passant 0,70 % à 0,32 % en 2021 et 0,31 % en 2022. Toutefois dans certains sous-groupe cette prévalence peut être beaucoup plus importante, atteignant 5,8% à 27,6%. Ainsi accroître l'accès au dépistage du VIH, l'observance au traitement ARV et la santé de manière générale passe par des canaux d'écoute, d'information, d'orientation et de soutien à distance comme la ligne verte du Centre de traitement Ambulatoire de Fann (CTA) à Dakar. L'objectif de cette étude est d'apprécier l'efficacité de la hotline dans l'atteinte du 1er « 90 ».

**Matériels et Méthodes :** Nous avons mené une étude prospective portant sur les appels de la ligne RAD du CTA durant la période de Janvier à décembre 2023. L'échantillonnage était exhaustif.

Nous avons utilisé les rapports mensuels, trimestriels, annuels et la base de données de la ligne pour la collecte des données.

**Résultats :** Du 01 Janvier au 31 Décembre 2023, nous avons reçu un total de 2616 appels dont 2339 traités. La prédominance était masculine (n=1607 appels). Parmi les 2339 appels traités, 43 sont issus des pop clés dont 60% d'appels d'HS. La majorité des appels venait de la région de Dakar suivis de Thiès et Diourbel avec respectivement 78,28%, 6,19% et 3,03%.

Nous avons noté parmi les appelants 10% de séropositifs au VIH, 39% séronégatifs et 51 % séro-ignorants. Les pathologies évoquées par les appelants concernaient surtout le l'infection VIH/SIDA (71%), l'Hépatite B (19%). Les motifs évoqués (88%) des appels sont des demandes d'informations contre 12% d'orientations.

**Conclusions :** L'utilisation de la ligne d'écoute à distance du CTA est une stratégie efficace et complémentaire pour inciter le dépistage mais aussi de toucher des populations spécifiques souvent stigmatisées ou rejetées.

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## Community Peer-Led Approach to Improve Access to Pre- exposure Prophylaxis Among HIV High-Risk Populations in Bunyoro Region, Mid-Western Uganda

**Engulu S<sup>1</sup>**, Nsangi B<sup>1</sup>, Makiika J<sup>1</sup>, G. Fitzmaurice A<sup>2</sup>, N. Ssebunya R<sup>1</sup>, Maganda A<sup>1</sup>, Kiragga D<sup>1</sup>

<sup>1</sup>Baylor Uganda College Of Medicine, Hoima, Uganda, <sup>2</sup>US Centers for Disease Control and Prevention, Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda

**Background:** In June 2011, Uganda adopted the HIV combination prevention strategy that includes the use of pre-exposure prophylaxis (PrEP) to reduce the acquisition of HIV and eradicate AIDS by 2030. Bunyoro region in mid-western Uganda started PrEP implementation in 2017 at selected health facilities. By 2021, PrEP uptake in the Bunyoro region was poor at 14% of the eligible clients. A Root cause analysis conducted revealed



that; pill burden, poor access to facilities offering PrEP, unfriendly health workers, and fear of being seen taking antiretroviral drugs (ARVs) as key barriers to PrEP access.

We describe lessons learned from a community-based approach to improve PrEP uptake among HIV high-risk populations in Bunyoro, mid-western Uganda

**Materials and Methods:** The Baylor Uganda Project supports community peer educators (PEs) and health care workers (HCWs) to offer PrEP services to HIV at-risk populations.

From October 2021 to September 2023, we identified and trained 54 community Peer Educators (PEs) on PrEP, mobilization skills and 48 HCWs across 43 accredited health facilities on PrEP as HIV prevention for key and priority populations; we attached trained peers to mapped hotspots for routine mobilization, education, and PrEP pre-screening; and provided PEs with bags to carry information, education, and communication materials focused on engaging individuals at the community, including HIV self-tests for distribution, and access to a toll-free telephone number for PrEP enrollment, while HCWs supervised PEs with quarterly mentorship.

**Results:** From Oct 2021 to Sep 2023, PrEP New per quarter increased from 1,557 to 4,236, and, returning clients increased from 2,024 to 6,282 Cumulatively, 22,862 high-risk individuals received PrEP for the first time, 66.5% females, and 33.5% males, while 63.6% Key Populations, and 36.4% Priority Populations. The increases in PrEP New enrolments and clients returning for refills are attributed to; the recruitment of Peer Educators, and the Integration of peer-led PrEP services into community activities.

**Conclusions:** The use of committed, trained, and mentored community PEs with knowledge and skills in mobilization and PrEP service delivery, working with HCWs improves PrEP access and use among high-risk populations, especially key populations.

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## Community QI Interventions to Improve the Uptake of HIV Pre-exposure Prophylaxis-PrEP Among Eligible Adolescent Girls and Young Women in the DREAMS Program

**Tumushabe B<sup>1</sup>**, Nabwire J<sup>1</sup>

<sup>1</sup>Usaid Urc Uganda Health Activity, Kamapala, Uganda

**Background:** The Ministry of Health (MOH) Uganda PrEP guidelines, 2022, recommend PrEP for adolescent girls and young women (AGYW) with substantial risk of HIV, the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program provides a core package of evidence-based interventions to address key factors that increase the risk of HIV among AGYW. A review of the HIV prevention package showed low uptake of PrEP for eligible AGYW, majorly associated with access. A community quality improvement (QI) initiative was set up to increase the proportion of eligible AGYW initiated on PrEP from 30% in March 2022 to 80% by March 2023.

**Materials and Methods:** Uganda Health activity (UHA) in collaboration with MOH coordinated the United States President's Emergency Plan for AIDS Relief (PEPFAR) Implementing partners (IP), implemented a Community QI collaborative, to improve the uptake of prevention services. All 7 DREAMS regions in Uganda (Acholi, Lango, Ankole, Kampala, Masaka, Mubende and Mukono) participated.

The QI approach involved training QI coaches, establishing community QI committees comprising of AGYW peer leaders, monthly coaching visits where the peers reviewed data, discussed root causes of the gaps, and proposed solutions, the interventions would be implemented with support from the IP, and the effectiveness reviewed at the next coaching visit. National activities included developing Coaching tools, Monthly review meetings, quarterly mentorship, learning sessions, and a National QI Harvest meeting.

**Results:** Improvement was registered in the initiation of PrEP for eligible AGYW, aged 15-24 from 30% in March 2022 to 77% by March 2023



(QI database). The key interventions that led to improvement include integrating PrEP screening with routine activities, training AGYW PrEP ambassadors, Peer to peer pre-screening, providing PrEP at safe spaces, home delivery, Expert PrEP users sharing experiences, inviting male partners to attend PrEP education sessions to improve acceptance and avoid Gender-Based Violence.

**Conclusions:** Community QI is effective in improving the uptake of prevention services, it creates a platform for vulnerable groups like AGYW to participate in their care. The increase in PrEP uptake from 30% to 77%, potentially contributes to the reduction of HIV among AGYW, this approach can be scaled up to other community programs.

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## Improving Uptake of Pre - Exposure Prophylaxis (PrEP) Among Adolescents and Young People in Eastern Province of Zambia

**Malebe T**<sup>1</sup>, Goma M<sup>1</sup>, Luhana C<sup>1</sup>, Kibombwe G<sup>1</sup>, Makelele P<sup>1</sup>, Mbau M<sup>1</sup>, Satti H<sup>2</sup>, Carpenter D<sup>2</sup>, N'gambi M<sup>3</sup>, Chabikuli O<sup>4,5</sup>

<sup>1</sup>FHI 360, Lusaka, Zambia, <sup>2</sup>FHI 360 Washington, Washington, United State of America, <sup>3</sup>MOH, Chipata, Zambia, <sup>4</sup>FHI 360, Pretoria, South Africa, <sup>5</sup>Howard University, Washington DC, USA

**Background:** Adolescents and young people (AYP) make up one-third of Zambia's population. In 2021, AYP accounted for 42% of the 38,000 new HIV cases reported because many engage in risky sexual behavior. The Zambia Population-based HIV Impact Assessment shows that 11% of AYP ages 15–24 years had more than one sexual partner. Among males, 42% reported ever having intercourse with a casual partner, and more than half of them (51%) reported at least one instance of casual sex without using a condom. Despite associated high-risk behavior, uptake of pre-exposure prophylaxis (PrEP) among AYP remains low. Though safe and effective in reducing the risk of acquiring new HIV infection in this sub-population, only 1,820 of 143,794 at-risk HIV-negative AYPs received PrEP from October 2021 to

September 2022 in Eastern province. The CDC technical assistance project implemented a combination of interventions to optimize PrEP uptake.

**Description:** Health care workers (HCWs) and community-based volunteers (CBVs) were reoriented on integration of PrEP messaging in index and social network pretest counselling services. We enhanced forecasting and quantification to avoid stock-out of PrEP drugs and HIV test kits. Situation room meetings were used for accountability from HCWs and CBVs to ensure all high-risk, HIV-negative AYP were offered PrEP and other prevention services. We conducted a retrospective descriptive analysis on uptake of PrEP services using program data to compare post-intervention performance (October 2022 to September 2023) to baseline (October 2021 to September 2022).

**Lessons Learnt:** A combination intervention approach including stock management, accountability, and demand generation was effective in increasing PrEP uptake among AYP. Between October 2022 and September 2023, PrEP uptake increased more than threefold from 1,820 to 6,838. Among the 6,838 AYP enrolled in 2023, the distribution showed gender disparities, with 80% females and 20% males; in 2022, gender was not a factor. The disparity in number of AYPs taking up PrEP is statistically significant ( $p < 0.0001$ ; 95% CI).

**Conclusions:** Results showed that integrating PrEP messaging during pretest counselling coupled with active offering of PrEP service by the attending HCW can improve PrEP uptake and prevent new HIV infections among AYP.



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## Uptake and Continuation of Daily Oral Pre-exposure Prophylaxis Among Population Representative Adolescents and Young Adults Enrolled in a Factorial Randomised Controlled Trial: Findings from Rural KwaZulu-Natal, South Africa

**Beesham I**<sup>1,2</sup>, Busang J<sup>1</sup>, Chimbindi N<sup>1,3,4</sup>, Okesola N<sup>1</sup>, Herbst C<sup>1</sup>, Dreyer J<sup>1</sup>, Seeley J<sup>1,3,5</sup>, Behuhuma N<sup>1</sup>, Zuma T<sup>1,3,4</sup>, Baisley K<sup>1,3,5</sup>, Shahmanesh M<sup>1,3,4</sup>

<sup>1</sup>Africa Health Research Institute, Mtubatuba, South Africa, <sup>2</sup>University of Alabama at Birmingham, Birmingham, United States, <sup>3</sup>University of KwaZulu-Natal, Durban, South Africa, <sup>4</sup>UCL Institute for Global Health, London, United Kingdom, <sup>5</sup>London School of Hygiene & Tropical Medicine, London, United Kingdom

**Background:** Adolescents and young people in South Africa are at substantial risk of acquiring HIV with approximately 56,000 new acquisitions occurring among those aged 15–24 years in 2022. Daily oral pre-exposure prophylaxis (PrEP) is highly effective in preventing HIV acquisition, if taken as prescribed. We describe PrEP uptake and early continuation in a 2x2 factorial randomised controlled trial (Isisekelo Sempilo) that aimed to assess the effectiveness of HIV prevention embedded in sexual health with or without peer navigator support to reduce prevalence of transmissible HIV.

**Materials and Methods:** The Isisekelo Sempilo trial, conducted from 2020–2022, enrolled 1743 adolescents and young adults aged 16–29 years randomly selected from a demographic health surveillance site in rural KwaZulu-Natal, South Africa. Follow-up was 12 months. Those living without HIV and eligible for PrEP according to country guidelines were offered PrEP and followed at month 1, 2, 6, 9 and 12. Participants had to link to a clinic following enrolment to initiate PrEP. Data were analysed descriptively and disaggregated by sex.

**Results:** Of the 1743 enrolled, 1178 (68%) linked to clinic, 161 (16%) were eligible for PrEP and 151

(94%) initiated PrEP (91 males and 60 females). Among those not eligible for PrEP (n=869), 43% (n=370) were male and 57% (n=499) were female. Reasons for PrEP ineligibility among males included not wanting to take a daily pill (45%), not sexually active (21%), not ready for PrEP (10%) and on ART (5%). Among females, 33% were not willing to take a daily pill, 15% were not sexually active, and 25% were on ART. PrEP continuation at month-1 and month-2 was 45% and 23% among males, and 52% and 35% among females, respectively. At month-1 post PrEP initiation, loss to follow-up was 33% among males and 33% among females, and 21% of males and 15% of females elected to discontinue PrEP.

**Conclusions:** While PrEP uptake was high among males and females, about half were lost to follow-up or discontinued by month-1. Daily pill taking is a barrier, and choice of PrEP including long-acting drugs and event driven PrEP may improve uptake and persistence.

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## Integrated Peer Driven Advocacy for HIV Prevention in Tertiary Institutions

**Mpaso C**<sup>1</sup>, Manyanga R<sup>1</sup>, Mahaka I<sup>1</sup>, Murungu J<sup>1</sup>, Nhamo D<sup>1</sup>, Lesnar B<sup>2</sup>, Jain N<sup>2</sup>

<sup>1</sup>Pangaea Zimbabwe Aids Trust, Harare, Zimbabwe, <sup>2</sup>AVAC, NEW YORK, United States

**Background:** Adolescent girls and young women (AGYW) aged 15–24 years, experience higher HIV incidence (0.54%) compared to their male (0.20%) counterparts in Zimbabwe. Although these young people, particularly AGYW are at high risk of HIV, they have limited access to services and information. This has the potential to increase the number of new HIV cases given that tertiary institutions have a large pool of adolescents and young people at high risk of HIV, STIs and unintended pregnancy. To this end, Pangea Zimbabwe implemented a peer led intervention in seven tertiary institutions with the aim to expand access to HIV prevention options among AGYW in tertiary institutions.

**Description:** In 2022 and 2023, 35 prevention champions in seven tertiary institutions (5 per



institution) were purposively sampled targeting those within provinces with higher incidence and representing most provinces with high HIV incidence in Zimbabwe. The Hive model assumes that peers act as catalysts for change since they have a lived understanding of situations faced. Two institutions were purposively assigned to the HIVE method. Five prevention champions mobilized and introduced new beneficiaries (24 AGYW) and cascaded SRH and HIV prevention knowledge. In the remaining five institutions, champions disseminated information to their peers using already existing college structures. Increased HIV prevention awareness and access was assessed by an increase in prevention options offered in the institution.

**Results:** From March to November 2023 the champions reported that 911 AGYW were reached with information and 325 were initiated on oral PrEP (pre-exposure prophylaxis). Oral PrEP services increased from 2/7 tertiary institutions in 2022 to 5/7 tertiary institutions. Champions installed local-level (institution-based) structures for HIV prevention advocacy. Some formed committees to train students whilst some elected intermediaries who collected HIV prevention supplies on behalf of others.

**Conclusions:** Peer driven initiatives pinpoint the root causes of limited use of HIV prevention methods in tertiary institutions. They also have an impact of increasing awareness, knowledge and destigmatization. Tertiary institutions play a vital role as providers of PrEP services and in offering youth-friendly services. Hence this should be built upon to improve tertiary institution HIV prevention service delivery.

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## Evaluating a Self-Care Intervention to Promote Uptake of HIV and Contraception Services Among Tertiary Education Students: A Pilot Study

Mancitshana L<sup>1</sup>, Tumushime M<sup>3</sup>, Mangenah C<sup>1</sup>, Ruhode N<sup>1</sup>, Matsikire E<sup>1</sup>, Kalweo J<sup>5</sup>, Terris-Prestholt F<sup>4</sup>, Cowan F<sup>1,2</sup>, Sibanda E<sup>1,2</sup>

<sup>1</sup>Ceshhar Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, United Kingdom, <sup>3</sup>Department of Global Health and Development, London School of Hygiene and Tropical Medicine, London, United Kingdom, <sup>4</sup>UNAIDS, Geneva, Switzerland, <sup>5</sup>UNAIDS ZIMBABWE, Harare, Zimbabwe

**Background:** Self-care is critical for achieving universal health coverage, however there is limited knowledge to inform optimal implementation. We piloted a co-developed self-care intervention for HIV self-tests (HIVST), HIV Post-exposure prophylaxis (PEP), emergency contraception (EC), and condoms among students – a group with suboptimal uptake/access but high literacy and self-efficacy suggesting optimal conditions for self-care.

**Materials and Methods:** In two workshops with students and relevant stakeholders and bi-weekly meetings with other key stakeholders over three months, we developed an intervention for peer-led promotion/distribution of HIVST, PEP, EC and condoms. The agreed intervention was piloted in three Zimbabwean colleges/universities in Dec/2023-Jan/2024. Student peers distributed HIVST and condoms directly, and vouchers for PEP and EC that were redeemed at college/nearby clinics. Vouchers were additionally placed in public access points for self-collection. During co-development, students strongly preferred peer distribution of all commodities, this was restricted by regulatory requirements for PEP and EC. Peer distributors (n=15) kept daily audio diaries of their experiences; data were analysed thematically.

**Results:** Co-development workshops and audio diaries showed hunger and unmet need for pregnancy and HIV prevention (...“this intervention is overdue!”). There was no easy access to condoms before the study and students had no



prior knowledge of PEP or PrEP. During the first two weeks of intervention implementation, 299/2,896 (10.3%) students collected HIVST kits; with 79/2,896 (2.7%) of all students and 101/1,049 (9.6%) female students collecting PEP and EC vouchers respectively. At college/nearby clinics, 17/79 (17.9%) and 38/101 (37.6%) PEP and EC vouchers were redeemed, respectively. There was 100% redemption of vouchers collected from public access points (n=3). 1,071 male condoms were collected by 221 students; 77 students collected 309 female condoms. Audio diaries showed that many students felt too shy to redeem vouchers at clinics – some female students asked their boyfriends to redeem EC for them (this was confirmed by health workers). Students also requested PrEP be added to the package.

**Conclusions:** We found that peer-led distribution of HIVST, PEP, EC, and condoms is feasible and acceptable; the model can be optimised by making it fully peer-led/community-based. This work informs an upcoming large trial of the intervention.

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## A Dual Prevention Pill for HIV and Pregnancy Prevention: A Pilot Study Among Young Women in Zimbabwe

Friedland B<sup>1</sup>, Plagianos M<sup>1</sup>, Burnett-Zieman B<sup>1</sup>, Mathur S<sup>2</sup>, Bruce I<sup>1</sup>, Dandadzi A<sup>3</sup>, Musara P<sup>3</sup>, Murombedzi C<sup>3</sup>, Haddad L<sup>1</sup>, Mgodini N<sup>3</sup>

<sup>1</sup>Population Council, Center for Biomedical Research, New York, United States, <sup>2</sup>Population Council, Washington, United States, <sup>3</sup>University of Zimbabwe, Clinical Trials Research Centre, Harare, Zimbabwe

**Background:** Oral PrEP use has been sub-optimal among sub-Saharan African women. A dual prevention pill (DPP) combining PrEP and an oral contraceptive (OC) may be preferable, acceptable and increase adherence vs PrEP alone.

**Materials and Methods:** We recruited 16-24-year-old cisgender female OC-users in a 6-month crossover study in Harare, Zimbabwe (Nov 2022-Sep 2023). We randomized participants (1:1) to the order of using an over-encapsulated DPP and 2 pills (PrEP, OC) for three 28-day cycles each. We

compared the proportion preferring the DPP vs 2 pills (exact binomial test); adherence to each regimen via self-report and tenofovir diphosphate (TFV-DP) levels in dried blood spots indicative of  $\geq 4$  doses per week ( $\geq 500$  fmol/punch, Month 1;  $\geq 700$  fmol/punch, thereafter), adjusting for randomization sequence (DPP or 2 pills first) and treatment period (generalized estimating equations); and effect of regimen on 4 acceptability domains (e.g., product attributes, side effects, effect on sex; Wilcoxon signed-rank tests).

**Results:** 26/30 participants (mean age, 19.4 years) finished the study. Approximately half (47%) were married, 97% completed secondary school, 93% had  $\geq 1$  child, 84% were worried/very worried about getting HIV, and 93% said avoiding pregnancy was important. More women (64%) preferred the DPP than 2 pills (36%), although the difference was not significant. Self-reported adherence was high (>96%), yet <20% were consistently adherent for 6 months per TFV-DP levels (DPP mean: 392 fmol/punch; 2-pills mean: 384 fmol/punch). There was no difference in adherence by regimen, however, participants were twice as likely to be adherent in treatment period 1 (adjusted odds ratio [AOR] 2.0; 95% confidence interval [CI], 1.23-3.28) and 4 times more likely to be adherent if they were randomized to using the DPP first (AOR 4.28; 95% CI, 1.25-14.6). Most rated both regimens as acceptable, with no differences in any domain.

**Conclusions:** Although we found no significant differences between the DPP and 2 pills in this small study using an over-encapsulated DPP, more women preferred the single pill and adherence was better among those starting with the DPP. Future studies with larger samples using the actual (smaller) co-formulated DPP will better inform the DPP's potential impact on HIV and pregnancy prevention.





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## Connaissances, du Personnel de Santé du CNRRPEC/CNHU-HKM de Cotonou sur la PrEP

**Bokossa L<sup>1</sup>**, Kouanou Azon A<sup>1</sup>, Tounkara L<sup>1</sup>, Ayihounton G<sup>1</sup>, Donadje P<sup>1</sup>  
<sup>1</sup>Cnrrpec/cnhu-hkm, Cotonou, Benin

**Contexte :** Le présent travail évalue le niveau de connaissance du personnel travaillant sur le site de CNRRPEC en évaluant leur niveau de connaissances, leurs attitudes et leurs pratiques face à la PrEP. Le volet PrEP est un volet nouveau et complémentaire de la prévention contre VIH/SIDA au Bénin et en phase pilote sur 15 sites dont le grand site du CNHU-HKM de Cotonou.

**Objectifs :** L'objectif est de déterminer les connaissances du personnel du CNRRPEC/CNHU-HKM sur la PrEP.

**Matériels et Méthodes :** Nous avons mené une étude descriptive sur le site adulte du CNHU-HKM auprès du personnel en service du 1er Octobre 2022 au 30 Septembre 2023. Ont été inclus le personnel en contact avec les clients du site ayant accepté de faire partie de l'étude. Le niveau de connaissances sur la PrEP a été évalué à l'aide d'un questionnaire.

**Résultats :** Au total, 24 usagers du site ont été interviewés parmi lesquelles les prescripteurs (16.6%) hautement représentés suivis des médiateurs (58.33%), les dispensateurs (12.5%), les agents de laboratoire (16.66%). Il en est ressorti que la quasi-totalité du personnel avait entendu parler de la PrEP lors des sensibilisations et des formations sur site et la majorité avait un niveau de connaissance moyen sur la PrEP (58, 8%). La majorité n'en avait pas entendu parlé hors du site (40% contre 60%) et plusieurs ignoraient que les femmes enceintes et allaitantes pouvaient bénéficier de la PrEP sans risque. Au niveau de la connaissance des populations éligibles à la PrEP au Bénin, le personnel n'avait dans l'ensemble pas des connaissances exactes (74, 5 %). Cependant, leurs attitudes face à la PrEP étaient quelque peu positives; la majorité étaient convaincus de l'efficacité de la PrEP et la proposeraient volontiers à tous les usagers du site (97,4%).

**Conclusions :** Malgré un niveau suffisant de connaissances parmi les travailleurs de la santé du CNRRPEC/CNHU-HKM, il y a quelques lacunes concernant les populations éligibles à la PrEP. Par ailleurs, une attitude quelque peu positive pourrait accentuer l'acceptabilité et le taux de mise sous PrEP au Bénin.

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## Culture and Traditions as a Precursor for HIV Vulnerability and Transmission in Gambella, Ethiopia

**Wana G<sup>1</sup>**  
<sup>1</sup>Afri-net consulting, Addis Ababa, Ethiopia

**Background:** Worldwide, an estimated 36.9 million people were living with HIV/AIDS by the end of 2017. Gambella region has the second highest HIV/AIDS prevalence in Ethiopia next to the capital Addis Ababa. This study was conducted to identify the cultural factors related to HIV vulnerability among youths in the region.

**Methods and Materials:** The study has employed a cross-sectional study design. It also used a mixed approach in which quantitative and qualitative methods were used. A cluster sampling design was used as the populations in the region were located sparsely and about 295 respondents were interviewed using the standard questionnaire. For the qualitative research, key informant interviews/KIIs were used and ten selected individuals were interviewed from each woreda.

**Results:** The mean age of the sexual initiation was 16.7 years with a standard deviation of ±4. Eighty-four percent of the study participants had at least 2 sexual partners in the past 12 months. Males were 2.3 times more likely to have multiple sexual partners AOR 2.34 (95% CI, 1.21, and 4.54) than females. Having unprotected sex with regular customers with CSW was common. Generally, inconsistent usage of a condom, the poor prevalence of male circumcision, transactional sex, and, excessive drug usage was attributed as a factor for HIV vulnerability. In addition, the existence of gender imbalance in decision-making has affected women to rely on their male partners



to decide on sexual matters such as condom usage and sexual fidelity matters.

Regarding the qualitative report, it was reported that wife inheritance, sex accommodation, polygamy, poor rate of male circumcision, blaming others for irresponsible sexual behavior, perception of disclosure, commercial sex work, and, excessive substance use stated as a factor for youth's vulnerability for HIV in the region.

#### Some Recommendations:

- Tailored and community-led interventions that promote behavioral change communication (IEC/BCC) will be more effective.
- Health campaigns needed to address traditional practices such as wife inheritance and, sex accommodation should be addressed.
- Policymakers, INGOs, local government, and, other stakeholders should work together to reduce youth's vulnerability to HIV in the region by giving due attention to cultural contributing factors and practices.

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Abstract Number 550 has been withdrawn.

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## Acceptability of a Dual Prevention Pill Versus PrEP and Oral Contraceptives Taken Separately: Women's Baseline Preferences in Johannesburg, South Africa

**Burnett-Zieman B<sup>1</sup>**, Palanee-Phillips T<sup>2,3</sup>, Plagianos M<sup>1</sup>, Mathur S<sup>4</sup>, Zulu S<sup>2</sup>, Reddy K<sup>2</sup>, Bruce I, Ndlovu N<sup>2</sup>, Haddad L<sup>1</sup>, Friedland B<sup>1</sup>

<sup>1</sup>Population Council, Center for Biomedical Research, New York, United States, <sup>2</sup>Wits RHI, University of the Witwatersrand, Faculty of Health Sciences, School of Public Health, Johannesburg, South Africa, <sup>3</sup>University of Washington, Department of Epidemiology; School of Public Health, Seattle, United States, <sup>4</sup>Population Council, Washington, United States

**Background:** Oral pre-exposure prophylaxis (PrEP) use has been sub-optimal among sub-Saharan

African women. A dual prevention pill (DPP) combining PrEP and an oral contraceptive (OC) may be preferable, acceptable and increase adherence vs PrEP alone. We assessed the acceptability of, preferences for, and adherence to a DPP versus PrEP and OCs taken separately among women in South Africa.

**Materials and Methods:** We recruited HIV-uninfected, non-pregnant 16-40-year-old females who had used OCs for  $\geq 3$  months before screening. In a 6-month crossover design, participants used both regimens (DPP or separate PrEP and OC) for 3 28-day cycles; the regimen order was randomized. As part of a baseline computer-assisted self-interview (CASI), participants were asked which regimen they anticipated preferring. We used chi-squared and Fisher's exact tests to explore associations between anticipated regimen preference and self-reported demographics, sexual behaviors, and worry about HIV. Variables associated with regimen preference at  $p < 0.1$  were included in a logistic regression model controlling for age.

**Results:** We enrolled 96 participants (September 2022-June 2023); 9 were excluded from this analysis (no preference [n=4], missing data [n=5]). Mean age was 27.5 years (range 18-40); 18% completed secondary school, 76% had  $\geq 1$  child. Median number of sex partners in the last 3 months was 2 (range 1-30). 69% and 31% thought they would prefer the DPP and 2 separate pills, respectively. Potential recent HIV exposure was the only variable significantly associated with regimen preference in bivariate analysis and remained significant after adjusting for age. Participants who didn't know or who thought they were somewhat/very likely to have been exposed to HIV had 2.7 times the odds of expecting to prefer the DPP versus those who thought recent HIV exposure was unlikely [95% CI: 1.05-6.84;  $p = 0.04$ ].

**Conclusions:** This analysis suggests that recent HIV exposure concern may predict initial preference for the DPP. Our results may highlight a particularly vulnerable population who may be interested in using an MPT for HIV risk reduction – and may be an optimal cohort of early DPP adopters. This study is poised to provide important data on the potential for the DPP to improve PrEP uptake, adherence, and persistence.



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## Improving Efficiencies in HIVST Targeting Men Using Approved Eligibility Screening Tools During Community Distribution in Nyamira County

**Onsomu J**<sup>1</sup>

<sup>1</sup>PATH Kenya, Kisumu, Kenya

**Background:** HIV-related outcomes gender differences is largely due to suboptimal coverage of HIV testing and treatment among men. HIV Self-Test (HIVST) is a complementary approach to the existing services, the focus is to reach out to > 70% males including key and priority populations. Generally, HIVST modality is low yielding, but linkage to treatment is key, use of the HEST tool ensures efficiencies for this commodity.

**Materials and Methods:** We conducted a cross-sectional study over two months (November - December 2023) using data from the HIVST registers. We mapped hotspots frequented by men within the catchment of the high-volume sites, identified and sensitized gatekeepers in these hotspots on HIVST process and their role in mobilizing for HIVST. HTS providers used the HEST tool to screen and document this information in the HEST register. We analyzed the data on the number of men who were screened and eligible for a test at the community setting as well as number of HIVST kits distributed at the community.

**Results:** A total of 2,218 HIVST were distributed, 919 (41%) were HEST informed community distribution. A total of 1,795 men were mobilized out of which 1,346(75%) were screened, 923 (69%) were found to be eligible and 919 (99%) were tested which resulted in four (0.4%) reactive cases who were eventually confirmed positive at the health facility. This in comparison to the 1,299 HIVST distributed through other channels which yielded 1(0.1%) reactive case that eventually confirmed positive at the health facility. Men who had either never accessed a HIV test before or exhibited risk behavior on the HEST assessment accounted for 64% (1,409). A total of 0.4% reactive results.

**Conclusions:** In resource limited settings it's important to ensure minimal HIVST wastage and hence the use of approved screening tools. Men have poor health seeking behaviors limiting access to key HIV related services therefore taking services at the community is among the interventions that improves access, coverage towards achieving epidemic control.

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## Pre-exposure Prophylaxis (PrEP) Awareness, Uptake, Willingness and Associated Factors Among Adolescent Girls and Young Women in Two Ugandan Districts: Across Sectional Population Based Study

**Daama A**<sup>1</sup>, Nakigozi G<sup>1</sup>, Mugamba S<sup>1</sup>, Kyasanku E<sup>1</sup>, Ofumbi Olwa V<sup>1</sup>, Bulamba R<sup>1</sup>, Nalugoda F<sup>1</sup>, Nalwoga Kigozi G<sup>1</sup>, Kigozi G<sup>1</sup>, Kiwanuka N<sup>2</sup>, Kagaayi J<sup>2</sup>

<sup>1</sup>Africa Medical & Behavioral Sciences Organization, Kampala, Uganda, <sup>2</sup>Makerere University, School of Public Health, Kampala, Uganda

**Background:** Much as Pre-Exposure Prophylaxis (PrEP) is a known HIV biomedical prevention strategy for key and priority populations. Many priority populations for example adolescent girls and young women may not be aware about available PrEP services and therefore less willing to accept PrEP services. We sought to determine PrEP awareness, uptake, willingness to take PrEP and the associated factors among adolescent girls and young women (AGYW) in two Ugandan districts.

**Materials and Methods:** We conducted a cross-sectional Population based study through multi-stage sampling, between July 2022 and July 2023, using a semi-structured questionnaire among AGYW aged 13–24 years in Central (Wakiso district) and Western (Hoima City). Variables included; marital status, transactional sex status, occupation, number of sex partners in the past 12 months, circumcision status of the partners of



AGYW, condom use and alcohol use. Using a bivariable analysis, we determined the prevalence of PrEP awareness, uptake, and willingness. A multivariable modified Poisson regression analysis was used to determine predictors of PrEP awareness and willingness respectively, with 95% confidence intervals (CIs).

**Results:** Of 4,217 participants, 54.5% (n = 2,297) were females. The mean age (SD) was 32 (14.1) years and only 21.2% (n = 322) of 1,517 AGYW were aware about PrEP services and only 33.8% were willing to take PrEP. PrEP uptake was only 4.7% (15/320) among AGYW. AGYW with one sexual partner (adj.PR = 2.13; 95%CI: 1.11, 4.08) or AGYW with more than one sexual partner in the past 12 months (adj.PR = 3.04; 95%CI: 1.55, 5.93) and AGYW with tertiary level of education (adj.PR = 3.47; 95%CI: 1.30, 9.30) were more aware about PrEP services. On the other hand, PrEP willingness was more among AGYW who self-reported to be alcohol users (adj.PR = 1.43; 95%CI: 1.04, 1.96) or never married (adj.PR = 1.65; 95%CI: 1.12, 2.41). However, students (adj.PR = 0.50; 95%CI: 0.26, 0.99) were less willing to take PrEP services than AGYW whose occupation was agriculture.

**Conclusions:** These findings suggest that there are low levels of PrEP awareness, uptake and willingness among this priority sub-population. Therefore, there is need for target-specific interventions for AGYW more especially students.

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## Administering Infant BNABs in Studies in RLS: Health Worker Experiences and Lessons for Future Studies

Vhembo T<sup>1</sup>, Mbengeranwa T<sup>1</sup>, Mhembere T<sup>1</sup>, Bwakura-Dangarembizi M<sup>1</sup>, Chawana T<sup>1</sup>, Stranix-Chibanda L<sup>1</sup>

<sup>1</sup>University of Zimbabwe Clinical Trials Research Centre, Harare, Zimbabwe

**Background:** There is global commitment to achieve elimination of perinatal transmission of HIV and several strategies are being employed to attain this milestone. Innovative technology is needed to bypass remaining implementation gaps hindering the current biomedical approaches to

prevent vertical transmission. Augmenting postnatal infant prophylaxis with broadly neutralising antibodies (BNABs) is under study and could constitute an important prevention option if key determinants of implementation feasibility are addressed. We describe health worker experiences of handling and administering BNABs to infants in 3 early phase trials for the IMPAACT network in Harare, Zimbabwe. Operational lessons learnt during these trials may inform future research and implementation strategies involving infant BNABs.

**Materials and Methods:** We administered 247 doses of BNAB injections (VRC01, VRC01LS and VRC07-523LS) to neonates at high risk of HIV acquisition within 72 hours of birth in a clinical trial setting. BNAB doses ranging from 0.9 to 2ml were administered by a slow subcutaneous injection on the anterior part of the thigh over 1-15 minutes. Neonates were then closely monitored by health workers in the immediate post injection period for up to four hours. Study staff shared their experiences during project meetings to optimize operations.

**Lessons Learnt:** We observed that there was need for extensive education and training of health workers as BNABs are not widely used in resource limited settings (RLS). Additionally, it was essential to develop clear and concise standard operating procedures. We determined that simplified terminology to explain complex concepts around BNABs to families was crucial. There was need for efficient interdepartmental communication between the clinic and pharmacy teams to ensure maintenance of cold chain of the BNABs and minimise wastage. Health workers reported that the administration of BNABs was relatively easy. At least two health workers are required during each injection, one administering the injection and the other monitoring the general condition of the child. The infants were crying continuously during the injection administration, therefore adequate caregiver counselling was essential before injection administration.

**Next steps:** Neonatal BNABs can be successfully administered in RLS. Lessons learnt are helpful in planning for future studies of BNABs for HIV prevention in neonates.



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## Advances in HIV Self-Testing: Systematic Review of Current Developments and the Road Ahead in High-Burden Countries of Africa

Kajogoo V<sup>1</sup>, Mekonnen H<sup>2</sup>, Manyazewal T<sup>2</sup>, Assefa D<sup>3</sup>, Bekele J<sup>4</sup>, Debela<sup>5</sup>

<sup>1</sup>Tanzania Diabetes Association, Mwanza, Tanzania, <sup>2</sup>College of Health Sciences, Center for Innovative Drug Development and Therapeutic Trials for Africa, Addis Ababa University, Addis Ababa, Ethiopia, <sup>3</sup>Department of Nursing, College of Health Science and Medicine, Dilla University, Dilla, Ethiopia, <sup>4</sup>Dilla, Ethiopia, <sup>5</sup>Batu General Hospital, Batu, Ethiopia, <sup>6</sup>Jimma University Medical Center, Jimma, Ethiopia, Jimma, Ethiopia

**Objectives:** Although HIV self-testing technologies have created new opportunities for achieving national and global HIV testing goals, current developments have not been compiled to inform policy and practice, especially in high HIV burden countries of Africa. We aimed to compile and synthesize the evidence about HIV self-testing technologies, strategies, and uptake in the top-10 high HIV burden countries of Africa.

**Materials and Methods:** We searched CINAHL, PubMed, Web of Science, PsycINFO, Social Science Citation Index, and EMBASE to include eligible articles published in English between January 2012 and November 2022.

**Results:** In total, 865 articles were retrieved and only 16 studies conducted in five African countries were eligible and included in this review. The two types of HIV self-testing modalities presently being used in Africa are: The first is Home Self-Test which is done entirely at home or in another private location by using oral fluid or blood specimen. The second modality is Mail-In Self-Test (self-sampling), where the user collects their own sample and sends this to a laboratory for testing. Perceived opportunities for the uptake of HIV self-testing were autonomy and self-empowerment, privacy, suitability, creating a chance to test, and simplicity of use. The potential barriers to HIV self-testing included fear and worry of a positive test result, concern of the test results is not reliable, low literacy, and potential psychological and social harms. The oral-fluid self-testing is preferred by

most users because it is easy to use, less invasive, and painless. The difficulty of instructions on how to use self-test kits, and the presence of different products of HIV self-testing kits, increase rates of user errors.

**Conclusions:** Adopting HIV self-testing by overcoming the challenging potential barriers could enable early detection, care, treatment, and prevention of the disease to achieve the 95-95-95 goal by 2030. Further study is necessary to explore the actual practices related to HIV self-testing among different populations in Africa.

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## Bridging the Gap Between Research and Practice: Support for the Introduction of Injectable Cabotegravir (CAB) PrEP in Nigeria

Anyasi H<sup>1</sup>, Olisa A<sup>1</sup>, Adamu P<sup>1</sup>, Edigbe L<sup>1</sup>, Olakunle T<sup>2</sup>, Agweye A<sup>3</sup>, Asaolu O<sup>3</sup>, Katbi M<sup>3</sup>, Kalaiwo A<sup>3</sup>, Usha T<sup>3</sup>

<sup>1</sup>FHI 360, Maximizing Options to Advance Informed Choice for HIV Prevention (MOSAIC) Project, Abuja, Nigeria, <sup>2</sup>Federal Ministry of Health & Social Welfare-National HIV/AIDS, Viral Hepatitis and STIs Control Program, Abuja, Nigeria, <sup>3</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria

**Background:** High incidence of HIV among priority populations have prompted investments in prevention technologies resulting in the scale-up of oral pre-exposure prophylaxis (PrEP) and imminent introduction of injectable cabotegravir (CAB PrEP) and the PrEP ring. To prepare for the introduction of CAB PrEP in Nigeria, the Federal Ministry of Health (FMOH) adopted the product introduction framework developed by the PEPFAR/USAID-funded Maximizing Options to Advance Informed Choice for HIV Prevention (MOSAIC) project, which consists of the following pillars: 1) planning and budgeting; 2) supply chain management; 3) delivery platforms; 4) uptake and effective use; and 5) monitoring, evaluation and learning (MEL).

**Materials and Methods:** With technical assistance from USAID and MOSAIC, FMOH used the product introduction framework to examine the status of



oral PrEP rollout and identify critical steps for introducing new PrEP products. Using the identified steps, the FMOH strengthened the national PrEP subcommittee, by inviting new stakeholders and leveraged the platform to disseminate emerging evidence to build support for CAB PrEP introduction, expedite collaboration/investment across critical stakeholders and coordinate implementation of product introduction planning steps across partners.

**Results:** Through this approach, FMOH reached three key milestones towards CAB PrEP introduction, increasing the possibility of product access in Nigeria by 2024. First, product adoption and early planning for access occurred even before the product received a positive regulatory opinion from the national regulatory body. Second, the FMOH's leadership was strengthened in catalyzing momentum and facilitating multi-stakeholder/partner support for CAB PrEP. Third, national policies are being reviewed and adapted to accommodate CAB PrEP.

**Conclusions:** By using the product introduction framework to begin planning for CAB PrEP introduction, Nigeria became one of the countries listed to receive CAB PrEP supply in 2024. Nigeria is creating the enabling environment necessary to accelerate access to the product once it becomes available. The country is in the process of implementing the steps under planning, budgeting and MEL to advance preparations for CAB PrEP access. MOSAIC's product introduction framework, which has been used across countries to support planning for the introduction of PrEP products, can also be used to track progress toward PrEP product introduction.

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## Can PrEP Work in Rural Communities? Early Experience in Post-war Liberia

Nyanplu T<sup>1</sup>, Flomo J<sup>1</sup>, Garbo J<sup>2</sup>, Nagbe L<sup>2</sup>, Paye C<sup>1</sup>, Tobii M<sup>1</sup>, Jones M<sup>1</sup>, Passawe A<sup>1</sup>, Honore E<sup>1</sup>

<sup>1</sup>National Aids & Sti Control Program/ Ministry Of Health Liberia, Monrovia, Liberia, <sup>2</sup>Global Reach II - Jhpiego, Monrovia, Liberia

**Background:** Globally, person-centered community approaches for ARV dispensation for HIV treatment (ART) and prevention with pre-exposure prophylaxis (PrEP) is being promoted to maximize access and adherence, especially among members of the Key Population (KP). In Liberia, KPs with a disproportionately higher prevalence are the drivers of the HIV epidemic. Building on experiences with facility-based PrEP, the National AIDS Control Program (NACP) collaborated with stakeholders to pilot Oral PrEP in a rural community in Liberia. We share our 4-months experiences and evaluation.

**Materials and Methods:** Sensitization of community gate keepers between November 2022 and February 2023 helped to identify hotspots and active community-based organizations (CBOs). Guidelines and job aids were developed to support the training of community PrEP providers, and for coordination of an assigned hub of KP-friendly facilities linked to spokes of multiple KP-focused CBOs for demand creation and to create a safe corridor for linking of those diagnosed with HIV to ART. We conducted a retrospective cross-sectional review of the routinely collected data from June to September 2023 and used descriptive statistics to compare the proportion of KPs who decline PrEP.

**Lessons Learnt:** Of the total of 1882 KP clients screened and tested for HIV, 43(2%) tested HIV positive and were linked to ART. 1839 (98%) were offered PrEP while 1115 (61%) accepted to initiated it; 303 (27%) remained on PrEP after 4-months. 27 clients documented their reason for PrEP discontinuation. 59% (16) indicated relocation as reason for discontinuation while MSMs (15) represented the largest proportion (56%) of those that declined.

**Conclusions:** PrEP use in rural communities in Liberia is feasible. Expansion to other communities and introduction of long-acting PrEP options may be necessary to assure continuity among members of the community who could relocate to other communities.



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## Factors Associated with Willingness to Participate in Future Clinical Trials of Long-Acting PrEP Implants for HIV Prevention Among Adolescent Girls and Young Women in Kampala, Uganda

Godfrey Sseremba G<sup>1</sup>, Chetty-Makkan C<sup>2</sup>, Wahome E<sup>3</sup>, Price M<sup>4</sup>, Mayanja Y<sup>5</sup>

<sup>1</sup>Medical research Council/Uganda Virus Research Institute and London School of Hygiene and Tropical Medicine Uganda Research Unit, Entebbe-UGANDA, Uganda, <sup>2</sup>Health Economics and Epidemiology Research Office at the University of Witwatersrand, South Africa, Witwatersrand, South Africa, <sup>3</sup>Acute Multidisciplinary Imaging & Interventional Centre, British Heart Foundation (BHF) Centre of research Excellence, Division of Cardiovascular Medicine, Radcliffe Department of Medicine, NIHR Oxford Biomedical Research Centre, University of Oxford, Oxford, UK, Oxford, United Kingdom, <sup>4</sup>Emerging Infectious Diseases and Epidemiology, IAVI Associate Adjunct Professor, Department of Epidemiology & Biostatistics, UCSF, San Francisco, United States of America, <sup>5</sup>Medical research Council/Uganda Virus research Institute and London School of Hygiene and Tropical medicine, Kampala, Uganda

**Background:** Adolescent girls and young women (AGYW) remain at substantial risk of HIV infection. There are many experimental prevention products at different stages of development, making AGYW potential volunteers for future efficacy trials. We evaluated willingness to participate (WTP) in future clinical trials of long-acting PrEP (LAP) implants among AGYW at high risk of HIV infection in Kampala, Uganda.

**Materials and Methods:** From January to October 2019, we conducted a cross sectional survey nested within an AGYW cohort at risk of HIV acquisition. Inclusion was; having HIV negative test results, age of 14-24 years old, willing to use contraception, negative for Hepatitis B, not being pregnant and at least 9 months stay in the study area. Participants completed a willingness to participate (WTP) questionnaire for hypothetical future trials of LAP at 9 months. Multivariable logistic regression models were fitted to estimate odds ratios and the 95% confidence intervals of independent predictors associated with WTP in future clinical trials of LAP.

**Results:** We screened 523 participants of which 285 (62%) were eligible and enrolled. The median age of our study participants was 20 years, interquartile range 19 to 22 years, 144 (51%) reported at least a secondary level education, 163 (57%) single or never married and 114 (40%) had one child. Most participants had one or more new male partners 124 (44%), 39 (24%) reported no condom use with new male partners, 124 (93%) reported having received payment for sex from a male partner and 95 (33%) reported drinking alcohol before sex in the past month prior to enrollment. WTP was associated with having 3 or more new male partners (OR 2.54, 95% CI 1.29-4.98) after adjusting for education level, marital status, number of children and alcohol use before sex in past 3 month. In our survey, 131(46%) reported being willing to participate in an HIV prevention study of LAP and 154 were not willing.

**Conclusions:** Despite some hesitation, nearly half of the AGYW enrolled in this study expressed WTP in future trials of LAP implant. Experience with contraceptive methods with a similar mode of delivery may encourage WTP in future clinical trials.

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## Assessing HIV Prevention Effective Use in Routine Service Settings: A Methodology Using Self-Report at Last Sex

Martin C<sup>1</sup>, Ramatsoma H<sup>1</sup>, Chidumwa G<sup>1</sup>, Mullick S<sup>1</sup>

<sup>1</sup>Wits RHI, University of the Witwatersrand, Johannesburg, South Africa

**Background:** Daily pill taking during periods of exposure is required for oral PrEP to be effective in preventing HIV acquisition. However, oral PrEP use may be cyclical, used during periods of risk. Other prevention methods like condoms may be effectively used to prevent HIV acquisition, in addition to expanding options of new PrEP methods. We propose a simple method of assessing HIV prevention effective use, that could be used in routine services.



**Materials and Methods:** We analysed self-reported data on PrEP and condom use at last sex, from a cohort of participants enrolled in a PrEP implementation science study, accessing prevention services and using oral PrEP, who attended follow-up visits between August - November 2023. Using our proposed methodology, we determined whether their last sex act was protected by PrEP, condoms, or both. Condom protection was defined as having used a condom at last vaginal and/or anal sex; Oral PrEP protection was defined as having taken PrEP for seven days prior, on the day of, and 7 days after sex (or if sex was  $\leq 7$  days ago, every day since last sex).

**Results:** Data for 272 follow-up visits, among 241 oral PrEP users were analysed, after excluding observations among participants missing a recorded date of last sex ( $n=64$ , 18.6%), for whom type of sex at last encounter was missing ( $n=1$ , 0.3%) or who reported only oral sex ( $n=8$ , 2.3%). Participants with missing data on PrEP use ( $n=39$ , 14.3%) or condom use ( $n=1$ , 0.4%) were classified as not effectively using PrEP or condoms respectively. Of 272 sex acts reported, 21.0% ( $n=57$ ) were protected by condoms and PrEP, 53.3% ( $n=145$ ) by PrEP only, 9.6% ( $n=26$ ) by condoms only and 16.2% ( $n=44$ ) were not protected.

**Conclusions:** With the availability of multiple HIV prevention options, self-reported PrEP and condom use at last sex may serve a useful indicator of effective prevention use in routine service settings. In our setting, participant recall of date of last sex, condom and PrEP use was high, although not complete. Going forward, adaptation to this method to calculate effective dapivirine ring and cabotegravir use, by sex type, will be made and evaluated.

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## Meaningful Participant Involvement in Clinical Research: An Outline of Community Engagement in the Inducing Immune Quiescence Study

Mahero A<sup>1</sup>, Wamuyu F<sup>1</sup>, Wanjiru R<sup>1</sup>, Kombo A<sup>1</sup>, Muli O<sup>1</sup>, Wanjiru T<sup>1</sup>, Omollo K<sup>1,3</sup>, Lajoie J<sup>2</sup>, Kimani J<sup>1,3</sup>, Fowke K<sup>1,2,3,4</sup>

<sup>1</sup>Partners For Health And Development In Africa, Nairobi, Kenya,

<sup>2</sup>Department of Medical Microbiology and Infectious Diseases,

University of Manitoba, Winnipeg, Canada, <sup>3</sup>Department of

Medical Microbiology and Immunology, University of Nairobi,

Nairobi, Kenya, <sup>4</sup>Department of Community Health Sciences,

University of Manitoba, Winnipeg, Manitoba

**Background:** Women are disproportionately affected by HIV worldwide. Innovation in HIV prevention methods is needed to empower women to protect themselves. A pilot study we conducted showed that reducing HIV target cells in the female reproductive tract (FGT) of non-FSW women using anti-inflammatory agents is feasible. The Inducing Immune Quiescence (IIQ.2) Study is an ongoing clinical study aimed at determining the optimal dosage of acetylsalicylic acid (ASA)-capable of producing decreased inflammation in the FGT of FSW to reduce the chances of HIV infection. Engaging FSWs throughout the study helps promote their understanding, build trust, provide feedback; and develop interest and ownership of the project.

**Materials and Methods:** The study will enroll 300 FSWs aged 18-45 randomized into no drug, 81 mg/daily ASA or 325 mg/daily ASA and followed at monthly intervals over 6 months. Monthly appointments involve administration of behavioural questionnaires and biomedical sample collection (blood, urine, and cervico-vaginal fluids). Study Peer Educators were enlisted to cascade information to FSW. Four community consultation forums were held with study participants and Peer Educators during Round 1 of the study (first 101 participants). We discussed study goals, eligibility criteria, sample collection objectives and process, outcomes of harmful HIV/STI prevention practices such as douching; feedback on participants' and peer mobilizers' experiences and possible





improvements to boost study efficiency and effectiveness.

**Results:** FSW's understanding of research processes and outcomes was enhanced as evidenced by: interest in study participation and etiological testing for STIs, increased HIV testing uptake, and better cognizance of the effects of harmful HIV/STI prevention practices, particularly during a condom shortage crisis. Commissioning community mobilizers was an effective clinical research recruitment strategy as study information was well-received by the community. The interactive sessions were a learning platform for both the research team and participants. Researchers got to better appreciate the community's perception of clinical research goals, processes, and requirements.

**Conclusions:** Community engagement enabled both the researchers and participants to inform decision-making throughout the study. Training Peer Educators as community gatekeepers is an easily adaptable participatory approach in both clinical research and the development and evaluation of public health intervention outcomes among Key Populations.

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## Continuum des Soins chez les Personnes Usagères de la PrEP au CNRRPEC de Cotonou

**Bokossa L<sup>1</sup>**, Kouanou Azon A<sup>1</sup>, Tounkara L<sup>1</sup>, Ayihounton G<sup>1</sup>, Donadje P<sup>1</sup>, Koovi I<sup>1</sup>  
<sup>1</sup>Cnrrpec/cnhu-hkm, Cotonou, Benin

**Contexte :** Le Centre National de Référence à la Recherche sur la Prise en charge du VIH et des IST (CNRRPEC) contribue avec l'appui du projet EAWA et de l'USAID à la prévention de la transmission du VIH/SIDA grâce à l'intégration de la PrEP comme moyen de prévention secondaire dans les populations à risque.

**Objectifs :** L'objectif de ce travail est d'évaluer le maintien des personnes mises sous PrEP dans le continuum de soins.

**Matériels et Méthodes :** La population étudiée était la file active des clients mis sous PrEP du 1er

Octobre 2022 au 31 Décembre 2023. L'étude a consisté à l'analyse du respect des rendez-vous de dispensation mensuelle et rendez-vous de suivi clinique et biologique gage d'une bonne continuité des soins quelque soit la modalité de prises de la PrEP.

**Résultats :** 151 clients ont été mis sous PrEP sur la période de l'étude dont. 60 Couples sérodiscordants (46,51%), 30 Professionnels de sexe (23,26%), 22 HSH (17,05%) et 17 TG (13,18%). La majorité était sous modalité continue (89,92%). Au 31 Décembre, 54,56% de ceux sous modalité continu demeure dans le continuum de soins. Parmi eux, 88,37% sont de la population générale notamment les couples sérodiscordants. Par ailleurs, 1,13% des clients sous modalité continue ont changé de modalité au bout de 03 mois en moyenne. Ce taux de continuité aux soins par rapport à la PrEP serait lié dans 35% au caractère mensuel de la dispensation mais aussi à la notion de U=U lors de l'ETP dans 28,03% des cas.

**Conclusions :** Les activités à l'endroit des personnes cibles telles que les CSD, les HSH, PS et TG doivent être associées à une sensibilisation régulière et à un suivi psychosocial afin d'assurer le continuum de soins et les maintenir dans la file active.

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## Effectiveness of the Social Network Strategy in Increasing Uptake of HIV Testing and Case Identification Among the General Population

**Malava D<sup>1</sup>**, Arodi S<sup>1</sup>, Ngunu C<sup>2</sup>, Kubo E<sup>1</sup>, Kihoro C<sup>1</sup>, Marima R<sup>1</sup>, Obat E<sup>3</sup>, Simiyu T<sup>3</sup>, Mecha J<sup>1</sup>, Otieno F<sup>1</sup>  
<sup>1</sup>Department of Clinical Medicine and Therapeutics, University of Nairobi School of Medicine, Kenya, Nairobi, Kenya, <sup>2</sup>Nairobi City County, Nairobi, Kenya, <sup>3</sup>USAID Kenya- East Africa, Nairobi, Kenya

**Background:** USAID Fahari ya Jamii (FYJ), 'the family's pride' is a collaborative project between the University of Nairobi and the county governments of Nairobi and Kajiado in Kenya. Its goal is to provide county support for increased use of quality county-led health and social services,



including HIV testing services (HTS). Retrospective program data for the period July 2022 to January 2023 showed a reduction in positivity yield from 3% (441/16620) to 2% (588/24,519) in the general population. FYJ implemented the Social Network Strategy (SNS) targeting the general population to address the gap.

**Description:** We implemented SNS from February 2023 in 67 facilities in urban and peri-urban areas, representing 48% of the total facilities supported by FYJ. We started with a virtual one-day sensitization for the program staff on SNS conducted by USAID, which was cascaded down through a two-day in-person sensitization conducted by the program staff jointly with the sub-county trainer of trainers, reaching 96 HTS providers.

In SNS, the HIV-positive and HIV-negative at high risk for HIV (recruiters) identified through HTS were enlisted to identify and recruit persons from their social, sexual, or drug-using networks (network associates) for HIV testing using a peer-led approach that assumes similar risk factors among groups within the same social networks. The network associates presented to the facilities for testing. The facilities maintained detailed records of the referrals and testing outcomes of those referred.

**Lessons Learnt:** From February 1 to December 31, 2023, 1,388 recruiters referred 2,758 (averaging about 2 referrals per seed) of their peers for HIV services, of whom 2,672 (97%) were eligible for testing. Out of these, 2,135 (81%) received an HIV test and 98 (4.5% yield) were determined to be HIV positive. This was a 2.5% increase from the overall program yield of 2% among the general population. Ninety-five (96%) of those who were HIV-positive were successfully linked to treatment.

**Conclusions:** SNS is an effective high-yielding approach that can be used to reach clients who would not have been reached through conventional means. This is key in identifying persons with undiagnosed HIV infection in high-risk networks.

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## Client Experiences of and Preferences for HIV Care Delivery during the First Six Months on Antiretroviral Therapy in South Africa

Mutanda N<sup>1</sup>, Morgan A<sup>2</sup>, Sande L<sup>1</sup>, Maskew M<sup>1</sup>, Kamanga<sup>3</sup>, Ntjikelane<sup>1</sup>, Scott N<sup>2</sup>, Benade M<sup>2</sup>, Rosen S<sup>1,2</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, University of Witwatersrand, Johannesburg, South Africa, <sup>2</sup>Boston University, Boston, United States, <sup>3</sup>Clinton Health Access Initiative, Lusaka, Zambia

**Background:** Improving retention on antiretroviral therapy (ART) is essential to achieve global HIV goals. Disengagement from care is highest in the early treatment period (<6 months after initiation or re-initiation), but differentiated service delivery models designed to increase retention generally exclude clients with <6 months on ART. We assessed preferences for HIV service delivery in the early treatment period.

**Materials and Methods:** From 9/2022-6/2023, we surveyed adult ( $\geq 18$ ) clients who were initiating, re-initiating, or on ART for  $\leq 6$  months at 18 primary health facilities in South Africa. The survey collected data on experiences with and preferences for HIV treatment delivery. A subset of respondents were re-contacted  $\leq 12$  months later for focus group discussions (FGD) to further explore preferences.

**Results:** We enrolled 1,098 adults (72% female, median age 33): 38% were initiating/re-initiating ART at study enrolment, 38% had been on ART  $\leq 3$  months, and 24% had been on ART 3-6 months. While 81% of clients reported receiving 1 month of medication at a time, 63% would prefer 3- or 6-month dispensing. 61% preferred 3- or 6-month visit scheduling, while only 13% preferred monthly visits. 79% overall would prefer to receive care from a nurse over a doctor (15%), counsellor (5%), or other provider (2%); men (20%) were more likely than women (12%) to prefer a doctor ( $p < 0.05$ ). 65% said they would prefer receiving treatment in community settings (school, church, or pharmacy) instead of a clinic. A large majority of participants (93%) had not been offered any choices of service delivery locations or dispensing



durations. 50% of participants desired more counselling; FGD participants expressed the need for frequent, intensive, and empathetic counselling during the early treatment period. Unlike the quantitative survey results, FGD participants expressed a preference for collecting medication from the clinic rather than at community pickup points to provide an opportunity to ask questions and receive counselling.

**Conclusions:** Even during the first six months after ART initiation, a substantial proportion of clients would prefer less frequent clinic visits and longer dispensing intervals, though they also value frequent and high-quality counselling. New care models for the early treatment period should reflect these preferences.

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## Using Community-Based Gender-Based Violence First-Line Responders to Provide Ongoing Psychosocial Support to GBV Survivors Among AGYW Aged 10 to 24 Years Enrolled in the DREAMS Program in Zambia

Chipukuma J<sup>1</sup>, Mwango L<sup>1</sup>, Baumhart C<sup>2,3</sup>, Olowski P<sup>4</sup>, Muleya C<sup>5</sup>, Claassen C<sup>2,3,4</sup>

<sup>1</sup>Ciheb Zambia, Zambia, <sup>2</sup>Center for International Health, Education, and Biosecurity, University of Maryland school of medicine, USA, <sup>3</sup>Institute of Human virology, University of Maryland school of medicine, , USA, <sup>4</sup>Maryland Global Initiatives Corporation, Lusaka, Zambia, <sup>5</sup>U.S. Centers for Disease control and prevention, Division of global HIV and TB, Zambia

**Background:** In Zambia, adolescents continue face gender-based violence (GBV), with adolescent girls and young women (AGYW) disproportionately affected compared to boys. However, GBV cases among AGYW continue to be underreported, contributing to gaps or delays in care. The Listen, Inquire, Validate, Enhance safety, and Support (LIVES) package is a WHO-supported curriculum that uses a person-centered approach for open

communication, enhanced support, and validation of AGYW. We integrated LIVES into the DREAMS program in three Zambian provinces, and used community-based first-line responders trained in LIVES to provide psychosocial support for GBV survivors.

**Description:** AGYW aged 10-24 years enrolled in DREAMS were screened for GBV using the national standardized Risk Assessment Form, which gathered baseline information on experiencing any form of GBV, including physical, sexual, or emotional GBV. AGYW reporting any GBV were provided post-GBV care and ongoing psychosocial support by first-line responders using LIVES, including healthcare workers, DREAMS site coordinators, mentors, and connectors. All first-line responders were trained on LIVES via a training-of-trainers (TOT) model. We examined routinely collected and aggregated client-level data on GBV among AGYW enrolled in DREAMS from October 2021 to June 2022. Data were analyzed using R Studio and STATA.

**Lessons Learnt:** CIRKUIITS trained six DREAMS Coordinators as TOT trainers, who then cascaded the LIVES training to 98 mentors and 19 connectors. A total of 31,486 AGYW were enrolled in DREAMS; 28,618 were screened for GBV at enrollment, with 12,299 (45%) reporting experiencing GBV (9,491 physical and emotional GBV and 2,808 sexual GBV). All AGYW presenting for GBV services received counselling and referrals from staff trained in LIVES. Of the 2,808 experiencing sexual GBV, 154 (5.5%) presented to GBV care within 72 hours; 117 (76%) accepted post-GBV care and received clinical prevention services including HIV testing, emergency contraception, and post-exposure prophylaxis.

**Conclusions:** Upon enrollment in DREAMS, almost half of all AGYW reported experiencing GBV throughout their lives, indicating a dire need for support. The LIVES package was effective in scaling-up GBV services for DREAMS AGYW in Zambia. Further equipping front-line responders with necessary skills and resources, such as LIVES, will help AGYW cope with the experienced GBV.



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## Distillation of Male-Specific Person-Centered HIV Counseling to Core Components for Scale-Up in Sub-Saharan Africa and Other Low-Resource Settings

Holland K<sup>1</sup>, Mphande M<sup>2</sup>, Hubbard J<sup>3</sup>, Robson I<sup>2</sup>, Chikuse E<sup>2</sup>, Kamtsendero L<sup>2</sup>, Lemani C<sup>2</sup>, van Oosterhout J<sup>4</sup>, Ramesh M<sup>1</sup>, Phiri S<sup>2</sup>, Dovel K<sup>2,3</sup>  
<sup>1</sup>University Of California, Los Angeles David Geffen School of Medicine, Los Angeles, United States, <sup>2</sup>Department of Science, Partners in Hope, Malawi, St. John's Parish, Area 36 Plot 8 Kamuzu Procession Road Opposite, Malawi, <sup>3</sup>University of California, Los Angeles, Division of Infectious Disease, Los Angeles, United States, <sup>4</sup>Department of Medicine, Partners in Hope, Malawi, St. John's Parish, Area 36 Plot 8 Kamuzu Procession Road Opposite, Malawi

**Background:** Men living with HIV (MLHIV) experience high rates of treatment interruption (TI), resulting in increased morbidity, mortality, and viremia as compared to women. Low engagement reflects lacking standard-of-care programs that tailor to men's needs. Person-centered care (PCC) tailored to men can improve men's ART engagement. Identifying locally contextual, core components of PCC counseling is necessary for effective implementation and scale-up. We conducted a qualitative sub-study with MLHIV to identify core components of a male-specific PCC counseling curriculum in Malawi.

**Materials and Methods:** Two parent trials (IDEal and ENGAGE; Clinicaltrials.gov #s NCT05137210/NCT04858243) enrolled MLHIV ≥15 years not currently in care (either never initiated ART or experiencing TI >28 days). The trials aimed to improve six-month retention among men experiencing TI using a male-specific PCC intervention. Of 1,309 men enrolled, a random subset of 97 MLHIV were selected for qualitative in-depth interviews (IDIs) at 3- (n=36) and 9-months (n=61) to assess core components of the intervention. Data were analyzed using thematic and content-based analysis in Atlas.ti v.9.

**Results:** Of 97 MLHIV interviewed, median age was 38, median time since ART initiation 4-months, 89% were actively on ART at interview. Participants identified core service components related to access, quality, and support. Efficient

services, undivided healthcare worker (HCW) attention and respect, privacy, and persistent tracing efforts were considered critically impactful for male-PCC. MLHIV wanted to feel that HCWs "never give up on them" as if "they were family". Some wanted ongoing relationships with HCWs. Men also expressed need for male-tailored HIV messaging which highlights ART's contributions to men's goals and societal roles and acknowledges that lifelong adherence is difficult, requiring self-compassion. Incorporating graphics depicting MLHIV living normal, healthy lives into counseling tools was also highly impactful for men.

**Conclusions:** MLHIV need services that prioritize access, quality, and support tailored to their male experiences. Additional research is needed to assess how an intervention with these core components can be taken to scale in the standard-of-care in places like Malawi.

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## Effect of Screeners on Optimization of HIV Testing Services at Outpatient Departments in Mubende Region of Uganda

Ezajobo S<sup>1</sup>, Awor I<sup>1</sup>, Nankya C<sup>1</sup>, Obwalatum J<sup>1</sup>, Nakaweesi J<sup>1</sup>, Senyimba C<sup>1</sup>, Mukasa B<sup>1</sup>, Apolot M<sup>2</sup>, Lubwama J<sup>2</sup>, Ward J<sup>2</sup>  
<sup>1</sup>Mildmay Uganda, Kampala, Uganda, <sup>2</sup>Centers for Disease Control and Prevention, Kampala, Uganda

**Background:** Mubende region in Uganda has consistently registered high HIV testing volumes with low positivity of <4% in the PEPFAR-funded program, reflecting case-finding inefficiencies. We examined the effect of deploying dedicated staff (HIV Testing Services (HTS) screeners) on HIV positivity in Mubende region.

**Materials and Methods:** A total of 36 HTS screeners were recruited and trained on basic HTS concepts and how to use the Uganda Ministry of Health HTS eligibility screening tool. The screening tool assesses an individual's risk of exposure to HIV by determining whether an individual has had unprotected sex with a partner of unknown HIV status, is a key population, is in a discordant



relationship or has history of sexually transmitted infection among others. HTS screeners were deployed to outpatient departments (OPD) in 29 health facilities. 49 facilities in Mubende region did not have HTS screeners, therefore acting as the comparison group.

Data was collected on OPD attendance, number of patients screened, number tested for HIV, and number tested HIV positive. Data were grouped into two types of facilities (29 facilities with screeners and 49 facilities without screeners) for the period October 2020 to September 2021. We fitted Generalized Linear Models for grouped binary data to assess the association between deployment of HTS screeners and HIV positivity. In addition, we considered correlation analysis of HIV risk within the 8 districts in Mubende region.

**Results:** Facilities with HTS screeners had higher HIV positivity rates (5.2%, n=2,060) than facilities without HTS screeners (3.7%, n=1,060; p-value<0.001). Facilities with HTS screeners had a 70% (adjusted Odds Ratio=1.70, 95% CI 1.43-2.03, p<0.001) higher likelihood of identifying persons living with HIV compared to facilities without HTS screeners. Age (adjusted Odds Ratio=2.25, 95% CI 1.82-2.77, p<0.001), sex (adjusted Odds Ratio=0.89, 95% CI 0.80-1.00, p<0.044) and facility type (p<0.001) remained independently associated with HIV positivity.

**Conclusions:** HIV positivity increased with the use of dedicated teams to screen people for HTS eligibility within OPD of health facilities. Deployment of HTS screeners to OPD may increase efficiencies in HIV case-finding in health facilities. Additional cost-effectiveness analyses on HTS screening staff may help to inform HIV programming and policy.

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## Stratégies de Dépistage en Communauté et Rétention à la Prise en Charge Antirétrovirale au Bénin : cas du Centre Hospitalier Universitaire de Zone Abomey-Calavi / So-Ava (CHUZ-AS)

Gansou A<sup>1</sup>, Setondji F<sup>1</sup>, Adouwekonou R<sup>1</sup>, Wembulua B<sup>2</sup>, Adjagba D<sup>1</sup>, Ahannnonme D<sup>1</sup>, Allabi A<sup>3,4</sup>

<sup>1</sup>Service des maladies infectieuses et tropicales, Centre Hospitalier Universitaire De Zone Abomey-calavi, Cotonou, Benin, <sup>2</sup>Service des maladies infectieuses et tropicales du Centre hospitalier national universitaire de Fann, dakar, senegal, <sup>3</sup>Service de Medecine Interne du centre hospitalier de zone abomey-calavi / So-ava, Cotonou, BENIN, <sup>4</sup>Faculté des sciences de la santé, Cotonou, Benin

**Contexte :** Nous avons évalué l'impact des stratégies de dépistage communautaire sur la rétention des patients dans la prise en charge antirétrovirale (ARV).

**Matériels et méthodes :** Cette étude a été conduite au CHUZ-AS, site majeur de prise en charge du VIH. Il s'agit d'une étude observationnelle de type cohorte dynamique avec collecte prospective (1er Octobre 2021- 1er Octobre 2023) des PvVIH respectant les critères : être diagnostiqué positif au VIH par l'une des stratégies communautaires, être mis sous traitement et suivi au CHUZ-AS, avoir un dossier médical complet. Le E-tracker de la plateforme DHIS2 renseigne sur les données de dépistage, de suivi clinique, virologique de tous les sujets sous ARV. Le logiciel R 4.2.0. a été utilisé pour l'analyse des données. Était perdu de vue (PDV), tout patient n'ayant eu aucun contact clinique ni de renouvellement ARV pendant plus de 28 jours depuis leur dernier RDV. Les facteurs prédictifs de la rétention ont été identifiés par un modèle de Cox.

**Résultats :** Sur 394 patients testés en communauté et mis sous traitement au CHUZ-AS, 334 (84,8%) étaient de la population générale, 41 (10,4%) des professionnelles de sexe et 19 (4,8%) des HSH. La stratégie de dépistage prédominante était l'index testing (39,3%) suivi du dépistage volontaire (31%). Les PDV étaient au nombre de 122



(30,96%). La durée moyenne de suivi était de  $19,34 \pm 7,60$  mois (Min=1mois, Max=24 mois). Au moins 50 % des patients ont été suivis pendant toute la durée de l'étude. La comparaison des courbes de survie des patients en fonction de la modalité de dépistage était significativement différente ( $p=0,027$ ). Les sujets faisant un dépistage volontaire avaient une durée de suivi plus longue que ceux dépistés par les autres stratégies communautaires. En analyse multivariée, les facteurs associés à la rétention des sujets étaient l'âge supérieur à 30 ans ( $p=0.002$ ) et la modalité de dépistage (volontaire  $p=0.017$ , stratégie mobile  $p=0.02$ , index testing= $0.041$ ).

**Conclusions :** La méthode de dépistage communautaire a une répercussion sur la rétention des patients, gage d'une indétectabilité de la charge virale. Ceci suggère une intensification de l'accompagnement thérapeutique pour ces cibles.

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## “Now I Feel Comfortable Counseling Index and Contact Clients”: Qualitative Insights on the Impacts of Blended Learning Training on Capacity to Implement Index Case Testing

Tembo T<sup>1</sup>, Jean-Baptiste M<sup>2</sup>, Mphande M<sup>1</sup>, Mbeya-Munkhondya T<sup>3</sup>, Chitani M<sup>1</sup>, Mkandawire A<sup>1</sup>, Kumbuyo C<sup>1</sup>, Chirombo I<sup>1</sup>, Banda B<sup>1</sup>, Ayele F<sup>1</sup>, Simon K<sup>1</sup>, Rosenberg N<sup>2</sup>

<sup>1</sup>Baylor College Of Medicine Children's Foundation Malawi, Lilongwe, Malawi, <sup>2</sup>Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, United States, <sup>3</sup>Kamuzu University of Health Sciences, Blantyre, Malawi

**Background:** Index case testing (ICT) is an evidence-based intervention strongly recommended to increase the identification of people living with HIV. However, ICT's success depends on its implementation, including health care worker (HCW) capacity to counsel index clients. To enhance capacity, HCWs were trained using a blended learning training approach (integrating digital and face-to-face and training

modalities) as part of a larger cluster randomized implementation study. The training was decentralized, and the digital portion comprised of learning ICT processes and watching videos modeling different counseling scenarios while the face-to-face portion comprised of practicing ICT counseling and receiving feedback. We interviewed HCWs in two districts (Balaka and Machinga) to assess the impact of blended learning training approach on HCWs' capacity to implement ICT by comparing the responses of HCWs from enhanced and standard clusters.

**Materials and Methods:** From November 2022 to January 2023, individual, semi-structured interviews lasting approximately 60 minutes were conducted with 26 HCWs: (15 HCWs in standard clusters and 11 in enhanced clusters) following implementation of the training. Interviews focused on HCWs' acceptability providing ICT including experiences counseling index clients and tracing contact clients. Using rapid qualitative analysis methods, interview transcripts were summarized using standardized summary sheets and input into extraction matrices, organized by construct and domain for each transcript. Key findings from the matrices were then assessed across transcripts, constructs, and domains.

**Results:** HCWs from enhanced clusters reported improved knowledge, self-efficacy, and skills in counselling index clients and tracing contact clients. Improvements described by HCWs from enhanced clusters included being able to handle more nuanced, difficult counselling situations, feeling more comfortable eliciting contacts, and using ICT processes and tools to do so. They also reported improvements in how ICT checklists were used in their facilities, strengthening counselling sessions. HCWs from standard clusters reported improved knowledge but requested additional tools, training, and more ICT-related supervision, reflecting less comfort implementing ICT.

**Conclusions:** Blended learning training approach makes HCWs more capable of implementing ICT and increases the acceptability of ICT among HCWs. To improve delivery, national and regional efforts to implement or scale-up ICT should consider this training strategy for HCWs.



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## The Feasibility of Implementing Point-Of-Care Viral Load Monitoring among Children and Young People Living with HIV/AIDS in East Africa

Mujumbusi L<sup>1</sup>, Sumari-de Boer I<sup>2,3,4</sup>, Mayanja Y<sup>1</sup>, Msoka P<sup>2,3,4</sup>, Nabalwany Z<sup>1</sup>, Chemonges E<sup>5</sup>, Mukwano C<sup>5</sup>, Akello R<sup>6</sup>, Niyibizi J<sup>7,8,9</sup>, Iraguha N<sup>9</sup>, Madiega P<sup>10</sup>, Reis R<sup>4</sup>

<sup>1</sup>Medical Research Council Uganda/Uganda Virus Research Institute & London School of Hygiene and Tropical Medicine Uganda Research Unit, Entebbe, Uganda, <sup>2</sup>Kilimanjaro Clinical Research Institute, Clinical Trials, Moshi, Tanzania, the United Republic of, <sup>3</sup>Kilimanjaro Christian Medical University College, Moshi, Tanzania, the United Republic of, <sup>4</sup>Amsterdam Institute for Global Health and Development, Amsterdam, Netherlands, <sup>5</sup>Uganda Virus Research Institute, Entebbe, Uganda, <sup>6</sup>National Institute for Medical Research-(NIMR-Muhimbili), Dar es Salaam, Tanzania, the United Republic of, <sup>7</sup>University of Rwanda, Directorate of Research and Innovation, College of Medicine and Health Sciences, Kigali, Rwanda, <sup>8</sup>Karolinska Institute, Department of Global Public Health, Stockholm, Sweden, <sup>9</sup>University of Rwanda, College of Medicine and Health Sciences, Rwanda, <sup>10</sup>Kenya Medical Research Institute, Kisumu, Kenya

**Background:** The World Health Organization aims to achieve the set 95-95-95 goals by 2030. The last 95 targets 95% of people on ART being virally suppressed. However, the existing centralized system of viral load monitoring has challenges like long turnaround times and loss of results. Point-of-care viral load monitoring (POCVL) can overcome these bottlenecks by enhancing faster delivery of results, enabling healthcare workers (HCWs) to make faster decisions, hence improving clinical outcomes, especially in children and young people who are most affected by unstable viral-load. However, the feasibility of implementing POC is uncertain and depends on the end users. We aimed to explore the feasibility of point-of-care viral load monitoring among children and young people living with HIV/AIDS in East-Africa.

**Materials and Methods:** This was a qualitative study in intervention sites of the EAPOC-VL cluster randomized trial in four East-African countries (Uganda, Kenya, Rwanda, and Tanzania) between 2022-2024. The study used observations and in-depth interviews with HCWs after informed consent. Data was coded in NVivo14 and analyzed

using the 29-constructs of Fleuren et al., (2014) Measurement-Instrument-for-Determinants-of-Innovations (MIDI-framework).

**Results:** Preliminary analyses show that POC is feasible. HCWs exhibited awareness of the POC innovation through training, user manuals, and SOPs. On procedural clarity, HCWs were clear about procedural steps for POC. With self-efficacy, HCWs felt confident to implement POC. POC was found compatible with HCW's daily activities and existing guidelines. On complexity, POC implementation was perceived as easy. Formal ratification involved staff training other staff POC testing. Relevance for clients was positive as HCWs said POC's timely results assist them in making quick decisions compared to the centralized systems' long turnaround-times. However, there were concerns over POC machine running a single sample that increases the waiting time for clients during their clinic visits. Despite these challenges, HCWs preferred POC over the centralized system due to quicker results.

**Conclusions:** Generally, POC is feasible. These findings suggest that POCVL monitoring has the potential to overcome the challenges associated with the centralized system. Further exploration of the scalability and sustainability of POCVL, plus addressing the identified challenges, will be crucial for successful implementation in broader healthcare settings.

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## Evaluating the Cost of Implementing a Digital Self-Care Solution for Voluntary Medical Male Circumcision Clients' Follow-up at Urban Clinics in Zimbabwe

Chidawanyika S<sup>1</sup>, Nhando N<sup>1</sup>, Maponga B<sup>1</sup>, Chatsama O<sup>1</sup>, Dhodho M<sup>1</sup>, Xaba S<sup>2</sup>, Taruberekera N<sup>1</sup>, Leuschner S<sup>3</sup>

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Services International, Harare, Zimbabwe

**Background:** Mobile health applications delivered through text messages are fast gaining momentum



in Zimbabwe. Between 2020 and 2023, a mobile health application called Workforce Application (WFA) was developed. It was piloted at selected health facilities offering Voluntary Medical Male Circumcision (VMMC). Service providers deployed the WFA throughout a client's journey from demand creation to post VMMC care, for those who opted in for virtual reviews and not the standard of care (SoC) on days 2, 7 and 42. We conducted an economic evaluation of VMMC service delivery using the WFA platform compared to SoC.

**Materials and Methods:** A bottom-up activity-based micro-costing approach together with step-down costing was applied for cost estimations for various activities provided under the WFA and SoC. Standardized tools were used to collect financial and economic costs on activities and resources consumed. Capital investments and recurrent costs were measured. Resources consumed during follow-up visits included personnel, vehicle operation and maintenance, clinic consumables, and mobile airtime. An Excel spreadsheet was used to capture and analyze financial expenditures supplemented by M&E and other site-based data.

**Results:** The cost per MC for those followed via SoC ranged from \$6.39 to \$8.13 for Day 2 reviews, and \$0.20 to \$0.35 for WFA, \$0.66 to \$0.81 for WFA Day 7 reviews and \$6.35 to \$8.47 for SoC Day 7. Day 42 reviews for clients followed up through SoC ranged from \$3.54 to \$4.92 compared to \$0.47 to \$0.61 for WFA. The mean cost across the sites for day 2 reviews are \$7.18 and \$0.25 SoC and WFA respectively, for day 7 are \$7.29 and \$0.71 SoC.

**Conclusions:** VMMC post-operative visits unit costs for days 2, 7, and 42 done through WFA are significantly lower compared to those done through SoC. Mobile applications significantly reduce costs of physical follow-up of VMMC clients for realization economies of scale.

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## PrEP Uptake and Persistence Among South African Males in the FastPrEP Implementation Study

**Smith P<sup>1</sup>**, Rousseau E<sup>1</sup>, Lebelo K<sup>1</sup>, Mathola N<sup>1</sup>, MacDonald P<sup>1</sup>, Vanto O<sup>1</sup>, Fuzile P<sup>1</sup>, Wonxie T<sup>1</sup>, Fynn L<sup>1</sup>, Wallace M<sup>1</sup>, Joseph Davey D<sup>1,2,3</sup>, Bekker L<sup>1</sup>  
<sup>1</sup>Desmond Tutu Health Foundation, Cape Town, South Africa, <sup>2</sup>Division of Infectious Diseases, School of Medicine, University of California, Los Angeles, USA, <sup>3</sup>Division of Epidemiology & Biostatistics, School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa

**Background:** South African males exhibit lower rates of HIV status awareness (78% vs. 89%), suppressed viral loads (82% vs. 90%), and utilization of HIV prevention services than females. Targeted interventions can improve men's uptake of HIV testing (HTS) and prevention services, effectively addressing heterosexual HIV transmission. FastPrEP investigated a multi-platform model of HIV prevention in high prevalence settings in Cape Town, South Africa, allowing participants to choose PrEP pickup locations at government clinics, mobile clinics, rapid pharmacies, and schools.

**Materials and Methods:** Males (≥15 years) in a peri-urban community received community-based HTS at four mobile clinics or 12 government clinics. Those testing HIV negative were offered same-day oral PrEP. Initiators joined a study exploring uptake and persistence through observed clinic visits for PrEP refills.

**Results:** Between March 2022 and November 2023, 48% of males (n=3112/6449, median age 25 years, IQR 20-32 years) initiated PrEP at study sites. Of those, over a third returned after initiating PrEP (38% had one follow-up for PrEP). Most male participants initiated PrEP at the mobile unit (89%), and 9% initiated in a local clinic. Most participants (86%) reported being single, where over a third (37%) reported two or more sexual partners in the last month, and 41% reported hazardous alcohol consumption (AUDIT-C score ≥4). While PHQ4 scores (depression/ anxiety) (p = 0.003) and the number of sex partners in the past month (p = 0.003) were associated with higher PrEP initiation, only a positive STI result was associated with a two-fold increase in PrEP





initiation in the logistic regression model. Participants with a positive STI result had 32% higher likelihood of persistence. Alcohol use, multiple sex partners, and depression/anxiety were not associated with PrEP persistence.

**Conclusions:** Findings indicate significant PrEP initiation and a higher likelihood of men visiting the mobile platform, indicating that tailored interventions have potential in curbing the HIV epidemic by lowering barriers to PrEP uptake and persistence. Consequently, the mobiles yielded men who had multiple risk factors that placed them at risk for increased HIV acquisition. More research is required to understand persistence, support, sexual outcomes and the impact of tailored HIV prevention interventions.

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## Accelerated Progress Towards Achieving the First 95% PEPFAR Target Through Implementing a Nationwide HIV Testing Services -Quality Improvement Collaborative-Uganda.

Muhire M<sup>1</sup>, Sensalire S<sup>1</sup>, Nabwire J<sup>1</sup>, Kadama H<sup>2</sup>, Katusiime C<sup>2</sup>

<sup>1</sup>University Reserch Co.,LLC-USAID Uganda Health Activity, Kampala, Uganda, <sup>2</sup>Uganda Ministry of Health- AIDS Control Program, Uganda

**Background:** In Uganda, 1,302,060 (86.6%) of the estimated 1,504,403 people were living with HIV by December 2021 and therefore, 202,343 people living with HIV are yet to be identified. To close the gap, Ministry of Health set up a national HIV Testing Services (HTS) Quality Improvement (QI) collaboratives to improve the quality of HIV testing services with the aim of increasing case identification and linkage in care of undiagnosed PLHIV with specific focus of areas with high known HIV prevalence.

**Description:** The national HTS -QI collaborative was set up in October 2022 for 16 regions of the country and covers 750 public and private health facilities. Collaborative design meetings were held

in October 2022 to develop an improvement toolkit followed by regional based entry meetings to train regional team to use the tool kit and develop regional based implementation plans. Teams were then guided to conduct a baseline assessment on key improvement processes related to HTS screening and HIV testing. Following the baseline assessment, improvement processes to screen and test all HIV eligible clients were set up. For each improvement process, changes were implemented including: Assigning volunteers clients to screen at OPD and entry points like inpatient wards and special clinics. HTS screening tools are availed at all entry points. Related to HIV testing of all eligible clients, teams embarked on: task shifting among for health workers, community linkage facilitators to direct clients to testing points, re-distribution of testing kits to departments that have run out was done and recording a code on the clients medical form to signify that eligible clients must be tested for HIV was implemented.

**Lessons Learnt:** A total of 76948 HIV positive clients have been identified between October 2022 and November 2023 representing a 3.8% increase from the baseline of 86.6 % Ugandans who know their HIV status. There are therefore 90.4% persons of 1,504,403) with a known HIV status hence progress towards the 95% PEPFAR target.

**Conclusions:** Deliberate and targeted quality improvement interventions implemented by both clients and health workers lead to identification of new HIV positive clients.



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## Costs of Program Implementation of the DREAMS Initiative among Adolescent Girls and Young Women in Zambia

Van Rensburg C<sup>1</sup>, Mwango L<sup>2</sup>, Baumhart C<sup>3,4</sup>, Chipukuma J<sup>2</sup>, Mungulube L<sup>5</sup>, Tembo K<sup>2</sup>, Banda A<sup>5</sup>, Muleya C<sup>6</sup>, Chituwo O<sup>6</sup>, Claassen C<sup>3,4,5</sup>

<sup>1</sup>Consultant, Maryland Global Initiatives Corporation, Lusaka, Zambia, <sup>2</sup>Ciheb Zambia, Lusaka, Zambia, <sup>3</sup>Center for International Health Education and Biosecurity, University of Maryland Baltimore, Baltimore, USA, <sup>4</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>5</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

**Background:** The Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program provides adolescent girls and young women (AGYW) with comprehensive HIV prevention interventions and services. We conducted an economic evaluation of DREAMS implementation in Zambia.

**Materials and Methods:** Standard costing methods were used to estimate total costs of DREAMS as well as per intervention. Resource use and costs were collected across sites and sub-implementing partners. Categories included training, mobilization, overhead, staff, equipment, and supplies. Top-down micro-costing approach identified resource use, including overheads, staff and equipment; bottom-up costing determined supply usage per participant. Shared equipment and overheads were allocated by proportional use. Total costs per intervention were estimated, then divided by number enrolled to obtain unit costs. Costs were retrospectively collected from health providers for the 2022 financial year. One-way sensitivity analysis was conducted to determine cost drivers with largest impact per participant.

**Results:** The total estimated economic cost of the DREAMS program was \$3,889,057 for 28,454 AGYW enrolled (\$136.68 per AGYW). Staff costs were the largest contributor at \$2,365,403, followed by supplies at \$669,353. The core DREAMS intervention Stepping Stones costs \$24.06 per AGYW enrolled, including mobilization costs. The cost per AGYW enrolled was most

sensitive to volume. Post-violence care was the highest cost (\$339.94), followed by PrEP sensitization and linkage (\$198.86). However, few AGYW received these interventions (0.3% and 7%), so they do not disproportionately add to total cost.

**Conclusions:** Costing analysis showed that DREAMS costs \$137 per AGYW per year; costs decrease as number of beneficiaries is scaled up. Costs of DREAMS interventions are difficult to estimate individually, and secondary interventions may not accurately reflect stand-alone costs because they rely on Stepping Stones. Providing the programs incurred a high proportion of fixed costs, particularly staff and overhead. Future DREAMS cost efficiency may be gained by scaling volume and sub-partners implementing multiple programs.

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## Community Pharmacy Initiated and Management of Oral Pre-exposure Prophylaxis (PrEP) Among Men and Women at Substantial Risk HIV Acquisition: Interim Results from South Africa

Tembo A<sup>1</sup>, Nyamuzihwa T, Lalla-Edward S, Edem E, Martyn N, Mkansi M, Tinzi S, Wonderlink T, Kelechi E, Nyatela A, Venter W

<sup>1</sup>Ezintsha, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

**Background:** South Africa has over 3,500 community pharmacies offering an array of sexual and reproductive services. In a country with a high burden of HIV acquisition, daily oral HIV pre-exposure prophylaxis (PrEP) is mostly available in clinical settings. Pharmacies present an opportunity to provide PrEP in a non-clinical setting. The PPrEP-SA project is currently being implemented in three metropolitan cities in South Africa with the aim to evaluate the acceptability and feasibility of pharmacy initiated and management of PrEP. We provide a report on interim results after 6 months of implementation.



**Materials and Methods:** Trained health care providers at 10 community pharmacies screen men and women ( $\geq 18$  years) for HIV risk, conduct HIV testing, baseline investigations as per National PrEP guidelines, consent if eligible and dispense PrEP with telemedicine support. Routine project data for the period July 2023 and January 2024 were analysed using STATA/SE 18.0 to determine uptake and continuation.

**Results:** A total of 745 participants were screened with 87% (653) initiating on PrEP. Most (91%, 594) were PrEP naive. From the 653 that initiated, the mean age was 29 and 51% (329) were female. In terms of socio-demographic characteristics, 87% (329) were unmarried, 96% (626) were black, 57% were employed and 53% (342) had a personal income of less than \$261 per month. All participants completed a risk assessment questionnaire; 76% (494) reported inconsistent condom use, 47%, (304) did not know their partners' HIV status, 39% (256) have sex under the influence of alcohol and drugs, 27% (175) have multiple partners, 24% (154) are in an age disparate relationship and 8% (53) were recently diagnosed with an STI/recurrent STI. PrEP continuation at month 1 was 42% (275) and 6% (39) at month 4.

**Conclusions:** A program that links high-risk PrEP-candidates, identified within well-prepared local pharmacies can potentially expand South Africa's PrEP coverage among women and men at substantial risk of contracting HIV. Pharmacy delivered PrEP has the potential to reach populations that do not access clinical facilities and should be considered as options for PrEP differentiated service delivery.

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## Interim Results from an Online Pre-exposure Prophylaxis (PrEP) Pilot for Men and Women in Gauteng Province, South Africa

Nyamuzihwa T<sup>1</sup>, Tembo A<sup>1</sup>, Edem E<sup>1</sup>, Mkansi M<sup>1</sup>, Mkhize A<sup>1</sup>, Phahla C<sup>1</sup>, Wonderlik T<sup>1</sup>, Makola L<sup>1</sup>, Guramatunhu T<sup>1</sup>, Motsoari M<sup>1</sup>, Venter F<sup>1</sup>

<sup>1</sup>Ezintsha, Johannesburg, South Africa



**Background:** The World Health Organisation recommends differentiated service delivery to increase PrEP coverage. The growth of online health and wellness retailers and increasing acceptance of online health services in South Africa such as virtual doctor consultations and e-scripting presents an opportunity to provide PrEP services online. This project aims to pilot an online PrEP model for adult men and women.

**Materials and Methods:** In July 2023, King Online, an online vending company providing sexual wellness products launched an end-to-end PrEP platform to customers for 13 months. Men and women  $\geq 18$  years residing in Gauteng province accessing their website are provided information on the "PrEP page." Those that sign up for PrEP, receive an HIV self-test and complete an online form to report their HIV results, schedule a once-off nurse visit (for baseline laboratory investigations) and doctor virtual consult for PrEP scripting- all performed after client's consent. PrEP refills are supported by HIV self-testing, self-collection of dry blood spot samples (for confirmation of HIV status), doctor telephonic consultations and courier delivery of PrEP. Project data was analysed using STATA/SE 18.0

**Results:** To date, 130 customers have received an HIV self-test, 58% (75) have reported their HIV results, 43% (56) have requested a nurse visit, 42% (54) screened and 41% (53) initiated on PrEP. Of the customers initiated on PrEP, 74% (39) are black, 64% (34) are male and the mean age is 32 years. Most (75%, 40/53) customers do not have a steady sexual partner and 79% (42) have tertiary education with 85% (45) earning more than the national minimum wage. At screening, 34 participants (64%) reported condomless sex and 79% (42) are new PrEP initiations. A total of 22 (42%) have completed their month one visit and 5 (9%) have completed month 4. All of the participants completing month 1 and month 4 have reported negative HIV self-test results-confirmed by the DBS HIV results.

**Conclusions:** Preliminary results suggest that online PrEP is feasible, acceptable and that HIV self-testing can support maintenance on PrEP. Next steps are streamlining the model based on user experiences for larger scale implementation.

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## Traditional Healers Can Help Achieve the Last Mile in HIV Epidemic Control: Preliminary Results from a Cluster Randomized Trial in Rural Uganda

Sundararajan R<sup>1</sup>, Hooda M<sup>1</sup>, Natukunda S<sup>2</sup>, Nansera D<sup>2</sup>, Muyindike W<sup>2</sup>, Mwangi-Amumpaire J<sup>2</sup>  
<sup>1</sup>Weill Cornell Medical College, New York, United States,  
<sup>2</sup>Mbarara University of Science and Technology, Mbarara, Uganda

**Background:** Only 23% of people living with HIV (PLWH) in rural Uganda are virally suppressed, compared with 59% of their urban counterparts – a far cry from the 95% goal set by UNAIDS. This disparity highlights a critical need to effectively reach and retain rural PLWH in HIV care. Rural Ugandans often receive care from traditional healers (TH), and PLWH who use TH often have low engagement with biomedical services. We engaged Ugandan TH identify PLWH who receive care at their practices.

**Materials and Methods:** In August 2023, clinicians from the District HIV clinic trained 44 TH in Mbarara and Rwampara Districts, Uganda to identify PLWH at their practices using two strategies. First, they were trained to deliver HIV counselling and facilitate HIV oral swab self-testing to adults who had not received HIV testing within the prior 12 months and had no prior HIV diagnosis. They were also trained to screen known PLWH at their practices for ART non-adherence using the CASE Adherence Index Questionnaire (CAIQ).

**Results:** Between September 2023 and January 2024, 51 PLWH were identified at participating TH practices. Among these, 45% (n=23) were male. Most PLWH (61%, n=31) were newly diagnosed through self-testing at the TH location; for nearly 75% of these PLWH (n=22), the TH-facilitated test was the first HIV test they had ever received. TH identified 20 PLWH who met criteria for ART non-adherence (defined as CAIQ<10). Median CAIQ score was 5 (IQR=3-6.25, perfect adherence=16), and 70% (n=14) reported no ART use over the prior 7 days. Among these PLWH with suboptimal

ART adherence, 40% (n=8) had unsuppressed HIV viral loads (defined as HIV copies >200/ml).

**Conclusions:** TH are crucial touchpoints for reaching populations who remain outside the reach of biomedical HIV programs, and integrating HIV services with TH practices may be an effective strategy to engage rural PLWH. Our findings demonstrate a severe gap in HIV testing uptake among rural adults who visit TH, underscoring the importance of testing outside of conventional settings. Our findings also reveal that some PLWH, despite being nonadherent to ART, obtained viral suppression; further work is needed to understand this phenomenon.

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## Utilization of Digital Tools to Enhance TB Screening in Communities for a Lasting Impact

Chimungu P<sup>1</sup>, Takarinda K<sup>1</sup>, Bepe T<sup>1</sup>, Nhiringi I<sup>1</sup>, Dhodho E<sup>1</sup>, Chimberengwa P<sup>1</sup>, Page-Mtongwiza S<sup>1</sup>, Chinyanga T<sup>1</sup>

<sup>1</sup>Organization For Public Health Interventions And Development (ophid), +263, Zimbabwe

**Background:** Zimbabwe faces a significant challenge in managing tuberculosis (TB), particularly among people living with HIV (PLHIV). In 2020, an estimated 29,000 TB cases with an incidence rate of 181.3 per 100,000 people were reported. The TB mortality rate (excluding HIV) increased, while the rate among HIV-positive individuals slightly decreased. Discrepancies between notified and estimated cases highlight suboptimal treatment coverage, emphasizing the need for enhanced case detection.

**Description:** The Target Accelerated Sustainability Quality of Care program, an ongoing initiative within the Organization for Public Health Interventions and Development (OPHID), has significantly transformed the approach to TB screening among HIV clients by moving from a paper-based system to a digital platform across 15 districts. Community Outreach Agents (COAs) efficiently collect and input screening data into the Open data Kit (ODK) during outreach programs. Each client undergoes a thorough TB screening



process. Those responding affirmatively to screening questions are identified as presumptive TB cases, triggering a seamless referral process to designated facilities, health posts, or alternative service delivery points. This structured approach ensures timely interventions for individuals at risk of TB within the HIV-infected community. Routine programme data were collected from January to December 2023 using ODK. Data were analyzed descriptively using STATA 15.

**Results:** A total of 125,750 HIV clients were screened for TB in the community, of whom, 86,337 (68.7%) were female and overall median age was 43 years (IQR 34–51 years). Of these, 9163 (7%) were presumptive TB cases and were referred to the health facilities for further TB diagnosis. Of the remaining 116,587 excluded TB symptoms, 11,131 were linked to the facility for TPT initiation which translated to community contribution of 18% of 60,812 annual TPT initiations.

**Conclusions:** This study demonstrated that the integration of digital tools for TB screening among HIV clients can significantly streamline the identification and referral process for TB in community. However, it also points out the need for better linkage to care for clients after screening. The tools have demonstrated the potential for enhancing TB control within HIV service delivery. Future research should evaluate the long-term impact and cost-effectiveness of digital screening interventions.

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## Acceptability of Point-Of-Care Viral Load Monitoring Among Children and Young People Living with HIV in East Africa: A Qualitative Study

Sumari-de Boer<sup>1,2,3</sup>, Msoka P<sup>1,3,4</sup>, Akello R<sup>5</sup>, Niyibizi J<sup>6,7</sup>, Iraguha N<sup>8</sup>, Madioga P<sup>9</sup>, Mtenga A<sup>1,10</sup>, Mujumbusi L<sup>11,12</sup>, Mukwano C<sup>13</sup>, Wanyama E<sup>13</sup>, Reis R<sup>3</sup>

<sup>1</sup>Kilimanjaro Clinical Research Institute, Moshi, Tanzania, United Republic of, <sup>2</sup>Kilimanjaro Christian Medical University College, Moshi, Tanzania, <sup>3</sup>Amsterdam Institute for Global Health and Development, Amsterdam, The Netherlands, <sup>4</sup>Amsterdam

<sup>5</sup>Institute for Social Science Research, Amsterdam, The Netherlands, <sup>6</sup>National Institute for Medical Research-(NIMR-Muhimbili), Dar es Salaam, Tanzania, United Republic of, <sup>7</sup>University of Rwanda, Directorate of Research and Innovation, College of Medicine and Health Sciences, Kigali, Rwanda, <sup>8</sup>Karolinska Institutet, Department of Global Public Health, Stockholm, Sweden, <sup>9</sup>University of Rwanda, College of Medicine and Health Sciences, Kigali, Rwanda, <sup>10</sup>Kenya Medical Research Institute, Kisumu, Kenya, <sup>11</sup>Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania, United Republic of, <sup>12</sup>Medical Research Council/Uganda Virus Research Institute, Kampala, Uganda, <sup>13</sup>London School of Hygiene and Tropical Medicine, Uganda Research Unit, Kampala, Uganda, <sup>13</sup>Uganda Virus Research Institute, Entebbe, Uganda

**Background:** Point-of-Care (POC) Viral Load (VL) monitoring is currently being implemented in several countries to overcome bottlenecks of centralized monitoring of VL, such as long turn-around times, loss of samples and results and filing backlogs. Though POC-VL monitoring may overcome those bottlenecks, the acceptability of POC-VL monitoring may be hindered by challenges experienced by end-users. Our study aims to investigate the acceptability of point-of-care viral load monitoring among children with their caretakers and young people living with HIV in East Africa (EA).

**Materials and Methods:** We conducted a qualitative study among participants in the intervention arm of the EAPOC-VL cluster randomized trial that investigates the effectiveness of POC-VL monitoring on viral load suppression (The EAPOC-VL Project) in East Africa. Children and young people living with HIV who recently had a VL test using POC and their caretakers and treatment supporters were interviewed using in-depth interviews and focus group discussions. Data was analyzed deductively using the Sekhon Framework comprising seven constructs of acceptability of an intervention: affective attitude, perceived effectiveness, perceived burden, ethicality, self-efficacy, intervention coherence and opportunity costs.

**Results:** Preliminary analyses show that POC-VL monitoring, in general, is acceptable. The affective attitude was mostly positive as most liked to get results quickly, though some said this rapidity rather caused anxiety. Perceived effectiveness was positive as the majority reported adhering better to medication after being given the results. Intervention coherence was high as participants understood that POC-VL monitoring gives quick results. On the other hand, there was a perceived burden due to waiting for results at the health facility on the day of testing. Further, there were opportunity costs such as missing school (and



school lunch), homework, or other important functions like birthdays.

**Conclusions:** POC-VL monitoring was considered acceptable. Quantification of these results through a cross-sectional survey would provide a more precise understanding of the magnitude of the mentioned factors. Though perceived burden and opportunity costs could be lowered by implementing strategies to overcome the long wait at the health facility, such as by giving back results and counselling by phone.

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## Clients' Experiences of HIV Index Testing Based on Perceived Benefits and Costs of Participation

Mshweshwe-pakela N<sup>1,2</sup>, Hoffmann C<sup>1,3,4</sup>, Chihota V<sup>1</sup>, Lebyane R<sup>1</sup>, Mabuto T<sup>1</sup>

<sup>1</sup>The Aurum Institute, Implementation Research Division, Johannesburg, South Africa, <sup>2</sup>University of Witwatersrand, School of Public Health, Johannesburg, South Africa, <sup>3</sup>Johns Hopkins University school of Medicine, Department of Emergency medicine, United States of America, <sup>4</sup>Johns Hopkins University, Department of Health, Behavior, and Society, United States of America

**Background:** HIV index testing service (ITS) increases HIV diagnosis which is an important entry point into the HIV care continuum. The success of ITS depends on index clients agreeing to list their sexual or needle-sharing partners or biological children (contacts) who may benefit from HIV testing. We sought to characterize how clients appraised the value and costs of providing contact names, and how these influenced their participation in ITS.

**Materials and Methods:** From November to December 2022, we conducted in-depth interviews with 32 index clients across two primary healthcare clinics located in a high HIV burden peri-urban district in South Africa. Of the 32 participants: 3 were offered ITS on the day of HIV diagnosis, and 29 were offered ITS at least 6 months after. All interviews were conducted in a private room at the health facilities; audio-recorded, transcribed, and translated to English.

Thematic analysis using inductive approaches was used to identify key themes.

**Results:** Overall, index clients' decisions on who they listed as contacts, mostly depended on how they appraised the benefits and undesirable consequences of disclosure of their HIV-positive status, and the self-efficacy to disclose. Some participants placed low value in listing contacts when they were offered ITS on the day of HIV diagnosis, did not have current or had changed sexual partner, or lacked confidence in correct timing and approach to disclose. The anticipated costs of listing contacts included – intimate partner violence, dissolution of relationships, involuntary disclosure of HIV status, and social isolation due to disclosure. These appraisals were often influenced by the clients' stage in their HIV treatment journey, rapport with healthcare providers, and anticipated outcomes from not listing contacts (e.g., fear of being denied medication). For many participants the perceived costs of listing contacts outweighed the benefits; but to comply with 'expectations' from healthcare workers, some listed fictitious contacts, provided wrong contact details, and pre-planned ignoring any follow-up calls.

**Conclusions:** Understanding the values, preferences and needs of index clients, and adapting implementation strategies for ITS to align with these, is essential for maximizing the impact of ITS in reducing the burden of undiagnosed HIV.



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## Improving Uptake of Tuberculosis Testing Using Urine Lipoarabinomannan Among Children with Advanced HIV Disease: Outcomes of A Quality Improvement Initiative in Southern Nigeria

Onwah O<sup>1</sup>, Nwanja E<sup>1</sup>, Toyo O<sup>1</sup>, Akpan U<sup>1</sup>, Unimuke M<sup>1</sup>, Ezieke E<sup>1</sup>, Okolo C<sup>1</sup>, Nwangeneh C<sup>2</sup>, Anika O<sup>2</sup>, Onwuzuruigbo U<sup>1</sup>, Oyawola B<sup>3</sup>, Omo-Emmanuel K<sup>3</sup>, Ogundehin D<sup>3</sup>, James E<sup>3</sup>, Obiora-Okafo C<sup>3</sup>, Idemudia A<sup>3</sup>, Nwadike C<sup>3</sup>, Kakanfo K<sup>3</sup>, Pius B<sup>3</sup>, Onimode B<sup>3</sup>, Asaolu O<sup>3</sup>, Bashorun A<sup>4</sup>, Gambo A<sup>5</sup>, Pius J<sup>3</sup>, Oyelaran O<sup>3</sup>, Goldstein R<sup>3</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Eyo A<sup>1</sup>

<sup>1</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>2</sup>Family Health International (FHI 360), Abuja, Nigeria, <sup>3</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria, <sup>4</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, Nigeria, <sup>5</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria

**Background:** Diagnosis of Tuberculosis (TB) in children living with HIV (CLHIV) can be challenging using conventional diagnostics. Lateral Flow Urine Lipoarabinomannan (LF-LAM) assay is recommended for TB diagnosis among CLHIV with advanced HIV disease (AHD) in Nigeria, with simultaneous GeneXpert mycobacterium TB/rifampicin (MTB/RIF) tests when sputum or stool samples can be produced. The PEPFAR/USAID-funded ECEWS ACE-5 project implemented this recommendation using a quality implementation framework that included the development of a simplified algorithm for TB testing using LF-LAM, inventory optimisation for LF-LAM, and weekly data reviews. This study assessed the outcomes of this quality implementation approach on the uptake of TB tests using LF-LAM among children with AHD in Southern Nigeria.

**Materials and Methods:** This was a retrospective cohort analysis using electronic medical records of ART-naïve children (<15 years old) diagnosed with AHD using the WHO criteria, from October 2022 to March 2023 across 153 health facilities in Akwa

Ibom and Cross River States, Nigeria. Results were disaggregated by age and sex. Uptake of LF-LAM tests (Proportion of children with AHD who were tested using LF-LAM) and proportion of LF-LAM tests that were positive, were compared before (October-December 2022 [Period-1]) and during (January-March 2023 [Period-2]) the intervention, using chi-square.

**Results:** In total, 215 children had AHD (M:111, F:104), with 60% (129/215) identified in Period-2. Median age was 2 years (IQR 1-3). Overall, 45.6% (98/215) of children with AHD were tested for TB using LF-LAM, with 18% (18/98) testing positive. Of those who tested positive via LF-LAM, 88.9% [16/18] were in Period-2. Uptake of LF-LAM tests was significantly higher in Period-2 compared to Period-1 (69.0% [89/129] vs 10.5% [9/86]  $p<0.01$ ), but the proportion of positive LF-LAM tests was comparable between Period-1 and Period-2 (22.2% [2/9] vs 18.0% [16/89]  $p=0.75$ ).

**Conclusions:** The uptake of TB testing using LF-LAM for children with AHD improved in our setting following a quality implementation approach. Further investigation of factors affecting the uptake of TB testing using LF-LAM in this subpopulation is recommended.

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## Developing an Expanded Decentralised Service Delivery Platform for PrEP and Sexual Reproductive Health (SRH) Services for Adolescent Girls and Young Women (AGYW) in Four South African Districts

Butler V<sup>1</sup>, Mojapele M<sup>1</sup>, Kutwayo A<sup>1</sup>, Martin C<sup>1</sup>, Mullick S<sup>1</sup>

<sup>1</sup>Wits RHI, University of the Witwatersrand, Johannesburg, South Africa

**Background:** Decentralisation is one way to improve health service uptake and use, bringing health services closer to communities and improving access, reducing barriers and providing service location choice. We describe the steps involved in expanding a decentralised service delivery platform in four South African districts,



within an AGYW focused PrEP implementation science study.

**Materials and Methods:** The project's existing youth-friendly service delivery model comprises of eight fixed facilities, and four linked mobile clinics in four geographical areas. We expanded an existing community service point (CSP) network (secondary schools, tertiary institutions, and malls, social spaces), by identifying new CSPs using a three stepped process:

1. Assessed existing CSP performance (monthly PrEP initiation and continuation numbers for AGYW) using historic routine project data. High performing CSPs were retained; CSPs with <5 initiations and follow-ups per month were phased out, and clients redirected to nearby CSPs or fixed facilities.
2. Identified and validated new CSPs, by engaging with local youth and department of health (DoH) staff, adding to the CSP network. We had meetings to review and confirm existing and new CSPs with clinic staff and clinic committees and held one-on-one and group discussions with local AGYW (including young project staff) to determine their willingness to access services at new CSPs.
3. Developed and tested a tool assessing new CSP readiness in terms of adequate space, infrastructural need, and the number and type of clinical staff required.

**Results:** Four new CSP types were identified: community-based organisations as pick-up point CSPs for pre-packed follow-up PrEP doses; community pharmacies as both follow-up pick-up CSPs and full service CSPs; Local churches and chief homesteads as both full service CSPs and a pick-up CSPs for pre-packed follow-up PrEP doses.

**Conclusions:** Local adolescents and their communities are best placed to determine expanded CSP networks. CSP service offering is dependent on infrastructure, human resources, and young people's willingness to access services at those locations.

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## Using Electronic Health Record Data to Establish HIV Case Surveillance in Zimbabwe: Deduplication Using Active Machine Learning

**Chaputsira S**<sup>1</sup>, Milligan K<sup>2</sup>, Butsa T<sup>1</sup>, Lee F<sup>2</sup>, Dzangare J<sup>3</sup>, Muzamhindo M<sup>4</sup>, Gongora R<sup>3</sup>, Dinh T<sup>2</sup>  
<sup>1</sup>Zimbabwe Technical Assistance, Training & Education Center for Health, Harare, Zimbabwe, <sup>2</sup>Division of Global HIV & TB, U.S. Centers for Disease Control and Prevention, Atlanta, USA, <sup>3</sup>Zimbabwe Ministry of Health and Child Care, Harare, Zimbabwe, <sup>4</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Harare, Zimbabwe

**Background:** Establishing national HIV case surveillance (NCS), a longitudinal individual-level dataset from the time of being diagnosed with HIV throughout the continuum of care using existing health records from multiple sources is an important public health activity. A probabilistic matching algorithm deduplicating client records across facilities and data sources based on the similarity of demographic information has been used to establish the NCS in Zimbabwe. We described the training, evaluation, and outcomes of this algorithm.

**Materials and Methods:** An active learning-based deduplication algorithm from the Python Pandas-dedupe package was used. A subset of client demographic data, abstracted from the national client registry, including clients' first and last name, sex, and date-of-birth, was used for model training and evaluation. A random selection of 2,000 records from one clinic with the highest and another with the lowest client volume within each of 10 provinces formed the model validation dataset of 40,000 records; these were manually checked for duplicates to provide ground-truth labels. The evaluated model was then run on the full dataset of 1,048,575 individual-level records from national data warehouse (NDW) with HIV-positive status. Predicted duplicates were tabulated by North and South region.

**Results:** Of 120,000 records were used to train the model, 1,500 were manually labeled in the active learning process. The accuracy of the algorithm on the validation set was 95% and the F1 score was 0.77 (Table 1). The matching/deduplication process reduced the number of records from





1,048,575 to 904,152 records of unique individuals (14%). 77,617 duplicates were within the North region, 42,845 were within the South, 5,401 were across North-South, and 78,059 were not duplicates.

**Conclusions:** Zimbabwe has demonstrated that establishing NCS using individual-level data from the NDW with similar demographic information is doable. Choosing an appropriate matching algorithm and process underpinned the successes. We found additional deduplicates across different sub-national levels suggesting that matching process at the national level might improve quality of the CS data. Routine training and evaluations of the matching algorithm including attributes are important to consistently generating reliable CS data.

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## Unraveling the Reasons for Telehealth Clinical Consultations in Malawi: Insights from the Lighthouse Toll-Free Call Center

Chipanda M<sup>1</sup>, Nampinga H<sup>1</sup>, Luwanda G<sup>1</sup>, Huwa J<sup>1</sup>, Thawani A<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi

**Background:** As facilities adopt person-centered HIV interventions to enhance recipient-of-care (RoC) engagement and retention, telehealth interventions are being implemented for ROCs to communicate their needs or complaints to health facilities from the community.

Lighthouse Trust, a WHO-recognized center of excellence (CoE), established a call center in August 2020 to provide free telehealth services including clinical consultations. We aimed to identify and assess the reasons for clinical consultations registered on the Lighthouse toll-free call center.

**Materials and Methods:** The call center has 12 clinicians, nurses, psychosocial counselors, and support staff who provide a range of over-the-phone health services during weekdays from 7:30 am to 4:00 pm.

Utilizing data from registers comprising detailed records of RoC demographics, geographic data, and service request information, we used statistical methods to categorize and quantify the primary motivations behind seeking clinical consultations through the call center from January to December 2023.

**Results:** The call center registered 2837 inbound calls in 2023, an increase of 29% from the previous year. Of the 2837 calls, 1100 were consultations from across Malawi (n=1098, 99.8%) and from Mozambique (n=2, 0.2%) of which 464 (42.2%) were from females and 636 (57.8%) from males. There was adequate distribution of age of RoC with the minimum age of 10, maximum age of 89, and mean age of 35.2 years.

The analysis of the primary reasons for consultations showed that majority of RoC requested for facility transfers (21.91%); inquiries on PrEP and PEP (16.91%) including eligibility criteria, where to access the drugs, and the difference between PrEP, PEP and ART; and inquiries on prescriptions (14.64%) including ART dosage, process of re-engagement into care, and access to TB prophylaxis. Other reasons for consultations were regarding access to viral load (9%) and TB (4.9%) results, presumed side effects of various drugs, requests on ART refill appointment date (4.82%), as well as requests and communications of their access to emergency supply (4.6%).

**Conclusions:** Free telehealth services are a viable intervention for scale-up as RoC increase their treatment literacy and cross-engagement empowers RoC to take initiative in communicating emergency refills and transfers to other facilities reducing the facility tracing burden.



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## Self-Care Digital Solutions for Improved HIV Prevention Programming; Evidence from a Voluntary Medical Male Circumcision Program in a Low Resource Setting

Munjoma M<sup>1</sup>, Mavudze J<sup>1</sup>, Choi H<sup>1</sup>, Dhliwayo A<sup>1</sup>, Bidi L<sup>1</sup>, Mufema L<sup>1</sup>, Dhodho M<sup>1</sup>, Nhando N<sup>1</sup>, Maponga B<sup>1</sup>, Mutede B<sup>1</sup>, Leuschner S<sup>1</sup>, Taruberekera N<sup>1</sup>

<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe

**Background:** Client self-care using digital innovations is increasingly becoming important in health service delivery to reduce care burden. Population Solutions for Health (PSH) and Population Services International (PSI) in collaboration with the Ministry of Health and Childcare (MoHCC) are implementing the Workforce App (WFA); a fully configurable progressive web application (PWA) for post circumcision wound self-management. We evaluated the feasibility and acceptability of this innovation to inform scale up of this digital innovation.

**Materials and Methods:** A mixed methods study was conducted in May 2023 with recipients of care (RoC) opting in for WFA between March 2022 to May 2023 in the five biggest districts of Zimbabwe. Data sources were from program data (38,384 circumcised RoC), survey data (286), key informant interviews (10 clinicians) and 6 focus group discussions with RoC. Quantitative data were collected using Survey ToGo and analysed in STATA. Qualitative data were tape-recorded and analysed using N-VIVO. Point estimates for individuals reporting “feeling ok” via WFA were compared with routine program outcomes for the same individuals and statistical difference between the two proportions were plotted at 95% confidence levels.

**Results:** Since WFA introduction in 2021 to May 2023, 66% (25,335/38384) of all circumcised individuals opted into WFA. Out of the 286 respondents recruited in the study, 87.3% (95% CI: 81.4-91.9) reported feeling ok at physical post-procedure follow-up compared to 85.1% (95% CI:

83.5-86.6) reported via WFA. Scale-up of WFA was supported by most service providers as they observed a reduced workload at the health facility since most individuals opted for self-care via WFA. Additionally, occurrence of adverse events (severe and moderate cases) reduced from 16/10,000 (95% CI: 9-26) persons for period before WFA introduction to 1/10,000 (95% CI: 1-2) persons after WFA deployment.

**Conclusions:** Person-centered digital innovations have shown to be effective in post-circumcision self-wound management as outcomes reported via the application were validated. Health care providers and VMMC RoCs showed high acceptability of this innovation and post-WFA period was associated with fewer occurrence of adverse events. This digital innovation should therefore be scaled up.

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## Leveraging mhealth Usage Logs to Inform Health Worker Performance: Case Example of Muzima Use for Home Visit Tracing in Namacurra District in Zambézia Province, Mozambique

Were M<sup>1,2,3</sup>, Savai S<sup>4</sup>, Tique J<sup>5</sup>, De Schacht C<sup>5</sup>, Graves E<sup>3</sup>, Van Rompaey S<sup>5</sup>, Ynusse M<sup>6</sup>, Lucas C<sup>5</sup>, Cumaio F<sup>5</sup>, Lopes D<sup>6</sup>, Amorim G<sup>7</sup>, Mokaya B<sup>4</sup>, Ntasis T<sup>5</sup>, José E<sup>5</sup>, Torres I<sup>5</sup>, Nancico A<sup>8</sup>, Wester C<sup>3,9</sup>

<sup>1</sup>Vanderbilt University Medical Center, Department of Biomedical Informatics, Nashville, United States, <sup>2</sup>Vanderbilt University Medical Center, Department of Medicine, Nashville, United States, <sup>3</sup>Vanderbilt University Medical Center, Institute for Global Health (VIGH), Nashville, United States, <sup>4</sup>Moi University, Institute of Biomedical Informatics, Eldoret, Kenya, <sup>5</sup>Friends in Global Health (FGH), Maputo, Mozambique, <sup>6</sup>Friends in Global Health (FGH), Quelimane, Mozambique, <sup>7</sup>Vanderbilt University Medical Center, Department of Biostatistics, Nashville, United States, <sup>8</sup>Ministry of Health, Provincial Health Directorate of Zambézia, Quelimane, Mozambique, <sup>9</sup>Vanderbilt University Medical Center, Department of Medicine, Division of Infectious Diseases, Nashville, United States

**Background:** Community-based services for HIV care in resource-constrained countries can be strengthened with improved community health worker (CHW) performance. However,



understanding and optimizing CHW performance can be challenging when CHWs work remotely or are distributed over large geographical areas with limited supervisor contact. We evaluated usefulness of mobile health (mHealth)-derived usage logs at informing on CHW performance and work patterns.

**Materials and Methods:** Evaluation was conducted in Namacurra district in Zambézia Province, Mozambique within a PEPFAR-funded HIV Care and Treatment program. CHWs were equipped with the mUzima smartphone-based mHealth application for use during preventive and tracing home visits serving adult persons living with HIV (PWH), where they performed adherence counseling. mUzima has features to capture detailed application usage log data that can be analyzed in a de-identified manner, to preserve privacy for PWH data and for staff. Log data collected over 89 workdays, spanning January 1–March 15, 2020, were used to determine CHW work performance metrics, including: numbers of PWH seen; days worked; work hours; and length of home visit encounters. Descriptive statistics (frequencies, means) were calculated.

**Results:** Data from 30 CHWs who used mUzima for 8,896 distinct visit encounters were included. CHWs worked an average 2.65 days per week (SD 1.36). Total number of PWH seen by each CHW during period varied widely, ranging from 1 to 409 (mean 10, SD 30). Average encounter session length as documented in mUzima was 3.6 minutes (SD 5.8). Mean length of mUzima application usage was 2.7 hours per day (SD 4.0), with 2,732 (44.3%) of encounter data entered outside of regular work hours. Eighty percent of CHWs entered visit data into mUzima on weekend days.

**Conclusions:** Privacy-preserving approaches leveraging mHealth-derived usage logs provide detailed insights into CHW work patterns beyond what can be derived from regular clinical encounter data within electronic records. Shorter than expected average encounter length suggests retrospective data entry as opposed to recommended mUzima use for real-time data entry during visits, highlighting the need to provide tailored clinical mentoring regarding effective application usage. Understanding performance metrics can inform strategies to improve CHW performance and appropriate use of mHealth solutions.

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## Mobile-Based Technology for Enhanced PrEP Retention and Adherence Among AGYW in Siaya County, Kenya

Rapando R<sup>1,2</sup>, Owuor G<sup>1,2</sup>, Odira R<sup>1,2</sup>, Koloo A<sup>3</sup>, Omollo V<sup>3</sup>, Bukusi E<sup>3</sup>, Agot K<sup>1,2</sup>

<sup>1</sup>Reducing HIV in Adolescents and Youth (RHAY), Kisumu, Kenya,

<sup>2</sup>Impact Research and Development Organization (IRDO),

Kisumu, Kenya, <sup>3</sup>Kenya Medical Research Institute (KEMRI), Nairobi, Kenya

**Background:** Adolescent girls and young women (AGYW) in Kenya face a two-fold higher risk of HIV acquisition compared to males. While PrEP offers effective prevention for AGYW, challenges persist in adherence and retention. Mobile-based technology has the potential to enhance PrEP retention and adherence rates. We piloted the use of mobile phone-based messaging to improve PrEP retention and adherence among AGYW.

**Materials and Methods:** We employed both cluster randomized trial and pre-post study designs, with PrEP adherence as the primary outcome. We enrolled AGYW aged 18–24 years on PrEP from DREAMS implementing partners in Siaya County. We categorised participants based on phone type (smart phone or basic phone), and randomised participants with smart phone to WhatsApp intervention or control, and those with basic phones to SMS intervention or control. Participants in both WhatsApp and SMS were engaged in weekly discussions around the importance of PrEP, and barriers and strategies to promote good adherence. We also sent weekly PrEP visit reminders to intervention participants. We abstracted PrEP data from identified facilities pre-post intervention periods.

**Results:** We enrolled 203 participants; mean age was 19 years; 61.6% were single; 44.6% were students while 29.2% were small scale business owners; 20.2%, 49.8% and 27.1% had primary, secondary and post-secondary education, respectively. Perceived HIV risk was low, with 70.4% reporting low-to-no risk, 21.7% frequently engaged in condomless sex, and 98.5% had undergone HIV testing with 62.6% testing 3 months' prior to joining the study. Average PrEP adherence in the intervention arms increased by 2.5% (65.1% to 67.6%) 6-months pre-post; while in



the control arms average PrEP adherence increased by 19.8% 6-months pre-post (46.5% to 66.3%). The average PrEP adherence in the WhatsApp intervention arm 6-months post-study was lower (57.7%) compared to WhatsApp control at 61.7%; while the average adherence in the SMS intervention arm was higher (77.4%) compared to SMS control arm (70.6%); PrEP adherence in SMS intervention was higher (77.4%) than the WhatsApp intervention (57.7%).

**Conclusions:** Mobile-based messaging had a moderate effect on PrEP adherence. Exploring additional mobile-based technologies as strategies to support AGYW's PrEP adherence could be valuable in HIV prevention efforts.

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## Optimising Digital Technologies to Strengthen Community HIV Programming in Zimbabwe

Gosho C<sup>1</sup>, Zhou M<sup>1</sup>, Huwa S<sup>1</sup>, Munangaidzwa L<sup>1</sup>, Makwanya L<sup>1</sup>, Madzima B<sup>1</sup>, Mpofo A<sup>1</sup>

<sup>1</sup>National AIDS Council, Harare, Zimbabwe

**Background:** Zimbabwe National AIDS Council (NAC) coordinates the multisectoral response to HIV and AIDS in reducing new HIV acquisitions. In this regard, a community focused Demographic Health Information System (DHIS2) was developed to collect, analyse and report real time data on AGYW and KPs HIV prevention interventions.

**Description:** In 2021 NAC in partnership with Oslo University rolled out DHIS2 tracker leveraging digital technologies to strengthen community-based HIV prevention in Zimbabwe. 5000 tablets were deployed to community volunteers to capture data on eight HIV prevention models viz, Sista2Sista, Brotha2Brotha, Peer Led, DREAMS, Key Populations SASA, CATS and CATFs across Zimbabwe. The system was developed through an iterative analysis of various source documents and communications from system conceptualization through to production. Over and above tracker use on the tablets, the tablets were utilized for accessing online Programme content, communication platform for community

volunteers to improve efficiency and turn around time for HIV prevention services provision.

**Lessons Learnt:** Use of digital technologies enhanced efficiency in HIV programming through a harmonized digital approach where Programme tools, reporting forms and DHIS2 are all integrated on a single mobile device. Digitalization eliminated multiple paper tools, reduced printing costs, travelling costs for report submission and delayed reporting. Communities and programmers optimised the DHIS2 communication platform to provide instant feedback on HIV interventions including real-time performance monitoring. Through use of DHIS2 on the tablets, Peer Educators can track an HIV outcome for their caseload for differentiated service delivery. The software ensures layering of HIV/SRH services for each client through use of a universal unique Identifier Code, generated by an algorithm developed by HIV implementing partners in Zimbabwe. DHIS2 offers expanded monitoring and evaluation utility for the National KP program in Zimbabwe, facilitating access to data across the HIV negative and positive cascades for decision making at community, district, provincial and national levels.

**Conclusions:** While DHIS2 customization offers viable solutions to optimizing HIV programming, there is need for continuous improved device management strategies in an environment with power challenges, erratic internet connectivity and high risk of data and device loss. Technology ownership has brought about motivation of community volunteers.



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## Using Digital DQA Approach to Improve on Quality of Data in HIV Reporting Systems in USAID Fahari Ya Jamii Supported Facilities in Nairobi and Kajiado Counties, Kenya

Ruttoh G<sup>1</sup>, Maina P<sup>1</sup>, Kimathi L<sup>2</sup>, Munene A<sup>1</sup>, Kihoro C<sup>1</sup>, Kubo E<sup>1</sup>, Arodi S<sup>1</sup>, Odhiambo C<sup>1</sup>, Marima R<sup>1</sup>, Yegon P<sup>3</sup>, Simiyu T<sup>3</sup>, Mecha J<sup>1</sup>

<sup>1</sup>University of Nairobi, Nairobi, Kenya, <sup>2</sup>Savannah Informatics Limited, Nairobi, Kenya, <sup>3</sup>USAID Kenya / East Africa, Nairobi, Kenya

**Background:** USAID Fahari ya Jamii (FYJ), 'the pride' is a collaborative project between the University of Nairobi and the county governments of Nairobi and Kajiado in Kenya. Its goal is to provide county support for increased use of quality county-led health and social services. Poor quality HIV/TB data has hindered optimal service delivery and data-driven decision-making in HIV/TB program implementation. We innovated and implemented an intervention to improve data quality through automated verification, integration of data sources, enhanced visualization, and promotion of skills development.

**Description:** From October 2022 to March 2023, we developed a customized open-source data quality assessment (DQA) platform using Python with a Postgres database for automated analysis and interactive visualization following a plan-do-study-act (PDSA) cycle methodology. The initial design workshops allowed users to plan ideal functionality. Prototypes were then piloted for user feedback to study real-world performance. Insights from pilots informed design adjustments and new feature development. This rapid iterative process enabled continuous enhancement and evolution to meet user needs.

**Lessons Learnt:** DQAs performed months after the introduction of digital DQA showed an improvement in the concordance rate from 91% to 95% ( $t=2.8389$ ,  $p\text{-value}=0.01944$ ). Data verification time was reduced by 40%. We introduced automated in-platform PDF reporting, streamlining, and expediting documentation. Our DQA dashboard automatically generates summaries at facility-to-program levels, improving

efficiency and accuracy. The Data quality improvement (DQI) plans can be tracked in real-time, and it's able to flag the overdue plans. By continually incorporating insights from the users, we ensured the platform met on-the-ground needs, enhancing local relevance and impact.

**Conclusions:** The platform has strengthened data accuracy from 91% to 95%, optimized the use of data for decision-making, and built local capacity unlocking insights from data. The collaborative, iterative design process matched the platform closely to user needs and workflows. We will enhance platform features based on user feedback, expand implementation, and develop a transition plan for institutionalization and sustainability while continuing to leverage PDSA cycles for ongoing optimization.

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## Integrating Strengths from Various Sources through a Digital Health Platform: An Online-To-Offline Service Model for HIV Pre-exposure Prophylaxis (PrEP)

Gu Y<sup>1</sup>, Luo Y<sup>1</sup>, Lu Y<sup>2</sup>, Meng G<sup>2</sup>, Sun L<sup>2</sup>, Cai Y<sup>1</sup>, Han Z<sup>1</sup>

<sup>1</sup>Guangzhou Center for Disease Control and Prevention, Guangzhou, China, <sup>2</sup>Lingnan Partner Community Support Center

Over the last decade, global evidence has shown PrEP's high efficacy, reducing HIV acquisition risk by over 90% in MSM. China approved TDF/FTC for PrEP in 2020. However, PrEP services, primarily in HIV ART hospitals, face low utilization due to complex clinic procedures and limited LGBT friendliness. In Guangzhou, a prominent city in China, the proportion of MSM seeking PrEP services in 2022 was merely 4.9% compared to PEP cases in these HIV ART hospitals, emphasizing the need for convenient, LGBT-friendly, and complementary services.

The HIV digital health platform ("Chabei"), developed by our team, serves as a central hub connecting organizations to create an online-offline PrEP service model. Initially, LGBT community-based organizations (CBOs) provide online/offline MSM-friendly consultation and



assessments. Guangzhou center for disease control and prevention, in collaboration with third-party testing facilities, conducts offline testing for HIV, HBV/HCV/STIs, and creatinine. Physicians familiar with ART medicines review, prescribe, and facilitate the delivery of PrEP medications to MSM through online medical platforms. Subsequent follow-up is managed by CBOs. The HIV digital health platform acts as a unified portal for online/offline services, integrating processes and data from different organizations to enhance efficiency, user experience, and data flow. Consultation, assessment, testing, and follow-up services are provided free of charge, with MSM responsible only for medication costs. Launched in Guangzhou in December 2021, our model provided PrEP consultations for 920 MSM by June 2023. Of them, 223 underwent pre-medication testing. 4 with positive HIV antibodies were unsuitable, and 6 with positive HBV antigen were referred. 27 had abnormal creatinine levels, but none precluded PrEP. Ultimately, 207 MSM initiated PrEP, 3.6 times more than all HIV ART hospitals in Guangzhou. 99.5% percent opted for event-driven PrEP, with 50.7% in follow-up. No HIV seroconversions occurred. Our model integrates strengths from various sources through the HIV digital health platform, combining online convenience with standardized, safe, and MSM-friendly procedures. It serves as a distinctive complement to HIV ART hospitals. The model enhances the applicability of PrEP and holds potential for adaptation in other Chinese cities. Subsequent stages will explore streamlined processes and adaptable follow-ups in line with WHO guidelines.

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## Integrating LIMS and EMRs to Improve Viral Load Turn Around Time (TAT) and Clinical Decision-Making in Antiretroviral Treatment at Umodzi Family Center, Blantyre, Malawi

Phiri M<sup>1</sup>, Munthali E<sup>1</sup>, Chione B<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi



**Background:** Timely access to viral load results is crucial for monitoring antiretroviral therapy (ART) effectiveness and preventing HIV transmission. However, delays in result TAT remain a challenge, impacting care and treatment outcomes. This pilot study evaluated the integration of Lab Information Management System (LIMS) and Electronic Medical Records (EMRs) at Lighthouse Trust Umodzi-Family-Center in Blantyre, Malawi, to improve viral load TAT and quicken medical decision-making for people receiving ART.

**Materials and Methods:** The pilot implemented LIMS-EMR integration from June 2023. Viral load samples were electronically ordered through EMRs, transferred to the laboratory with automated data exchange, and results returned directly to EMRs upon completion. Pre- and post-intervention data were collected on TAT, clinical decision-making time, and patient satisfaction. Statistical analysis compared pre- and post-intervention metrics.

**Results:** This study aimed to assess the impact of LIMS-EMR integration on the turnaround time (TAT) for viral-load results. A total of 29067 viral-load results were analysed, with 20067 processed before and 9009 after LIMS-EMR integration. Prior to integration, 65% of results were processed within 4 weeks, 13% within 5-8-weeks, 11% within 9-12-weeks, and 11% beyond 13-weeks. After integration, notable improvements were observed, with 82% of results processed within 4 weeks, 6% within 5-8-weeks, 2% within 9-12-weeks, and 9% beyond 13-weeks. A t-test was employed to determine the statistical significance of the difference in TAT before and after integration. Prior to integration, the average TAT was 5.1-weeks, while post-integration, it notably reduced to 3.1-weeks. The calculated average difference between the two periods was 1.5-weeks, with a p-value of <0.001, indicating a statistically significant reduction in TAT after the implementation of LIMS-EMR integration.

**Conclusions:** This study underscores the positive impact of LIMS-EMR integration on expediting the delivery of viral load results, demonstrating a significant enhancement in laboratory workflow efficiency. The findings suggest that such integration strategies contribute to timely and improved patient-management in the context of viral load monitoring. Further analysis will assess the long-term impact on clinical outcomes and cost-effectiveness of the intervention. This study contributes to the growing body of evidence on the importance of data interoperability in

optimizing HIV-care and retaining VLS among recipients of care.

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## Using Digital Technology to Improve HIV/TB Service Quality Through Client Feedback: A Case Study of Senanga General Hospital ART Clinic-Western Province-Zambia

Mwanza J<sup>1</sup>, Masiku S<sup>1</sup>, Koni P<sup>1</sup>, Kasonka S<sup>1</sup>, Mwalo S<sup>1</sup>, Bowa L<sup>1</sup>, Mutiti A<sup>1</sup>, Tsigereda G<sup>2</sup>, Dzinamarira T<sup>1</sup>, Michaels-Strasser S<sup>2</sup>

<sup>1</sup>ICAP in Zambia, Lusaka, Zambia, <sup>2</sup>ICAP Global, New York, United States of America, <sup>3</sup>ICAP Global, Addis Ababa, Ethiopia

**Background:** Ensuring quality person-centered health services for People living with HIV (PLHIV) remains crucial to optimize retention in care and treatment outcomes. Therefore, feedback from HIV service recipients of care (ROC) provides valuable information that guides person-centered service delivery adjustments to meet their needs. To enhance ROC feedback on service delivery quality at Senanga General Hospital, Western Province Zambia, ICAP implemented an innovative ROC feedback system using digital technology to collect real-time feedback from ROC.

**Materials and Methods:** ICAP collaborated with the Senanga General Hospital in Western province, Zambia to install a digital platform for anonymous ROC feedback within the ART clinic. Upon completion of their clinic visits, ROC completed a two-minute service satisfactory exit questionnaire accessed through the digital platform. Weekly, facility staff reviewed data from the digital system and implemented swift remedial actions based on the feedback. We analyzed response data from January 2023 to July 2023, and compared changes in ROC's responses between two time periods- January to March and May to July. We used paired sample t-test to determine the statistical significance in the changes.

**Results:** The introduction of the digital platform for ROC feedback on the services received

catalyzed the routine engagement of ROC to provide feedback and the consistent review of feedback provided. The digital platform eliminated the need for manual compilation and analysis of feedback as it automatically generated analyzed results. Overall, the number of ROC participating increased with 271 during the January-March period and 1508 in May-July 2023. There was an overall improvement in satisfaction, with 98% (1479/1508) of RoC being satisfied with the services received in May-July period compared to 94% (254/271) from January-March P = 0.023(95% CI 0.05-0.37).

**Conclusions:** The implementation of a digital innovation for obtaining recipients of care feedback enhanced the routine use of feedback information and service delivery changes that improved satisfaction for services received among ROC. Though digital innovation provided practical options for improving person-centered HIV services and customer care within HIV services, internet connectivity challenges underscored the necessity for an offline version in future innovations.

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## Cartographie des Risques et Vulnérabilités Liées au VIH Chez les Adolescents et Jeunes au Cameroun

Monthe E<sup>1</sup>, Abouem R<sup>2</sup>, Sonwa Lontsi L

<sup>1</sup>Réseau Camerounais Des Adolescents Et Jeunes Positifs, Yaoundé, Cameroon, <sup>2</sup>Ministère de la Jeunesse et de l'éducation civique, Yaoundé, Cameroon

**Contexte :** La cartographie des risques et vulnérabilités (CRV) liés au VIH chez les adolescents est essentielle pour la gestion et la prévention, compte tenu de l'exposition croissante de cette population à des comportements à risque. Ces comportements incluent la consommation de drogues, le travail du sexe, avec une connaissance et une utilisation limitées des méthodes de prévention telles que le port correct du préservatif ou la prophylaxie préexposition, en particulier chez les populations clés. L'identification des zones à risque dans notre société et la compréhension du niveau de l'offre de services disponibles pour ces adolescents sont



nécessaires pour une planification stratégique, une allocation de ressources optimale et une sensibilisation ciblée envers les personnes les plus exposées au risque.

**Matériels et Méthodes :** La méthodologie a impliqué la mobilisation et la formation d'adolescents et de jeunes issus de diverses organisations de la société civile, représentant différents groupes cibles, sous la coordination de l'UNICEF et du Ministère de la Jeunesse. Ces jeunes ont utilisé des smartphones équipés de formulaires pour collecter des données, notamment les coordonnées GPS, les types de populations fréquentant la zone, les comportements ou pratiques courantes, et les services de prévention disponibles.

**Résultats :** Les données ont permis la création d'une cartes dynamiques illustrant les zones à risque et les points de prestation de services dans six villes. Ces cartes ont été partagées avec les autorités locales, montrant la position des utilisateurs de services par rapport aux zones à risque et aux points de prestation une observation intéressante était que la présence de points de prestation dans une zone était associée à un risque moindre.

**Conclusions :** La CRV offre une meilleure compréhension de l'environnement en identifiant les défis auxquels sont confrontés les adolescents et jeunes et en évaluant le niveau des services disponibles. Les jeunes sont mieux outillés avec une carte User-friendly et les autorités locales ont intégré ces challenges dans leurs plans d'action. Les partenaires disposent désormais d'un outil pour orienter les ressources et évaluer la lutte contre le VIH au niveau communautaire, renforçant ainsi l'efficacité des interventions et la collaboration entre acteurs.

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## Safe Clinic Network Health Application for Hard to Reach Key Populations in Nairobi, Kenya

Adhiambo J<sup>1</sup>

<sup>1</sup>Phda, Nairobi, Kenya



**Background:** Based in Kenya, SWOP is a leading health agency that promotes the safety and well-being of sex workers, while also affirming their occupational and human rights. SWOP grew out of a collaboration between the Universities of Nairobi and Manitoba in the 1980s, and currently operates in nine sites across Nairobi County.

As part of their program to ensure the wellness of sex workers, SWOP invented a digital application known as the Safe Clinic Network Application. The purpose of the application was to meet the daily needs of sex workers' by providing easy access to services when they are unable to attend in person. The application is available on Google Play and is used by SWOP staff to reach clients and provide them with information on the easiest ways to connect with SWOP services. It provides the following to key populations (KPs): geo-locations of facilities and outreaches; appointment and medication reminders; request for services; appointment bookings; gender-based violence response (GBV SOS). Currently 407 clients have downloaded the application; 325 (79.8%) are female sex workers (FSWs).

**Lessons Learnt:** Social media can be used to enhance program coverage. Across varying typologies, 407 KPs joined the application within 2 months. They were reached with a menu of services tailored to their needs at whichever location they were.

Social media can assist health care workers., total of 325 FSWs, mostly working at night, joined the application, sought services and were assisted. The GBV SOS feature assists FSWs facing violence, including rape, in receiving a real-time response because it provides their current location. During the project, 86 FSWs requested assistance when facing GBV and received.

**Recommendations:** Health care providers can use the application to offer important services to KPs at a low cost.

Some health services can be delivered via health applications instead of face-to-face for clients who work at nights or avoid facilities for fear of stigma. Further investment in health services applications should be made by the Government as well as their development partners.

Gender based violence can be effectively responded to using a GBV SOS application, which provides immediate, real-time assisting victims.



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## Enhancing Access to HIV, Sexual and Reproductive Health, and Gender-Based Violence Services for Female Entertainment Workers in Cambodia: A Cluster Randomized Controlled Trial of a Mobile Health Intervention

Yi S<sup>1,2,3</sup>, Chhoun P<sup>2</sup>, Tuot S<sup>2</sup>, Fehrenbacher A<sup>4</sup>, Moran A<sup>4</sup>, Swendeman D<sup>4</sup>, Brody C<sup>3</sup>

<sup>1</sup>National University of Singapore, Singapore, Singapore, <sup>2</sup>KHANA Center for Population Health Research, Phnom Penh, Cambodia, <sup>3</sup>Touro University California, Vallejo, United States, <sup>4</sup>University of California Los Angeles, Los Angeles, United States

**Background:** The challenges of reaching and linking female entertainment workers (FEWs) to essential health services are compounded by their elusive nature and the associated stigma. This implementation research developed, implemented, and evaluated the Mobile Link. This mobile health intervention actively engaged and connected FEWs with available HIV, sexual and reproductive health, and gender-based violence (GBV) services through a network of peer outreach workers in Cambodia.

**Materials and Methods:** In a randomized controlled trial spanning 2018 to 2022, 600 participants aged 18 to 30 were randomly selected from a pool of 4,000 female entertainment workers (FEWs) in Cambodia's capital city and three provinces. Utilizing a random number generator, 300 were assigned to the intervention arm, receiving automated health messages and direct links to peer outreach workers. The remaining 300 formed the control group receiving standard services. Outcome measures encompassed self-reported HIV/syphilis testing, contraceptive use, contact with peer outreach workers, escorted referral service utilization, forced drinking experiences, and gender-based violence incidents. Data analyses involved repeated measures and multilevel mixed-effects logistic regression.

**Results:** We included 218 FEWs in the intervention and 170 in the control arms in per-protocol analyses. Positive intervention effects were

observed in specific areas. FEWs in the intervention group were significantly more likely to contact an outreach worker (at 30 weeks: AOR 3.29, 95% CI 1.28–8.47) and receive an escorted referral (at 30 weeks: AOR 2.86, 95% CI 1.09–7.52; at 60 weeks: AOR 8.15, 95% CI 1.65–40.25). Additionally, the intervention group showed a significant reduction in instances of forced drinking at work compared to the control group (at 60 weeks: AOR 3.95, 95% CI 1.62–9.60). However, no significant differences were noted in fully adjusted models for primary outcomes.

**Conclusions:** The Mobile Link intervention effectively connected FEWs with outreach workers and facilitated escorted referrals, indicating promise in addressing specific issues such as forced drinking. While the impact on primary outcomes was not significant, the potential for longer-term messaging to enhance service access and influence the health outcomes of FEWs is evident, highlighting avenues for future improvements in this mobile health intervention.

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## Effectiveness of Mobile Health Technology in Improving HIV Care Continuity and Service Delivery Among Sex Workers in Kenya

Mirera I<sup>1</sup>, Akolo M<sup>1</sup>, Mbilu B<sup>1</sup>

<sup>1</sup>Partners For Health & Development In Africa, Nairobi, Kenya

The delivery and results of health care can be enhanced by using mobile health technology, or m-health, which is the provision of health services and information via mobile phones through phone calls or messaging by addressing problems like accessibility to medical facilities, particularly in remote locations, Kenya's healthcare system's digitization holds the potential role to improve health outcomes.

This m-health innovation not only increases access to healthcare but also eases traffic and improves system performance overall. This study's primary goal was to evaluate the effectiveness of mobile health interventions in enhancing HIV continuity. Weekly appointments were conducted using a longitudinal data gathering strategy by Making



previsit calls, such as those for the seven, three, one, and actual dates of the anticipated visit, tracking forms, and putting in place a case management team to supervise the appointment scheduling process were how this was accomplished.

Before the introduction of m-health appointment keeping was around 54% and a viral load uptake of 75%, but after the implementation of m-health, appointment keeping improved by more than 86% and viral load uptake at 89%, enhancing health efficiency. Care clients were also free to disclose to the health provider any health issues that might have prevented them from visiting the facility, such as being preoccupied at work, and receive assistance with medication at their convenience without having to visit the facility. These clients were also able to disclose obstacles to keeping appointments, and they would reschedule the appointment visit dates appropriately with the health providers improving HIV retention.

Reminders about viral load sample collection led to a rise in viral load uptake and an increased appointment-keeping rate, and the use of mobile health technology in conjunction with other retention strategies produced a noticeable improvement in HIV/care continuity and treatment outcomes in all swop clinics in Kenya. To enhance the quality of care provided, it is necessary to increase the capacity of the health workers and provide clients with accurate health information on the need to provide accurate phone numbers for effective service delivery.

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## Adopting Social Media Strategies to Enhance HIV Testing and Condom Use Among Young People in Bindura, Zimbabwe

Njovu P<sup>1</sup>, Masuka T<sup>1</sup>, Owuor G<sup>2,3</sup>, Odira R<sup>2,3</sup>, Koloo A<sup>5</sup>, Macharia P<sup>4</sup>, Bukusi E<sup>5</sup>, Agot K<sup>2,3</sup>

<sup>1</sup>Bindura University of Science Education, Bindura, Zimbabwe,

<sup>2</sup>Reducing HIV in Adolescents and Youth (RHAY), Kisumu, Kenya,

<sup>3</sup>Impact Research and Development Organization., Kisumu, Kenya,

<sup>4</sup>Taita Taveta University Kenya, Taita Taveta, Kenya,

<sup>5</sup>Kenya Medical Research Institute, Nairobi, Kenya

**Background:** In Zimbabwe, young people aged 18-24 years bear a significant HIV burden,

contributing to one-third of the country's new HIV cases. Factors such as engaging in unprotected sex and low HIV testing rates drive high infection among the youth. Recognizing the effectiveness of technology-based interventions in controlling the epidemic in this demographic, we piloted the use of social media to promote HIV testing and condom use among young people.

**Materials and Methods:** We used a pre-post intervention design, with HTS and condom uptake as the primary outcome. We enrolled young people aged 18-24 years studying at Bindura University of Science Education in Zimbabwe. Between July 2022 to August 2023, we shared podcasts via a Facebook channel on HIV prevention methods and services. Podcast content was curated from topics proposed by study participants during the course of the study. Listeners were informed about the importance of HIV testing, linkage to care if positive and practicing safe sex, and also directed to HIV testing and condom dispensing sites in and around campus. We also abstracted data on HIV testing and condom uptake from identified health facilities for 6 months pre and post-intervention period.

**Results:** We enrolled 103 participants; mean age was 22 years, 50.5% were male, and 90.2% were single. A majority (87.4%) had ever had an HIV test prior to joining the study, with 85.0% testing at the university clinic. Among those tested, 24.3% did so as part of routine health checks. Perceived HIV risk was generally low, with 75.7% reporting low-to-no risk. At baseline, 68.0% were sexually active, of whom 93.0% reported condom use. Average HTS uptake increased by 44.1% (7.0% to 51.1%) 6-months pre-post; while condom uptake increased by 18.3% (1.9% to 20.2%) 6-months pre-post. Notably, a higher proportion of males (54.0%) sought HTS services compared to females (48.4%), while 23.1% of females sought condoms compared to 17.7% males.

**Conclusions:** Social media proved to be effective in enhancing HIV testing and condom use among young people. Tailored interventions addressing gender-specific preferences and needs could further enhance effectiveness, considering the distinct patterns in HTS and condom-seeking behaviours among males and females.



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## Enhanced Polling Booth Survey (ePBS) – A Novel Methodology to Assess Programme Outcomes in HIV Prevention Programmes

Wanjiru R<sup>1</sup>, Karimi A<sup>1</sup>, McClarty L<sup>2</sup>, Isac S<sup>2</sup>, Musyoki H<sup>3</sup>, Kiplagat A<sup>4</sup>, Wanjiru M<sup>1</sup>, Wanjiru I<sup>1</sup>, Mbuthia M<sup>1</sup>, Ongayo P<sup>1</sup>, Arimi P<sup>1</sup>, Souradet Shaw S<sup>2</sup>, Becker M<sup>2</sup>, Blanchard J<sup>2</sup>, Kimani J<sup>1</sup>, Bhattacharjee P<sup>1,2</sup>, Emmanuel F<sup>1</sup>

<sup>1</sup>Partners for Health and Development, Nairobi, Kenya,

<sup>2</sup>Institute of Global Health Manitoba, Canada, Manitoba, Canada, <sup>3</sup>The global fund, Nairobi, Kenya, <sup>4</sup>Ministry of Health, Nairobi, Kenya

**Background:** Assessing HIV programme outcomes to monitor progress and make mid-course corrections is critical. Available assessment methods usually require longer time periods for data collection, complicated analyses, are resource intensive and may not meaningfully involve the community. New approaches and rapid data collection methods are needed, that are cost-effective, easy to implement and provide results quickly for programme improvement. We used an enhanced Polling Booth Survey (ePBS) to assess the progress of HIV programmes providing services to FSW and MSM.

**Description:** PBS is a group interview method where individuals provide responses through a ballot box. The responses are anonymous and unlinked, increasing confidentiality hence, accurate responses on sensitive and personal information. Respondents are selected through probability-based sampling and organised into groups of 10-12. Questions are few, short and simple and dichotomised into “yes” and a “no” responses. We enhanced this PBS method by adding short 10-question individualized face-to-face interviews along with biological samples. Respondents attending the PBS went through individualized interviews and provided blood for rapid HIV tests as per national guidelines. Results were provided immediately and those living with HIV provided blood samples for HIV viral load and recency tests. Those who tested negative and reported taking PrEP gave urine for a TDF rapid test. Every 5 PBS participants were engaged in a focus group discussion to discuss various

challenges and barriers faced by the community in utilizing services.

**Lessons Learnt:** The ePBS allowed rapid population-level data collection (1 month) from 758 FSW and 398 MSM to assess the progress of HIV programmes.

The simplicity of the method encouraged the involvement of researchers from the FSW and MSM community. Enhancement of the PBS by adding biological sample testing, and non-identifying individualized information, helped in developing the 95-95-95 cascades. Qualitative data helped understand challenges and barriers in accessing services and provided community-driven recommendations. The ease and rapidness of analysis, which helped implementers quickly plan and implement improvement strategies.

**Conclusions:** This method will be shared with stakeholders including funders and governments to encourage them to facilitate the it's use to measure HIV-related outcomes and use the data for programme improvement.

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## Implementation of Depression and Anxiety Screening to Address Mental Health Among Key Populations in Three Zambian Provinces

Mwango L<sup>1</sup>, Baumhart C<sup>2,3</sup>, Lascko T<sup>2,3</sup>, Olowski P<sup>4</sup>, Adebayo A<sup>4</sup>, Silomba E<sup>1</sup>, Chipukuma J<sup>1</sup>, Chituwo O<sup>5</sup>, Claassen C<sup>2,3,4</sup>

<sup>1</sup>Ciheb Zambia, Lusaka, Zambia, <sup>2</sup>Center for International Health, Education, and Biosecurity, University of Maryland Baltimore, Baltimore, USA, <sup>3</sup>Institute of Human Virology, University of Maryland School of Medicine, Lusaka, Zambia, <sup>4</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>5</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

In Zambia, the prevalence of depression and anxiety is high in key populations (KP), in part due to structural inequities, societal stigma, and limited access to healthcare. Discrimination based on gender identity, sexual orientation, and HIV status, especially from healthcare workers (HCWs), further exacerbates mental health (MH) vulnerabilities. The project implemented MH



screening for depression and anxiety in KPs accessing HIV prevention services from KP-led safe spaces in Eastern, Western, and Southern provinces of Zambia.

Between October 2022 and June 2023, we trained HCWs administered the Patient Health Questionnaire-4 (PHQ-4) and Generalized Anxiety Disorder 7 (GAD-7). The PHQ-4 is comprised of four questions assessing frequency of depressed mood and anxiety symptoms over the last two weeks; scores are categorized as minimal, mild, moderate, moderately severe, and severe depression. The GAD-7 has seven questions measuring frequency and severity of anxiety symptoms over the last two weeks; scores are categorized as minimum, mild, moderate, and severe anxiety. All KPs accessing HIV services at 12 safe spaces were offered MH screening. All consenting clients were screened, and all data were documented. Clients who screened with moderate-to-severe depression and anxiety were referred for further evaluation. Data were analyzed using R-Studio.

Among 307 KPs screened for depression, 302 (98%) had some level of depression of which 81(27%) were classified as minimal, 145(48%) mild, 58(19%) moderate, 11(4%) moderately-severe, and 7(2%) severe depression. Of the 76 who had moderate-to-severe depression scores, 40(53%) were female sex workers (FSWs), 28(37%) were men who have sex with men (MSM), 3(4%) were people who inject drugs (PWID), and 5(6%) were people who are transgender (TG). There were 246 KPs who screened positive for anxiety, of which 88 (36%) were classified as minimum, 134(54%) mild, 22(9%) moderate, and 2(1%) severe anxiety. Of the 24 who had moderate-to-severe anxiety scores, there were 13(54%) MSM, 7(29%) FSWs, 3(13%) PWID, and 1(4%) TG.

The prevalence of moderate to severe depression and anxiety among KPs accessing HIV services at safe spaces was high. Addressing depression and anxiety within these communities should involve comprehensive and culturally sensitive approaches tailored to the unique needs of KPs in Zambia.

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## Legal Barriers and Facilitators to HIV Service Access for Men Who Have Sex with Men in Uganda

**Tumusinze G<sup>1</sup>**, Nampewo Z<sup>2</sup>, Kasozi D<sup>1</sup>, Musinguzi G<sup>1</sup>, Alamo S<sup>3</sup>, Ajulong C<sup>3</sup>, Baluku M<sup>3</sup>, Awor A<sup>3</sup>, Musinguzi J<sup>4</sup>, Musoba N<sup>5</sup>, Kyambadde P<sup>4</sup>, Pande G<sup>4</sup>, Byamukama D<sup>5</sup>, Mwebaza E<sup>6</sup>, Jjuuko A<sup>6</sup>, Fitzmaurice A<sup>3</sup>, Wanyenze R<sup>1</sup>

<sup>1</sup>Makerere University School Of Public Health, Kampala, Uganda, <sup>2</sup>Human Rights and Peace Center (HURIPEC), Makerere University School of Law, Kampala, Uganda, <sup>3</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda, Kampala, Uganda, <sup>4</sup>Ministry of Health, Kampala, Uganda, Kampala, Uganda, <sup>5</sup>Uganda AIDS Commission, Kampala, Uganda, Kampala, Uganda, <sup>6</sup>Human Rights Advocacy and Promotion Forum (HRAPF), Kampala, Uganda, Kampala, Uganda

**Background:** Uganda faces significant challenges managing the HIV epidemic, particularly among MSM. Legal and societal environments can facilitate or hinder HIV service uptake, so we assessed legal barriers and facilitators affecting access to HIV services among MSM in Uganda.

**Materials and Methods:** This cross-sectional study was conducted in 15 randomly-selected districts in five regions of Uganda during January and February 2022 using desk reviews of existing laws and policies, two consultative workshops, 56 key informant interviews, and 16 focus group discussions. We engaged diverse stakeholders, including healthcare workers, MSM, key-population-led civil society organizations (KP-led CSOs), legal professionals, and government officials, to gauge the impacts of laws, policies, and societal attitudes on MSM's access to HIV services. Data were analyzed using the thematic approach with Atlas.ti software.

**Results:** MSM reported barriers in accessing health and HIV services, justice services, and basic ethical rights, such as lack of privacy, autonomy, and confidentiality. They reported being subjected to police brutality and viewed as criminals, resulting in fear and mistrust impeding their ability to seek HIV services. Legal barriers included criminalizing same-sex relationships under the Penal Code Act cap 120 in Sections 145-6. The absence of anti-discrimination protections for LGBTI populations further marginalizes MSM.



Individual barriers (e.g., being unaware of legal rights) render MSM unable to defend themselves when violated. Facilitators of service access included Uganda's ratification of international and regional human rights treaties, ensuring rights to health and justice, laying foundations for advocacy and promoting non-discrimination. KP-led CSOs facilitate MSM service access through free legal services and trainings.

**Conclusions:** Laws, policies, and behaviors that violate basic human rights of MSM in Uganda hinder access to essential HIV services, aggravating the HIV epidemic's challenges in the country. This highlights the needs for legal reforms and shifts in societal attitudes towards MSM. Alongside advocating for legal reforms, confidentiality, and privacy, key actors.

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## Effects of Alcohol and Substance Abuse on Health-Seeking Behaviour Among Adolescent Girls and Young Women Enrolled in the Determined, Resilient, Empowered, AIDS-Free, Mentored and Safe Program in Gwanda District of Zimbabwe, 2023

Huchu E<sup>1</sup>, Mushayi I<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Bhatasara T<sup>2</sup>, Nyamwanza B<sup>3</sup>, Dhakwa D<sup>3</sup>, Yekeye R<sup>3</sup>, Mugariri E<sup>1</sup>, Madzima B<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Mafaune H<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mudzengerere F<sup>1</sup>, Masoka T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Zimbabwe, Harare, Zimbabwe, <sup>3</sup>National AIDS Council, Zimbabwe, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Zimbabwe, Harare, Zimbabwe

**Background:** Adolescent girls and young women (AGYW) in Zimbabwe remain at high risk of HIV infection with substance abuse exacerbating the problem. Substance abuse among young people has been increasing in Zimbabwe, with an estimated 60% of psychiatric admissions in 2023

attributed to it. The negative effects of substance abuse on HIV prevention include suboptimal adherence to medicines, risky behaviours including sharing hypodermic needles, and condomless sex with multiple sex partners. We compared health-seeking behaviour among AGYW enrolled in the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program with a history of drug abuse and non-drug users.

**Materials and Methods:** Non-randomized, prospective cohort study on HIV prevention health-seeking behaviour among AGYW enrolled in the DREAMS program reporting abusing alcohol at enrolment and non-alcohol abusers was conducted in Gwanda district from October 2022 to September 2023. All 102 AGYW who reported abusing alcohol were purposively selected, and 102 non-abusers were randomly selected using computer-generated random numbers. Health-seeking behaviour data within the program's DHIS2 database were analysed 12 months after enrolment using MS Excel, and the assessment was covered by the Medical Research Council of Zimbabwe-approved protocol (MRCZ/E/254).

**Results:** Retention of AGYW in social asset building clubs (SABC) 12 months after enrolment was 93% (95/102) among non-alcohol abusers, compared to 51% (52/102) among alcohol abusers,  $p < 0.001$ . Access to socioeconomic interventions promoted by DREAMS for HIV prevention was high in non-alcohol abusing AGYW (21%) compared to those who reported alcohol abuse at enrolment (6%). Twelve out of the 19 AGYW who used drugs and were initiated on HIV pre-exposure prophylaxis (PrEP) did not return for medicines refill compared to 22 out of 24 among those who did not abuse drugs. About 3% (3/102) alcohol-using AGYW who experienced gender-based violence failed to access services within the recommended 72 hours; all (31/102) non-alcohol using AGYW who experienced GBV received services within 72 hours.

**Conclusions:** Alcohol and substance abuse negatively affected HIV prevention service uptake and retention within social asset-building clubs. We recommend further analysis of program data and implementation of anti-drug approaches that focus on prevention and treatment response interventions in the DREAMS program.



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## Inuka Coaching Problem-Solving Therapy to Support Mental Health and HIV Medication Adherence among Status-Neutral Men who have Sex with Men in South Africa

**Tsope L**<sup>1</sup>, Pienaar J, van der Elst E, Denousse C, Mabena M, Komane P, Sibanyoni M, Ramashala B, Gakunu A, Giovenco D, Operario D, Sanders E  
<sup>1</sup>The Aurum Institute, Johannesburg, South Africa

**Background:** Mental health challenges are common among men who have sex with men (MSM) in South Africa (SA) and impact ART and PrEP medication adherence. A status-neutral mental health intervention for depression and medication adherence support has not been offered to MSM in South Africa.

**Description:** Five MSM lay coaches were certified in the Inuka coaching method, based on the evidence-based Friendship Bench program, which includes four individual coaching sessions (offered online or in-person) to support mental health. Twenty MSM with symptoms of mild to moderate depression (PHQ-9 scores 5-14) and who were using PrEP or ART received mental health and medication adherence support at two clinics in Johannesburg and Pretoria from October-December 2023. Pre- and post-intervention changes in mental health were assessed using the SRQ-20, and post-intervention in-depth interviews (IDIs) with participants and coaches assessed the utility of the Inuka method for mental health and medication adherence support among MSM.

**Lessons Learnt:** After completion individual sessions, participants' median SRQ-score increased from 12 to 18 ( $p < 0.001$ ). IDIs were conducted with 15 of 18 participants and all 5 lay coaches, producing three major themes. Theme 1: 'the power of being listened to and then take actions', stresses Inuka's utility for MSM and lay coaches to engage with each other, offer mental health support, and improve adherence behaviour. Theme 2: 'camaraderie', highlights Inuka's accessibility to provide an inclusive space to mitigate loneliness and social isolation in this highly stigmatized group. Third, 'learning new

skills', emphasizes the utility of this coaching approach to offer skills to both participants and lay coaches that may help mitigate future mental health challenges. Participants prioritized mental health over medication adherence as personal challenges, and thus coaches expressed the desire to learn skills to emphasize the connection between mental health and medication adherence during coaching. Participants expressed equal preference for online and in-person individual sessions, and emphasized the role of MSM group support sessions to improve connection and reduce isolation.

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## Investigating the Burden and Pattern of Intimate Partner Violence in HIV-Positive Individuals: Evidence from Ghanaian Healthcare Settings

**Amadu B**<sup>1</sup>, Inusah A<sup>1</sup>, Adiibokah E<sup>1</sup>, Nartey D<sup>1</sup>, Tagoe H<sup>1</sup>, Ayuomah T<sup>1</sup>, Dindan Z<sup>1</sup>, Amihere F<sup>1</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>  
<sup>1</sup>John Snow Incorporated, Takoradi, Ghana

**Background:** Intimate partner violence (IPV) represents a significant global health concern. The prevalence of HIV among people who experience IPV is heightened, while antiretroviral adherence is reduced and viral load suppression is less probable. Currently, there is little evidence regarding the prevalence of IPV among PLHIV in Ghana. Given the above, we investigated to ascertain the prevalence of IPV and the type of IPV suffered by PLHIV in Ghana. We aimed to gain insight into the IPV burden and identify factors that could facilitate the identification of people at risk.

**Materials and Methods:** We extracted data from the USAID Care Continuum project DHIS-based index testing register for the period 2019–2023. Per the project protocol, all HIV-positive clients are screened for IPV before they are offered index testing. We excluded those with incomplete datasets. The final dataset used in the analysis was from 1855. Descriptive statistics and multivariate logistic regression analyses were run. A risk ratio



(RR) with a 95% confidence level (CI) was declared significant.

**Results:** Among the 1855 screened for IPV, 1329 (71.6%) were female. The mean age was 36.2 [age range: 15–79 years]. The prevalence of IPV was 105 (5.7%). The types of IPV experienced were emotional 39 (37.1%), physical 34 (32.4%), and sexual 32 (30.5%). Females have a higher risk of IPV compared to males (ARR 4.12, 95% CI 2.1–8.2), and older age was associated with a lower risk of IPV (ARR 0.97, 95% CI 0.95–0.99).

**Conclusions:** The prevalence of IPV was found to be 5.7%, with emotional IPV being the most common type. Females and younger individuals were found to be at higher risk of IPV. These findings suggest that IPV screening in healthcare settings may be effective in identifying cases or patterns, and targeted interventions should be developed for females and younger individuals.

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## Integrating Peer Network Analysis Improved HIV Case Identification During the Implementation of the Enhanced Peer Outreach Approach (EPOA) in Morogoro, Tanzania

Makwandi J<sup>1</sup>, Daudi V<sup>1</sup>, Ogwang B<sup>1</sup>, Itaka A<sup>1</sup>, Mwakapinga G<sup>1</sup>, Msamba C<sup>1</sup>, Kiloya H<sup>2</sup>, John J<sup>2</sup>, Herman E<sup>1</sup>, Boyee D<sup>1</sup>, Akolo C<sup>1</sup>

<sup>1</sup>FHI 360, Tanzania, Morogoro, Tanzania, United Republic of,

<sup>2</sup>Huruma Aids Concern and Care (HACOCA), Morogoro, Tanzania, Morogoro, Tanzania

**Background:** In Tanzania, HIV prevalence remains high among female sex workers (26%) and men who have sex with men (25%). The Meeting Targets and Maintaining Epidemic Control (EpiC) project adopted use of the enhanced peer outreach approach (EPOA) to reach key populations (KPs) and offer HIV testing services to those who are typically considered more difficult to reach with traditional testing approaches. We present a data analysis and use approach within

EPOA that improved reach of hard-to-reach populations.

**Description:** Initially, EPOA's coupon distribution and tracking were being less targeted in a complex geography and posed challenges. To improve outreach, a data-driven strategy that integrating social network analysis was implemented. 16 peer educators received a one-day training focused on the fundamentals of EPOA coupon distribution to reach their social networks. Data officers were trained in conducting network analysis on demographic and testing results of redeemed coupons using Microsoft PowerBI. Individual peer network analysis (PNA) was incorporated in EPOA from Apr–Jun 2023 and PEs were mentored in using PNA output to target reach. We compared case identification before (Oct 2022–Mar 2023) and after (Apr–Sept 2023) PNA introduction and assessed statistical significance using Chi-squared test.

**Lesson Learnt:** Before PNA, PEs distributed 909 coupons and identified 59 HIV positive cases (10% positivity rate, 59/590). After introduction of PNA, 815 coupons were distributed, yielding 13% positivity rate, (73/565) (p=0.119). During use of PNA, 77% (435/565) of the clients reached had never tested or not tested for a year, compared to 51% (304/590) before PNA (p<0.001), see table below. Data interpretation and use by peer educators was crucial for this targeted approach.

**Conclusions:** Integrating PNA with EPOA effectively extended HIV services to KPs previously underserved. EPOA's scalability makes it a valuable strategy for identifying HIV cases in hard-to-reach populations.

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## Index Testing Among Men Who Have Sex with Men Reaches Women in Cote D'Ivoire

Lillie T<sup>1</sup>, Ranebennur V<sup>1</sup>, Dkiby Aude Agba J<sup>2</sup>, Dohon Grah N<sup>2</sup>, Georges S<sup>2</sup>

<sup>1</sup>FHI 360, Washington, United States, <sup>2</sup>FHI 360, Abidjan, Cote d'Ivoire



**Background:** Globally, key populations (KPs) are 5% of the overall population, yet 70% of new HIV infections are among KPs and their sexual partners; therefore, implementing index testing has a potential to affect HIV transmission rates. The PEPFAR- and USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Cote d'Ivoire (CDI) offered index testing to men who have sex with men (MSM) living with HIV to ensure individuals in their sexual network access HIV testing services.

**Materials and Methods:** From October 2022 to September 2023, EpiC CDI offered index testing to MSM in 11 facilities and three drop-in centers. Staff elicited sexual partners, asked about intimate partner violence, counseled on referral options, and contacted and tested index client contacts. A descriptive analysis of routine programmatic data was conducted on the MSM index testing cascade, and characteristics of the elicited partners including gender, testing location, and geographical location. The odds ratio between case finding and partner type was also tested.

**Results:** Index testing achieved high acceptance (235/351, 67%), elicitation (4.45 partners elicited per index), finding and testing contacts (100%), and case finding among MSM sexual partners (16%). MSM index clients identified a higher number of female partners (624/987, 63%). Among MSM who elicited only female partners, case finding rate was 12%. Male-only partners had a case finding of 20%. When MSM elicited both male and female partners, the case finding was 22%. When comparing case finding between male and female partners, it was found that male partners were 3.8 times more likely to be HIV positive than female partners. Almost all index testing was conducted in the community (93%).

**Conclusions:** It was expected that MSM would elicit a higher number of male than female sexual partners; however, the opposite was found. Also, despite the high number of female partners being elicited, male partners of MSM had a higher odd of being diagnosed with HIV compared to female partners. Programs would benefit from additional training on how to approach and offer index testing to female partners of MSM as well as placing equal effort into offering HIV services to male partners of MSM.

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## Peer-Led HIV Self-Testing among Men in Ugandan Fishing Communities: Implementation Experiences and Implications for Scale-up

**Dorah N<sup>1</sup>**, Jeniffer N<sup>1</sup>, Aisha Twahili N<sup>2</sup>, Matovu J<sup>1,2</sup>

<sup>1</sup>Makerere University School of Public Health, Kampala, Uganda, <sup>2</sup>Busitema University Faculty Health Sciences, Mbale, Uganda

**Background:** Peer-led HIV self-testing (HIVST) has got the potential to improve HIV testing rates in unreachable men in diverse settings, including fishing communities. We describe our HIVST implementation experiences in two rural fishing communities in Uganda in order to inform future programming and scale-up.

**Materials and Methods:** Between May and July 2022, we implemented a social group-based, peer-to-peer model in which 22 trained "peer-leaders" in two rural fishing communities in two island districts within the Lake Victoria region in Uganda were given oral fluid HIVST kits to distribute to male members within their groups. Men were eligible to receive HIVST kits from their peer-leaders if they were initially HIV-negative or of unknown HIV status, and last tested for HIV at least three months from the time of interview. Each peer-leader referred to the study team up to 20 members from their groups; eligible men were administered a baseline interview and asked to pick kits from their peer-leaders. A follow-up interview was conducted in September 2022 to determine users' experiences and challenges, if any. Data were analyzed using STATA, version 16.0.

**Results:** Of 400 men interviewed at baseline, 252 (63%) were aged between 15 and 24 years. Ninety per cent (n=361) were interviewed at follow-up. Of these, 355 (98.3%) picked HIVST kits from their peer leaders; 352 men (99%) used them to self-test for HIV. Of these, 340 (96.6%) performed unsupervised HIVST. A few men experienced challenges in conducting the HIVST exercise: 43 men (12.2%) found difficulties in understanding the user instructions; 38 (10.8%) found it difficult to read the test results while 21 (6%) read the results before the required 20 minutes of waiting.





Thirty-seven per cent (n=131) reported that they needed pre-test counselling; 119 (33.8%) needed post-test counselling; while 102 (29.0%) needed help in interpreting the results.

**Conclusions:** Our study confirms that the peer-led HIVST model can successfully improve HIV testing (HIVST) uptake among men in rural fishing communities. However, challenges in the use of kits and interpretation of results still abound, suggesting a need for additional sensitization of potential users before the model is scaled-up to other fishing communities.

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## Assessment of Renal Function Using Creatine Clearance as Diagnostic Marker in PrEP Initiation for HIV Prevention in Nigeria

**Akhigbe M<sup>1</sup>**, Abang R<sup>1</sup>, Umoh P<sup>1</sup>, Kalaiwo A<sup>2</sup>, Omo-Emmanuel K<sup>2</sup>, Onwuzuruigbo U<sup>3</sup>, Anika O<sup>3</sup>

<sup>1</sup>Heartland Alliance International, Nigeria, Gwarinpa, Fct-abuja, Nigeria, <sup>2</sup>USAID Nigeria, Abuja, Nigeria, <sup>3</sup>ECEWS Nigeria, Uyo, Nigeria

**Background:** The implementation of Pre-exposure prophylaxis (PrEP) in vulnerable/Key populations is a fundamental component of the worldwide approach aimed at curbing the HIV pandemic by way of prevention. Before initiating PrEP, a crucial but little-researched aspect in Nigeria is the assessment of renal function using Creatinine Clearance (CrCL) mainly due to logistics and cost of implementing this, as important population subgroups including sex workers and men who have sex with males are disproportionately affected. The purpose of this study is to assess if CrCL is required in PrEP initiation protocols in Nigeria.

**Materials and Methods:** The USAID funded KP CARE 1 project PrEP Client Serum Creatinine database, which contains clinical data on serum creatinine and CrCL in addition to demographic data including age and sex, was used for a retrospective data analysis. The relationship between CrCL levels and the safe introduction of

PrEP in several important population subgroups was the main focus of the investigation.

**Results:** The results of the investigation showed that, although the majority of clients (91%; 3950 of 4359) had CrCL levels within normal ranges, suggesting adequate renal function for the start of PrEP, 9% (409 of 4359) had lower CrCL values and 1% (6 of 409) had protein in urine. The observed variation was noted across the various key population sub-groupings, indicating that individualized assessment is necessary in PrEP programs.

**Conclusions and Lessons Learnt:** The findings suggest that while CrCL is a valuable marker for renal function, its necessity as a prerequisite for PrEP initiation should be considered in the context of individual risk-benefit analysis. In resource-limited settings, the requirement for CrCL testing could potentially delay PrEP initiation in key populations. The study advocates for a nuanced approach to PrEP initiation criteria, balancing the need for thorough clinical assessment with the urgency of HIV prevention in high-risk groups.

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## PrEP Uptake, Persistence, and Adherence Among Incarcerated People in Zambia: Initial Results from a Prospective Cohort Study

**Herce M<sup>1,2</sup>**, Mujansi M<sup>3</sup>, Lindsay B<sup>4,5</sup>, Siyambango M<sup>1</sup>, Mwangi L<sup>6</sup>, Baumhart C<sup>4,5</sup>, Nyirongo N<sup>3</sup>, Daka G<sup>6</sup>, Moonga C<sup>1</sup>, Muchanga G<sup>3</sup>, Bwalya C<sup>7</sup>, Gandhi M<sup>8</sup>, Musheke M<sup>1</sup>, Claassen C<sup>3,4,5</sup>

<sup>1</sup>Centre for Infectious Disease Research in Zambia, Lusaka, Zambia, <sup>2</sup>University of North Carolina at Chapel Hill, Chapel Hill, USA, <sup>3</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland Baltimore, Baltimore, USA, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>6</sup>Ciheb Zambia, Lusaka, Zambia, <sup>7</sup>Department of Behavioral and Community Health, University of Maryland School of Public Health, College Park, USA, <sup>8</sup>Division of HIV, Infectious Diseases, and Global Medicine, University of California San Francisco, San Francisco, CA, , United States

For justice-involved people, the times during and immediately after incarceration can be high-risk



periods for HIV acquisition since these periods afford limited access to effective HIV prevention. In 2019, Zambia began offering HIV pre-exposure prophylaxis (PrEP) in correctional facilities. We report initial results from one of the first longitudinal studies to characterize PrEP use among justice-involved people in sub-Saharan Africa.

In August 2023, we launched a cohort study of PrEP users and non-users in three correctional facilities in Lusaka, Zambia. Following HIV testing, HIV-negative incarcerated persons were offered PrEP by the corrections health system, and then were approached by study staff for participation. Consenting participants were followed from incarceration through community release for PrEP outcomes, including uptake, persistence, and adherence. A randomly selected sub-cohort of participants on PrEP underwent urine tenofovir (TFV) screening for adherence at each visit.

From August 2023—January 2024, we screened 421 incarcerated persons; 396 (94%) were eligible, consented, and enrolled. Participants were 27 years old, on average (range:18-56 years), a majority 370 (93%) male, less than half (115, 29%) completed secondary education, and 26 (7%) indicated previous incarceration. Of the 258 eligible to start PrEP, 205 (79%) initiated PrEP at enrollment. As of January 2024, 341 were eligible for one-month study follow-up and 55% (186/341) had completed a visit, including 176 (95%) who were still incarcerated and 10 (5%) who had been released. Of the 122 who initiated PrEP at enrollment and had a one-month visit, 97/122 (80%) were still on PrEP, and all were HIV-negative; 16 (13%) who had initiated PrEP at enrollment chose to discontinue at follow-up. 11 of 64 (17%) who had not initiated PrEP at enrollment chose to initiate at follow-up. Of the 122 who initiated PrEP at enrollment and had  $\geq 1$  follow-up visit, 70 (61%) were in the TFV adherence sub-cohort. Of these, 47% (33/70) demonstrated TFV metabolites consistent with adherence.

Initial results suggest high demand for, and uptake of, PrEP among incarcerated persons in Zambia, but sub-optimal persistence and adherence after one-month. Although preliminary, our findings suggest a need for interventions to support prevention-effective PrEP use in this population.

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## Reaching Adolescents and Young People: Use of HIV Self-Test Kits as an Alternate Approach to HIV Case Finding in the South-South Region of Nigeria

**Nwangeneh C**<sup>1</sup>, Nwanja E<sup>2</sup>, Oghenezuazo O<sup>2</sup>, Ugobo E<sup>3</sup>, Toyo O<sup>2</sup>, Carpenter D<sup>4</sup>, Etheredge G<sup>4</sup>, Persaud N<sup>4</sup>, Ogundehin D<sup>5</sup>, James E<sup>5</sup>, Onyedinachi O<sup>2</sup>, Adegboye A<sup>2</sup>, Ogbodo V<sup>1</sup>, Eyo A<sup>2</sup>

<sup>1</sup>FHI360, Abuja, Nigeria, <sup>2</sup>Excellence Community Education Welfare Scheme, Uyo, Nigeria, <sup>3</sup>Achieving Health Nigeria Initiative, Abuja, Nigeria, <sup>4</sup>FHI360, Washington DC, United States, <sup>5</sup>Office of HIV/AIDS and TB, United States Agency for International Development, Abuja, Nigeria

**Background:** HIV self-testing (HIVST) is a proven opportunity for adolescents and young people (AYP) to know their HIV status. The U.S. President's Emergency Plan for AIDS Relief (PEPFAR), through the United States Agency for International Development (USAID)-funded Accelerating Control of HIV Epidemic projects, supported distribution of HIVST kits among AYP, in addition to conventional HIV rapid test kits (RTKs). We compared the positivity and linkage rates between HIVST and RTK modalities among AYP in Southern Nigeria.

**Materials and Methods:** This retrospective study used program data extracted from the District Health Information System for AYP (10–24 years) tested for HIV using HIVST and RTKs between August 2022 and September 2023 in 153 health facilities in Akwa Ibom and Cross River states, Nigeria. Adolescent peer supporters distributed HIVST kits directly to their peers. All positive HIVST results were confirmed using RTKs, per national guidelines. Sex, testing outcome, and linkage to treatment of the two modalities were abstracted. Outcomes assessed included proportion of clients diagnosed positive (positivity rate), positive concordance rate for HIVST with RTK, and linkage rates for the testing modalities. Paired t-test was used to compare the concordance rate, and chi-square the linkage rates between HIVST and RTKs. P values <0.05 were considered significant.

**Results:** Overall, 23,441 HIVST kits were distributed to AYP, and 86 (69 female, 17 male) tested positive, while 274,107 were tested with



RTKs, and 2,452 (2,049 female, 403 male) tested positive. The positivity rate was lower for HIVST (0.4%) than for RTK (0.9%). Of the 86 AYP that screened positive through HIVST, a confirmatory RTK test demonstrated a positive concordance rate of 97.7% (84/86) ( $t=0.45$ ;  $p=0.66$ ).

AYP diagnosed using RTK had better linkage rate than those diagnosed via HIVST (98.8% vs 97.7%) [ $\chi^2=0.02$ ,  $p$ -value=0.89].

**Conclusions:** The conventional testing to AYP case finding proved to be a more efficient approach than HIVST, though the latter is a viable alternate option to improve reach.

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## The Role of Peer Education in HIV Testing Among Men Who Have Sex with Men in Ghana

**Apreku A**<sup>1</sup>, **Guure C**<sup>2</sup>, **Dery S**<sup>2</sup>, **Alhassan Y**<sup>2,3</sup>, **Holdbrook D**<sup>1</sup>, **Addo S**<sup>4</sup>, **Torpey K**<sup>1</sup>

<sup>1</sup>Department of Population, Family and Reproductive Health, School of Public Health, University of Ghana, Accra, Ghana,

<sup>2</sup>Department of Biostatistics, School of Public Health, University of Ghana, Accra, Ghana, <sup>3</sup>Total Family Health Organisation, Accra, Ghana, <sup>4</sup>National AIDS/STI Control Programme, Ghana Health Service, Accra, Ghana

**Background:** HIV testing is the most important step in achieving epidemic control, yet there is low testing among men who have sex with men (MSM) despite their high prevalence of HIV than the general population. Though peer education is a widely accepted intervention for HIV prevention, there is limited research on its contribution to HIV testing among MSM in Ghana. This study seeks to assess whether peer education has any influence on HIV testing among MSM in Ghana.

**Materials and Methods:** A nationwide cross-sectional survey among MSM aged 18 years and above was conducted in Ghana between August 2022 to July 2023 using respondent driven sampling (RDS) method. RDS Analyst was used to compute sampling weight based on participant network and Stata version 18 was used for data analysis. Participants were asked if they have been in contact with peer educators within the past year as well as their testing history withing that same year. Binary logistic regression was used to assess

the odds of peer education on HIV testing adjusting for potential confounders.

**Results:** Among the 3,478 MSM analyzed, 53.1% (CI=50.9%-55.2%) had tested for HIV within the past year and 54.4% (CI=52.2%-56.7%) had been in contact with peer educators within the past year. HIV testing was highest among MSM who had been in contact with a peer educator (70.4%, CI=67.5%-73.1%). In the multivariable model the odds of testing for HIV in the past year was 4 times higher among MSM who had been in contact with peer educator (aOR=4.12, CI=3.31-5.13,  $p<0.001$ ). Among the demographic characteristics, the odds of HIV testing was 87% high among MSM age 25-34 (aOR=1.87, CI=1.29-2.72,  $p<0.001$ ), and 40% high among those who earn between GHS 1000-1999 (aOR: 1.40, CI: 1.04-1.89,  $p=0.023$ )

**Conclusions:** Peer education is an effective tool which has a potential in influencing behavioral change when it comes to HIV testing among MSM in Ghana. More effort is needed to expand this intervention to maximize its benefit.

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## HIV Prevalence among People Who Inject Drugs in Nigeria: A 3-Year Trend Analysis

**Aguolu R**<sup>1</sup>, **Adebanjo T**<sup>1</sup>, **Ejeckam C**<sup>2</sup>, **Agbo F**<sup>1</sup>

<sup>1</sup>National Agency for the Control Of AIDS, Abuja, Nigeria, <sup>2</sup>University of Manitoba, Nigeria

**Background:** People who inject drugs (PWID) are considered to be at high risk of HIV acquisition because of the harmful behavioral practices they indulge in and the issues around drug use policies in the country which may negatively impact their access to HIV prevention and treatment services. This paper aims to describe the trend in HIV prevalence among PWIDs in Nigeria in an effort to assess the impact of HIV prevention and treatment services provided for them over the years and guide future interventions.

**Materials and Methods:** A descriptive analysis of the trend in HIV Prevalence among PWIDs in Nigeria using data generated from three rounds of integrated biological and behavioural surveillance surveys (2010, 2014, and 2020) in the country. The



study populations were people who inject drugs (PWID) aged 15-49 years. A comparative analysis of the trend in HIV prevalence was done using Excel, with age group disaggregation of 15-19 years, 20-24 years, and 25-49 years considered.

**Results:** There was a decline in overall HIV prevalence among PWIDs from 2010 to 2014 (4.2% to 3.4%) and then a significant increase to 10.9% in 2020. Among PWIDs aged 15-19 years, there was a steady increase in prevalence from 0.0% in 2010 to 10.5% in 2020. However among PWID aged 20-24 years, there was an initial dip in 2014 (2.3%) from 4.0% in 2010, and then a sharp rise to 12.0% in 2020. Also, among PWIDs aged 25-29 years, there was an increase in prevalence from 4.3% in 2010 to 10.7% in 2020 after an initial dip to 3.9% in 2014.

**Conclusions:** The findings showed a rising HIV prevalence among PWIDs, particularly among adolescent PWIDs aged 15-19 years that showed a continuous upward trend over the three years studied without any decline. Hence, there is an urgent need to assess the reach of HIV prevention programs to adolescent PWIDs, conduct further research to understand the factors associated with the rising HIV prevalence among PWIDs, and design targeted interventions to reverse this trend.

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## Viral Load Coverage and Suppression among Key Populations Attending Mobile Units Nampula Province, Mozambique, October 2022–September 2023

Ferreira T<sup>1</sup>, Mutemba H<sup>1</sup>, Macul H<sup>1</sup>, Horacio C<sup>1</sup>, Fatha J<sup>1</sup>, Pimentel de Gusmão E<sup>1</sup>, Wells C<sup>2</sup>, Issufo F<sup>3</sup>, Kamiru H<sup>2</sup>, El-Sadr W<sup>2</sup>

<sup>1</sup>ICAP, Maputo, Mozambique, <sup>2</sup>ICAP at Columbia University, NY, United States of America, <sup>3</sup>Nampula SPS, Nampula, Mozambique

**Background:** Estimated HIV prevalence in Nampula Province is 10.0% among the general population, 10.2% among female sex workers (FSW) and 5.7% among men who have sex with men (MSM). To address barriers to HIV services (stigma, discrimination, and cultural/religious beliefs), and

improve case-identification, retention in care, and viral load (VL) suppression among these subpopulations, ICAP is implementing client-centered service delivery models, including implementation of mobile units (MU) at key populations (KP) hotspots in Nampula Province.

**Materials and Methods:** ICAP collaborated with local health authorities and KP-led organizations to provide comprehensive HIV HF for KP at convenient locations and times through MU on a weekly basis. MU offered HIV services, including testing, antiretroviral therapy (ART) initiation and continuation, and VL monitoring, integrated into general health services. Retrospective, aggregate data from routinely reported indicators from ICAP District Health Information Software (DHIS2) were analyzed to compare MU and health facility service delivery on VL coverage and suppression among KP. VL coverage was calculated assessing the proportion of clients on ART 6 months prior to the evaluation period, that had an updated VL result. VL suppression was calculated assessing among all clients with a VL result, the proportion that had a result <1,000 copies/ml.

**Results:** During October 2022 - September 2023, 11,525 KP received health services, including 2,472 (21.4%) attending MU. VL coverage for KP who attended HF services was 76% (6,119/8,048) compared to 80.6% (1,742/2,160) among those receiving services at MU. The VL suppression rate was 96.3% (5,898/6,119) at HF level and 97.7% (1,702/1,742) at MU. Among KP attending MU, VL coverage was 79.2% (42/53) for people who inject drugs (PWID) 83.5% (375/449) for MSM, 80.7% (1,170/1,449) for FSW, and 74.1% (155/209) for prisoners; VL suppression was 95.2% (40/42) for PWID, 98.4% (369/375) for MSM, 98.3% (1,151/1,170) for FSW, and 96.1% (149/155) for prisoners.

**Conclusions:** KP attending MU services had comparable, if not higher VL coverage and VL suppression, compared to those who received services at HF. It is crucial to build upon these achievements and continue strengthening and adapting service delivery models to reach KP and their networks, while partnering with KP civil society.



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## Les Autotests VIH : Stratégie Efficace Pour un Bon Screening du VIH Chez Les Populations Clés ?

**Ka S<sup>1</sup>**, Ngom N<sup>2</sup>, Thiam S<sup>3</sup>, Baal D<sup>1</sup>, Gueye M<sup>1</sup>

<sup>1</sup>Cta-opals-senegal, Dakar, Senegal, <sup>2</sup>Professeur, Dakar, Sénégal, <sup>3</sup>Docteur, Dakar, Sénégal

**Contexte :** L'épidémie de VIH / sida en Afrique de l'Ouest présente des prévalences faibles dans la population générale : 0,4% au Sénégal, 1,2% au Mali et 2,8% en Côte d'Ivoire (Rapport ATLAS Juillet 2022). Toutefois, chez certains sous-groupes spécifiques, cette prévalence est importante, atteignant 27,6 % (ECHSH, 2017) chez les populations clés au Sénégal ou encore 12,2% chez les Professionnelles du sexe en Côte d'Ivoire (Rapport ATLAS Juillet 2022). Accroître l'accès au dépistage à travers les autotests est donc indispensable pour l'atteinte du premier 90%. L'objectif est de faire le bilan des appels reçus sur les autotests pour apprécier l'efficacité de la stratégie.

**Matériels et Méthodes :** Démarrage du processus depuis le mois de Juillet 2019 au CTA avec la mise à disposition d'un registre d'enregistrement des appels et une base hotline pour la collecte, le traitement et l'analyse des données. Des aménagements horaires ont été faits pour avoir plus d'appels (8h-20h). Et pour le suivi/évaluation, des rapports mensuels, trimestriels et annuels sont envoyés à ATLAS/CTA.

**Résultats :** Du 31 Mai 2020 au 22 Mars 2022, 263 appels sur autotests ont été reçus répartis entre 162 hommes et 101 femmes. Le nombre d'appels d'autotests réactifs est de 9,12% (n=24) et 229 tests non réactifs. Nous avons reçu 30 appels autotests pour autres raisons (invalidité test, référence, orientation etc.). Les résultats montrent que la tranche d'âge 25 ans-49 ans dominant soit 79,84% et une réactivité de 7,14%. Les clients ayant reçus l'autotests selon les 09 canaux de distribution sont les HSH (n=39), les ARV (n=43), IST (n=33), PS (n=71) et UDI (n=77). Parmi les appelants pour autotests réactifs au VIH, les HSH dominant avec un taux de prévalence de 72,72% suivis des PS 27,3%. La majorité des appels venait de la région de Dakar soit 75,7% des appels.

**Conclusions :** L'utilisation des autotests est une stratégie efficace et complémentaire pour toucher des populations spécifiques souvent rejetées. La RAD est un outil complémentaire pour mieux orienter les appelants autotests.

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## Experiences With Services Treatments and Stigmatization Faced by Female Sex Workers in Nigeria

**Rita E<sup>1</sup>**, Andrew A<sup>1</sup>

<sup>1</sup>National Agency for the control of AIDS, Abuja, Nigeria

**Background:** In Nigeria, female sex workers (FSWs) encounter a myriad of challenges, encompassing stigma, depression, derogatory labels, public humiliation, discrimination—especially from family and friends. HIV-related violence, stigma and discrimination remains one of the biggest barriers preventing FSWS from accessing health care services. It is vital to identify the contributing factors associated with the experience of stigma and discrimination faced by FSWS.

**Materials and Methods:** The study was conducted in 17 states across the six geo-political zones of Nigeria using a cross sectional study design that utilized a mixed method approach involving quantitative and qualitative data collection. Qualitative data were obtained through semi-structured Focus Group Discussions (FGD) to capture the experiences of stigma among FSW. The quantitative aspect involved using the structured and standardized Stigma Index Survey 2.0 tool to interview the FSW respondents.

**Results:** The study involved 161 participants, with 42% aged between 35-44 years. Within 12 months of this study, 11% experienced physical harassment, 12.6% have been blackmailed, 17.7% have been verbally harassed, 9.8% have avoided seeking medical attention due to discrimination of been a sex worker, 8.7% of female sex workers due to fear were afraid of getting medical attention and also 15.4% felt discriminated by family members and finally 9.1% were excluded



from family meetings and activities during same period.

**Conclusions:** The findings underscore the critical necessity for concerted efforts and collaboration among various stakeholders to implementing targeted interventions in dismantling discriminatory norms and fostering a more inclusive environment for FSWs. There is need for increased awareness and sensitization on stigma and discrimination for FSWs living with HIV, psychological support and mental health services and ensuring their access to essential healthcare services should be prioritized.

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## Populations Clés Infectés par le VIH : Situation à l'Inclusion dans une Structure de Prise en Charge au Sénégal

Mboup A<sup>1</sup>, Ngom/Gueye N<sup>2</sup>, Diaw K<sup>1</sup>, Diagne A<sup>1</sup>, Konare Z<sup>1</sup>, Niaye K<sup>1</sup>, Thiam S<sup>3</sup>

<sup>1</sup>Centre De Traitement Ambulatoire (cta/opals), Dakar, Senegal, <sup>2</sup>Université Alioune DIOP, Dakar, Sénégal, <sup>3</sup>Conseil National de Lutte contre le SIDA (CNLS), Dakar, Sénégal

**Contexte :** Le contrôle de l'infection VIH dans les populations clés est inévitable pour une élimination de l'infection d'ici 2030. L'épidémie au Sénégal est de type concentrée avec une prévalence basse dans la population générale et est très élevée dans les populations clés notamment chez les HSH. L'objectif de cette étude est de décrire les aspects épidémiologiques, cliniques et immuno-virologiques de l'infection à VIH chez les populations clés nouvellement incluses au Centre de Traitement Ambulatoire de Dakar.

**Matériels et Méthodes :** Il s'agit d'une étude transversale, descriptive et à visée analytique chez les populations clés séropositives au VIH, naïves de tout traitement ARV, nouvellement incluses dans les soins du 1er janvier 2019 au 30 juin 2023, sans distinction de sexe.

**Résultats :** Nous avons colligé 74 dossiers de populations clés parmi les 317 patients inclus pendant cette période soit une prévalence de 23%. La majorité était des hommes ayant des rapports

sexuels avec des hommes (HSH) 70% (n=52). L'âge moyen était de 29 ans ( $\pm 7,3$ ). La majorité des patients étaient célibataires 82% (n=61). Selon la profession, la proportion des élèves et étudiants était proche de la moitié soit 45% (n=33) de la population d'étude. La principale porte d'entrée aux soins était le dépistage volontaire chez plus de la moitié des patients 59% (n=44). A l'inclusion, les stades I et II de l'OMS étaient prédominants avec respectivement 46% (n=34) et 30% (n=22). Le VIH-1 prédominait avec 97% (n=72). Le taux moyen de lymphocytes TCD4+ à l'inclusion était de 456 cells/ $[\text{mm}^3]$   $\wedge 3$  [ $\pm 252$ ] et la charge virale moyenne de 157303 copies/ml ( $\pm 236472$ ). L'AgHBs était positif chez 11 patients soit une séroprévalence de 14,9%. Les IST les plus fréquentes étaient le condylome anal chez 07 cas et 02 cas de syphilis. Nous avons enregistré 15 perdus de vue (20%), 07 transferts dans d'autres structures de prise en charge (9,5%) et 03 décès (4%).

**Conclusions :** Cette étude a montré la problématique de l'infection à VIH chez les populations clés particulièrement les jeunes HSH, ce qui met en évidence la nécessité de promouvoir davantage des stratégies de dépistage de cette couche vulnérable et leur maintien dans les soins.

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## Mental Health Screening for People with Substance Use Disorders Who Are Accessing HIV Services at Safe Spaces Across Three Provinces in Zambia

Mwango L<sup>1</sup>, Baumhart C<sup>2,3</sup>, Lascko T<sup>2,3</sup>, Olowski P<sup>4</sup>, Adebayo A<sup>4</sup>, Chipukuma J<sup>1</sup>, Claassen C<sup>2,3,4</sup>

<sup>1</sup>Ciheb Zambia, Lusaka, Zambia, <sup>2</sup>Center for International Health, Education, and Biosecurity, University of Maryland Baltimore, Baltimore, USA, <sup>3</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>4</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia

In Zambia, people who inject drugs (PWID) face unique challenges, including heightened vulnerability to HIV transmission and mental health concerns. The intersection of substance use and HIV risk is pronounced, necessitating targeted



interventions for HIV testing and prevention among PWID. The Community Impact to Reach Key and Underserved Individuals for Treatment and Support (CIRKUIITS) project integrated mental health screening for PWID into the already established key population (KP) safe spaces, where KP successfully and safely access HIV prevention and treatment services in Zambia.

Between October 2022 and June 2023, we implemented a peer-to-peer approach at 12 KP safe spaces in southern, eastern, and western provinces to identify individuals with substance use disorders. Healthcare workers administered the Patient Health Questionnaire-4 (PHQ-4), the Generalized Anxiety Disorder-7 (GAD-7), and the Cut, Annoyed, Guilty, and Eye (CAGE) to assess depression, anxiety, and alcohol dependence levels, respectively, among KP accessing HIV services. Clients with moderate-to-severe depression and anxiety were referred to relevant services. Data analysis was conducted using R-Studio and STATA.

Among the 22 participants assessed for depression via PHQ-4, 9% exhibited minimum severity, 77% showed mild severity, and 14% displayed moderate severity. Among the 27 participants evaluated for anxiety via GAD-7, 19% experienced minimum severity, 70% had mild severity, and 11% demonstrated severe anxiety. For hazardous alcohol use, among the 22 participants assessed with CAGE, 86% of PWID showed clinically significant alcohol use. These findings highlight a noteworthy prevalence of mild depression, mild anxiety, and clinically significant alcohol use among PWID.

Screening for mental health among PWID underscores the pressing need for targeted interventions that address mental health concerns alongside HIV prevention. The intersection of substance use, mental health, and HIV risk emphasizes the importance of integrated approaches to provide comprehensive support and improve the overall well-being of PWID in Zambia. We recommend that healthcare programs further integrate mental health services into existing HIV prevention and treatment initiatives. This integrated approach can facilitate early identification, prompt intervention, and ongoing support for PWID, contributing to holistic and sustainable improvements in their health outcomes.

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## Navigating Barriers to Harm Reduction in Uganda: An Inquiry Among People Who Inject Drugs, Healthcare Workers, Law Enforcement, and Judiciary

**Tumusinze G<sup>1</sup>**, Nampewo Z<sup>1</sup>, Kasozi D<sup>1</sup>, Musinguzi G<sup>1</sup>, Alamo S<sup>3</sup>, Ajulong C<sup>3</sup>, Baluku M<sup>3</sup>, Awor A<sup>3</sup>, Musinguzi J<sup>4</sup>, Musoba N<sup>5</sup>, Kyambadde P<sup>4</sup>, Pande G<sup>4</sup>, Byamukama D<sup>5</sup>, Mwebaza E<sup>6</sup>, Jjuuko A<sup>6</sup>, Fitzmaurice A<sup>3</sup>, Wanyenze R<sup>1</sup>

<sup>1</sup>Makerere University School Of Public Health, Kampala, Uganda, <sup>2</sup>Human Rights and Peace Center (HURIPEC), Makerere University School of Law, Kampala, Uganda, <sup>3</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda, <sup>4</sup>Uganda Ministry of Health, Kampala, Uganda, <sup>5</sup>Uganda AIDS Commission, Kampala, Uganda, <sup>6</sup>Human Rights Advocacy and Promotion Forum (HRAPF), Kampala, Uganda, Kampala, Uganda

**Background:** Stigma, discrimination, punitive laws, and policies can increase HIV vulnerability and reduce access to services for people who inject drugs (PWIDs). Uganda introduced opioid agonist therapy in 2021 and adopted a harm reduction approach to mitigate adverse health behaviors with strategies like needle exchange programs and supervised injection sites. However, punitive laws could reverse progress. We explored obstacles to implementing harm reduction strategies in Uganda. Guided by a human-rights-based approach, we focused on identifying ways in which laws, policies, and practices can infringe on human rights.

**Materials and Methods:** We conducted a cross-sectional study in 15 districts across five regions of Uganda in January and February 2022. We conducted desk reviews of existing laws and policies, 56 key informant interviews, 16 focus group discussions, and two consultative workshops, engaging healthcare workers, PWID community members, legal professionals, and government officials from the police and judiciary.

**Results:** The general approach to drug control in Uganda is punitive rather than restorative, resulting in fear of PWIDs being arrested. This is codified in laws such as the Narcotic Drugs and



Psychotropic Substances Control Act of 2016, which criminalizes drug use. The legal environment is exacerbated by enforcement approaches and other marginalizing treatment. For example, PWIDs reported torture, physical assault, verbal abuse, denial of privacy, and humiliation by law enforcers. They reported negative attitudes from law enforcers manifesting as hostile attitudes, unjust treatment, and premature criminalization, often based on prejudice rather than legal facts. Furthermore, PWIDs reported being denied the opportunity to legally register as associations under identities reflecting their unique challenges and needs, forcing them to operate under disguises, which consequently hampers their collective ability to advocate.

**Conclusions:** The current punitive drug control approach in Uganda undermines harm reduction efforts for PWIDs. Shifting from punitive towards health-centered approaches (e.g., community-based treatment), amending restrictive laws, improving law enforcement practices, and facilitating legal recognition for PWID associations are some ways Uganda might address these challenges and enhance harm reduction strategies.

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## L'Efficacité du Dépistage des Sujets Exposés AU VIH à Partir D'Un Cas Index Auprès des Populations Clés AU Cameroun (Cas D'Alcondoms Cameroun)

Wadjo Noupa M<sup>1</sup>

<sup>1</sup>ALCONDOMS CAMEROUN, Douala, Cameroun

**Contexte :** Le Cameroun est l'un des pays les plus touchés par le VIH en Afrique . La prévalence parmi les populations clés est alarmante et est associée à des comportements sexuels à haut risque ou les populations clés sont vues comme des groupes les plus susceptibles d'être exposés au VIH ou de le transmettre ; d'une façon générale il s'agit d'un type de population fortement touchée par l'impact épidémiologique du VIH et IST. Plusieurs essais ont démontré que le dépistage par cas index peut augmenter le dépistage des sujets exposés au VIH et identifier les partenaires

avec une infection a VIH non diagnostiqué ou le rendement varie à 40 à 60%.

**Matériels et Méthodes :** Le dépistage des sujets exposés au VIH par un cas index a pour but de briser la chaîne de transmission du VIH auprès des populations en offrant des services de dépistage du VIH aux personnes qui ont été exposés au VIH et les lier au traitement s'il est positif ou aux services de prévention s'il est négatif. C'est un processus volontaire ou le conseiller social demande au cas index d'énumérer tous les contacts de ses partenaires sexuels, utilisateurs de drogue injectables et enfants biologiques de moins de 15 ans afin de les soumettre au dépistage du VIH et doit répondre aux 5C de l'OMS.

**Résultats :** Durant la période de l'année allant d'octobre 2022 à septembre 2023 du projet CHILL qui est un projet de prévention et sensibilisation du VIH . Ou nous Alcondoms Cameroun avons pu mener la stratégie index testing ou nous avons notifié 675 KPs et nous avons dépisté 556 KPs et nous avons diagnostiqué 114 KPs nouvellement positif ; ceux qui nous donne un apport de 17% dans le dépistage du VIH et un apport de 45% à la recherche des nouveaux cas diagnostiqués positifs.

**Conclusions :** l'efficacité du dépistage du VIH des sujets exposés au VIH à partir d'un cas index auprès des populations clés est lié à des résultats positifs qui nous ont permis de diagnostiquer les nouveaux cas positifs à l'infections a VIH auprès des populations clés.

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## Determinants of Antenatal Clinic Attendance among Female Sex Workers, Nairobi County, Kenya

Tunya L<sup>1</sup>, Malilu H<sup>1</sup>, Akolo M<sup>1</sup>

<sup>1</sup>Aga Khan University, Nairobi, Kenya

**Background:** Due to stigma, discrimination, and criminalization of sex work, female sex workers (FSWs) in sub-Saharan Africa encounter obstacles while seeking antenatal care (ANC). FSWs have a high prevalence of HIV infections and experience high rates of unplanned pregnancy due to poor





utilization of family planning. The aim of the study was to assess the determinants of antenatal clinic attendance among FSWs in Nairobi County.

**Materials and Methods:** This was a quantitative cross-sectional descriptive study, and it was conducted in the Sex Workers Outreach Programmes facility in Nairobi. The study participants were 403 FSWs between the ages of 18 and 49. Self-administered questionnaires were used for data collection, and data analysis was done using descriptive and inferential statistics.

**Results:** 132 (32.8%) FSWs were aged 30 to 34 years, 242 (60.0%) were not married. 346 (85.9%) of FSW had an unplanned pregnancy, 30.5% (123) had terminated, and 387 (96%) had sought ANC. 39.5% (159) did not receive full ANC when they disclosed the nature of their work. 37.5% (151) of participants started ANC at three to seven months gestation, and 27.3% (110) had attended over four ANC visits. Late ANC initiation was due to the challenges associated with ANC attendance among FSWs, which included the 42.4% (171) attitude of HCWs, the 67.6% (215) distance to the healthcare facility, and the 86.1% (347) longer waiting time. On inferential analysis, there was an association between the occupation of the respondent and the number of ANC attendance, which was significant = 22.525, df 12,  $P = 0.032$  at  $P < 0.05$ . Marital of respondent versus number of ANC attendance was significant = 29.058, df = 15,  $P = 0.016$  at  $P < 0.05$ . The income level of the respondent versus the number of antenatal care visits was significant = 17.557, df 6,  $P = 0.007$  at  $P < 0.05$ . The education status of respondents was significant = 22.148, df 6,  $P = 0.002$  at  $P < 0.05$ .

**Conclusions:** FSWs face challenges while seeking ANC. Due to the stigma associated with sex work, many fail to disclose the nature of their work, resulting in no proper risk assessment, which might increase the vertical transmission of HIV among FSWs.

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## Association of Advanced HIV Disease with Age and Sexual Identity at HIV Treatment Initiation among Sex Workers: A case study of the Sex Workers Outreach Program (SWOP) in Nairobi Kenya.

Akolo M<sup>1</sup>, Mithika J<sup>1</sup>, Kimani J<sup>2</sup>, Gelmon L<sup>2</sup>, Nutor J<sup>3</sup>  
<sup>1</sup>Aga Khan University, Nairobi, Kenya, <sup>2</sup>University of Manitoba- PHDA, Nairobi, Kenya, <sup>3</sup>University of California San Francisco, San Francisco, USA

**Background:** Kenya rolled out HIV test and treat strategy in 2016 to ensure all people living with HIV (PLHIV) can access antiretroviral therapy (ART) rapidly. However, many PLHIV still present with advanced HIV disease (AHD). We sought to determine the prevalence of AHD and its association with age and sexual identity among male and female sex workers attending the Sex Workers Outreach Program (SWOP) in Nairobi, Kenya.

**Materials and Methods:** A retrospective chart review was done among all male and female sex workers who tested HIV positive at enrollment within SWOP from January 2017 to December 2023. Data on their age, sexual identity and baseline CD4 count at enrollment were collected using a chart abstraction. Descriptive and inferential analysis was done. We defined AHD as having a CD4 count of  $< 200$  cells/mm<sup>3</sup> or being in WHO HIV clinical stage III or IV.

**Results:** A total of 873 Charts were retrieved with 54.4% (475) being female and 45.6% (398) male. Female presented with higher AHD 12.8% (61/475) compared to male. 6.5% (26/398) at enrollment. There was a significant relationship between sexual identity and AHD (Pearson  $\chi^2 = 9.608$ , df=1,  $p = 0.002$  and  $r = 8.918$ , df=1,  $p = 0.003$ ) where women had a risk estimate of 0.474 at 95% CL [0.294-0.797] in delaying seeking HIV care early. Furthermore, there was a significant association between age and AHD (Pearson  $\chi^2 = 10.576$ , df=4,  $p = 0.032$  and  $r = 10.951$ , df=4,  $p = 0.027$ ). Individuals 45 years and above had high odds of having AHD with OR=0.560 at 95% CI [0.334-0.940] and  $p = 0.028$  compared to other age groups.



**Conclusions:** Our study demonstrates that about one-tenth of PLHIV had AHD at the time of ART initiation with individuals 45 years and above being mostly affected, indicating delay in seeking health care. More efforts are needed to ensure early diagnosis of HIV among these groups of individuals and continued access to diagnosis and management of AHD to reduce morbidity and mortality.

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## Opportunity for Differentiated Service Delivery to Improve PrEP Retention Among MSM in Kenya

Walimbwa J<sup>1</sup>, Tabbu S<sup>2</sup>, Irungu P<sup>3</sup>, Zech J<sup>4</sup>  
<sup>1</sup>ISHTAR, Nairobi, Kenya, <sup>2</sup>Kenya Youth Development and Education Support Association (Kydesa), Nakuru, Kenya, <sup>3</sup>Health Options for Young Men on HIV/AIDS/STI (HOYMAS), Nairobi, Kenya, <sup>4</sup>ICAP at Columbia University, New York, United States

**Background:** In Kenya, although high PrEP acceptance has been reported among men who have sex with men (MSM), uptake and retention remain low. Improving access to PrEP is critical to ensure targets of reducing HIV transmission are met. Differentiated service delivery (DSD) models offer a client-centered approach, aiming to streamline HIV services without overburdening the healthcare system. We conducted a cross-sectional study to assess perceptions of PrEP service delivery and explore perspectives on DSD for MSM enrolled in PrEP care in Kenya.

**Materials and Methods:** The study was conducted in three counties in Kenya: Kisumu, Nairobi and Mombasa from July 2020 to July 2021. A questionnaire was conducted among 300 MSM accessing HIV services at drop-in centers (130 ART and 170 PrEP); selected via consecutive sampling. Data was entered into Excel, cleaned, and analyzed descriptively using SPSS.

**Results:** Of the 170 PrEP clients interviewed, 81% identified as MSM and 19% as male sex workers; mean age: 25.4 years (SD 3.7). 43% had been on PrEP for <1 year, 49% for 1-3 years, and 6% >3 years with most (82%) receiving quarterly HIV testing. PrEP was mostly collected monthly (72%) with some clients collecting quarterly (16%). Sixty-

five (38%) clients reported missing at least one PrEP appointment within the last year; reasons for missing PrEP appointments included travelling (31%), transportation costs (29%), and forgetting (18%). Factors making PrEP refill a good experience included MSM-friendly clinics (64%), quick refill visits (51%), assured client confidentiality (47%), attentive providers (43%), support groups (17%), and short distance to clinic (15%). Respondents were interested in a variety of DSD models and services: spaced-out appointments (69%), set appointments (54%), fast track window (37%), facility-based peer support groups (37%), community drug distribution points (26%), and community-based peer support groups (13%).

**Conclusions:** MSM receiving PrEP services want friendly, confidential, and quick refill visits. MSM PrEP clients are interested in DSD models at both facility and community levels, with appointment spacing being the most acceptable model. HIV prevention programs should modify PrEP service delivery for MSM by implementing DSD to tailor refill to fit individual needs and remove barriers to access and retention.

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## High Prevalence of HIV Low-Level Viremia Among Breastfeeding Women in Ghana

Dame J<sup>1,3</sup>, Ahmed D<sup>2</sup>, Aggrey I<sup>3</sup>, Afrane A<sup>1,3</sup>, Taiba A<sup>1,3</sup>, Owiafe S<sup>3</sup>, Lowenthal E<sup>2,4</sup>  
<sup>1</sup>Department of Child Health, University of Ghana Medical School, College of Health Sciences, Accra, Ghana, <sup>2</sup>University of Pennsylvania Perelman School of Medicine, Department of Biostatistics, Epidemiology and Informatics, Philadelphia, USA, <sup>3</sup>Department of Child Health, Korle Bu Teaching Hospital, Accra, Ghana, <sup>4</sup>Children's Hospital of Philadelphia Global Health Center, Philadelphia, USA

**Background:** Women living with HIV (WLHIV) who are breastfeeding must maintain HIV viral suppression to minimise mother-to-child transmission. In Ghana and similar settings, infant prophylaxis during breastfeeding is recommended when maternal viral load (VL) is >1000 copies/mL. However, maternal VL is not routinely monitored during breastfeeding in Ghana.



**Materials and Methods:** To understand viral suppression rates among breastfeeding WLHIV, we are sequentially enrolling WLHIV in their 3rd trimester of pregnancy or during postnatal follow-up at Korle Bu Teaching Hospital (KBTH) and Greater Accra Regional Hospital. These sites offer comprehensive HIV care. We defined HIV viral suppression, low-level viremia (LLV), and undetectable VL as <1000 copies/ml, 20-999 copies/ml, and <20 copies/ml, respectively. The following data is being collected: sociodemographics, clinical (including VL at study entry, 6 weeks, 3, 6 and 12 months), and self-reported adherence; Edinburgh postnatal depression scale scores; and infant HIV test results. Data was summarised using descriptive statistics.

**Results:** Data from 75 women enrolled from the start of the study in June 2023 until October 2023 was available for analysis. Most of this number (48, 64%) was from KBTH. Their median age was 30 (IQR: 28,36), and 71(95%) were on TDF/3TC/DTG regimen. Forty (53%) were recruited in the 3rd trimester and 35(47%) postnatally. Of the 72 VL results received, 66(92%) were virally suppressed. However, of this number, 29(44%) had LLV. Among those with LLV, 12(41%) were recruited in their third trimester and 17(59%) after delivery. Most of those with LLV recruited after delivery were breastfeeding, 14(82%). Out of 34 infant results received at 6 weeks, 1(3%) infant, a first twin whose mother had a VL of 669 copies/ml, had a positive HIV DNA-PCR result.

**Conclusions:** Early results show a high prevalence of low-level viremia (LLV) among breastfeeding WLHIV in Ghana. Whether maternal LLV confers an increased risk of transmission to the breastfeeding infant is unknown, although guidelines establish a threshold of 1000 copies/mL for adding infant prophylaxis whilst breastfeeding. Long-term follow-up of mother-infant pairs is required to understand this population's dynamics and determine whether monitoring and/or infant prophylaxis guidelines need to be changed to minimise breastfeeding transmissions.

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## Event Driven Pre-Exposure Prophylaxis or Daily Pill Pre-Exposure Prophylaxis? -A Correlation Study Done Among MSM and Transgender in Nairobi Kenya.

Akolo M<sup>1</sup>, Kimani J<sup>2</sup>, Mithika J<sup>1</sup>, Gelmon L<sup>2</sup>  
<sup>1</sup>Aga Khan University, Nairobi, Kenya, <sup>2</sup>University of Manitoba-PHDA, Nairobi, Kenya

**Background:** Kenya rolled out daily oral Pre-Exposure Prophylaxis (PrEP) in 2017, among key populations, including men at high risk of acquiring HIV. However, uptake and adherence remain poor. In 2022, Kenya introduced Event Driven PrEP (EDP) for men at high risk of acquiring HIV. The Sex Workers Outreach Program (SWOP) in Nairobi, Kenya availed the two options of oral PrEP to the Transgender people (TG) and men who have sex with men (MSM) and evaluated one year data and compared uptake and preferred choice among different age groups.

**Materials and Methods:** Retrospective chart review of MSM and TG women, HIV negative and attending HIV prevention services under SWOP were retrieved. The charts for those who were initiated on either EDP, or daily PrEP between January and December 2023 were collected and grouped into different age groups. Data abstraction tool was used to collect data on choice of PrEP picked per age group; 18-24, 25-34 and 35 and above- years.

**Results:** Data was extracted from 1,297 charts for MSM and TGW initiated on either PrEP. Daily oral pill was popular at 71.4% (926) versus EDP at 28.6% (371). Statistical comparison of the mean values of EDP across three age groups showed a significant difference ( $p=0.046$ ) in the 18-24 age group compared to the overall sample mean (Test Value = 37.1). The same was observed for the 35+ age group with ( $t=-8.556, p<0.000$ ). A comparison of paired differences between EDP and daily PrEP across age groups showed a reduction in the measured outcome with no statistical significance for EDP compared to daily PrEP across the three groups: 18-24 (MD -33.29,  $t=-1.876, p=0.174$ ), 25-34



(MD -24.63, t-1.608, p=0.152) and 35+ (MD -6.57, t-1.542, p=0.174).

**Conclusions:** EDP has provided an alternative choice to daily PrEP among men engaging in high-risk sexual behavior. However, it is not popular, especially among the adolescent and young men and those men above 35 years. Efforts are needed to ensure these options at scaled up to all populations who would benefit, including implementing person-centered approaches for ensuring PrEP continuity.

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## Prevalence and Determinants of HIV Among Female Sex Workers in a Kenyan Urban Setting

Kipyego J<sup>1</sup>, Komen A, Kaguiri E, Kutwa G, Were E  
<sup>1</sup>Partners - Moi University, Eldoret, Kenya

**Background:** Female sex workers (FSWs) are an important HIV prevention priority population in Kenya. We describe characteristics and the prevalence of HIV among FSWs screened into a cohort study in Eldoret, Kenya.

**Materials and Methods:** This was a a cross-sectional study involving FSWs. Screening was done between March 2012 and December, 2013. FSWs were identified through a peer recruitment strategy. At screening, HIV status was determined using the National HIV rapid screening protocol which consisted of an initial test with Determine test followed by Unigold test if the Determine was reactive. We obtained the socio-demographic and sexual behavior data for all participants. Descriptive statistics and associations between participant characteristics and HIV serostatus are reported. All participants provided a written informed consent before participating in screening.

**Results:** We screened 734 FSWs. The median age was 27.0 years with an interquartile range (IQR) of (23,31) years. Only 27 (3.7%) were married. The mean (IQR) number of children was 2 (1 - 3) with only 62(8.4%) reporting to have no children. Sixty eight percent had primary or no education. A

regular partner was reported by 47.4%, and 40.9% reported always using a condom in the last week. Contraceptive use, commonly injection, was reported by 61.7%. An estimated 64.2% reported alcohol use while 8.3% reported anal sex. HIV prevalence was 23.6% [20.4, 26.4]. Predictors of a reactive HIV test were age (AOR 1.09 [1.05-1.12], p< 0.001), other primary form of employment apart from sex work (AOR 1.99 [1.06-3.74], p< 0.034) and having had one abortion in the past (AOR 1.76 [1.11-2.78], p=0.016).

**Conclusions:** FSWs in Eldoret have an HIV prevalence rate approximately four times the national average. Increasing age , part-time engagement in sex work and abortion in the past were associated with increased risk of a positive test. HIV prevention interventions are needed and should target FSW of all ages

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## A Discreet Intervention That Provides Access to Information or Links to Services for MSM in the Public Health Care System

Zakwe L<sup>1</sup>, Rambally Greener L<sup>1</sup>, Jim A<sup>1</sup>, Simelane M<sup>2</sup>, Pitsillides P<sup>2</sup>, Malone S<sup>1</sup>  
<sup>1</sup>PSI, Johannesburg, South Africa, <sup>2</sup>MBX, Johannesburg, South Africa

**Background:** Estimates of HIV prevalence among Men who have sex with men (MSM) in South Africa are as high as 48% and 41% of MSM with HIV know their status, 28% are on ART, and 26.5% are virally suppressed. There is a notably high attrition among MSM in the HIV continuum during the transition from testing HIV-positive to ART initiation and retention in care (care engagement).

**Materials and Methods:** The intervention addresses gaps around demand creation, friendly service provision, and poor engagement in HIV treatment services. Conducted in collaboration with targeted interventions for MSM run by non-government organisations, with linkages to public healthcare services. Healthy Men Project is a digital platform that aims to educate MSM about HIV and the benefits of HIV prevention and treatment. This platform enables MSM to access



HIV-related services such as testing, and linkage to care.

In-person qualitative research methods:

- Three day, in-person learning workshop with coaches (June 2023)
- Intensive ethnographically informed rapid data collection (June/July 2023)
  - One week – Ethekekwini
  - One week - uMngungundlovu
  - One week – Ekhurleni
- Structured interviews with:
  - Implementers
  - Coaches
  - Players
- Observations at:
  - Aurum Pop Inn clinics
  - Community-based testing and screening events
  - SNS and M-Groups
  - Coach engagements with players

**Results:** Adverts were promoted on various social media platforms (Instagram, Facebook, Twitter, Grindr) targeted to areas where programs and clinics were operating. Over a period of two months, adverts reached 690 male users [aged 18-49 years old], of which 54% accessed HIV information, 14% were linked to peer support, 5% engaged with HIVST services and 3% engaged with PrEP services. The topics that generated the highest traffic were traditionally taboo ones, such as anal douching.

**Conclusions:** Interventions that provide access to information or links to services whilst providing anonymity could enhance service uptake and improve access to and engagement with information on topics such as STIs and HIV. We are now working on four additional adverts based on feedback and engagement.

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## Why Do Adolescent Girls and Young Women in Mozambique Remain at High Risk for New HIV Infections and Unplanned Pregnancies?

Hsu A<sup>1</sup>, Zandamela R<sup>2</sup>, Falcao J<sup>2</sup>, Zerbe A<sup>1</sup>, Zech J<sup>1</sup>, Pimentel de Gusmao E<sup>2</sup>, Vitale M<sup>1</sup>, Abrams E<sup>1</sup>

<sup>1</sup>ICAP at Columbia University, New York City, United States,

<sup>2</sup>ICAP at Columbia University, Maputo, Mozambique

Despite widespread availability of both ART and PrEP, HIV incidence among adolescent girls and young women (AGYW) in Mozambique remains amongst the highest in Africa. Similarly, modern contraception methods are broadly available in the public sector, but high rates of unplanned pregnancies persist. We explored AGYW's sexual behavior and knowledge of sexual and reproductive health, and HIV prevention practices in Nampula, Mozambique.

Between May-June 2022, we conducted a cross-sectional survey among a convenience sample of AGYW 15-25 years who self-reported testing HIV-negative or unknown HIV status and were receiving care at three adolescent health clinics in Nampula province. Information on demographics, sexual behavior, HIV and PrEP knowledge, and attitudes toward contraception and PrEP was collected. Responses were analyzed using descriptive statistics.

Of 200 AGYW (median age: 19 years, interquartile range [IQR]: 17-21.3y), 55% were in school, 32% completed secondary school and 81% had never been employed. Overall, 77% reported ever having had sex (median age at first sex: 17y, IQR: 15-18y) and 26% reported being <16y at first sex. Of those reporting sexual activity, 17.5% said their first sexual encounter was forced. Nearly all respondents knew about condoms but only half had used a condom at last sex. Male condoms (62%), withdrawal (35%), and implants (25%) were the most commonly previously used contraceptive methods. AGYW were most interested in trying implants (18%), injectables (12%), and the pill (11%), though 31% reported not being interested in trying any new contraceptive method.

Respondents had accurate general HIV knowledge but were unfamiliar with PrEP; only 26% reported having ever heard of PrEP and 2% reported previous use. Participants responded positively to different modalities of PrEP – 64% expressed



interest in using daily pills and 76% in long-acting injectables.

AGYW in Nampula reported low usage of modern contraceptive methods and poor knowledge of PrEP for HIV prevention. AGYW expressed interest in trying contraception and PrEP, both daily pills and injectables, and showed positive attitudes toward PrEP usage. More widespread education around family planning and HIV prevention is needed to reduce barriers around improving sexual health and practices among AGYW in Mozambique.

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## Understanding Stigma and Sexual Risk Behaviours among Men who have Sex with Men in Kisumu, Kenya: Implications for HIV Prevention

Ochieng V<sup>1,2</sup>, Hillary I<sup>1,2</sup>, Owuor G<sup>2,3</sup>, Atieno D<sup>2,3</sup>, Shantana C<sup>2,3</sup>, Bukusi E<sup>4</sup>, Agot K<sup>2,3</sup>

<sup>1</sup>Men Against AIDS Youth Group Organization (MAAYGO), Kisumu, Kenya, <sup>2</sup>Reducing HIV in Adolescents and Youth (RHAY), Kisumu, Kenya, <sup>3</sup>Impact Research and Development Organization (IRDO), Kisumu, Kenya, <sup>4</sup>Kenya Medical Research Institute (KEMRI), Nairobi, Kenya

**Background:** In Kenya, men who have sex with men (MSM) face a significantly higher burden of HIV, with a higher prevalence of 25.0% compared to 3.1% in the general male population. Barriers such as stigma impede their access to adequate HIV prevention services. It is crucial to identify and understand the specific types of stigma MSM experience to inform effective strategies for optimal care and treatment outcomes. We set out to assess the types of stigma experienced by MSM overall and while accessing care.

**Materials and Methods:** Between March and May 2023, we conducted a cross-sectional survey with MSM in Kisumu County, Kenya. MSM were eligible if they were aged 15-30 years, assigned male gender at birth, and provided written informed consent. Enrolled participants completed an interviewer-administered behavioural survey that captured socio-demographics, sexual behaviour and practices, HIV risk perception, health seeking behaviour, and history of stigma. Stata 18 software was used for data analysis. Data have

been summarized using frequency distribution, a measure of central tendency, and 95% confidence intervals.

**Results:** We enrolled 172 participants; mean age 23 years; 69.8% identified as gay, 26.7% as bisexual and 3.5% as gender non-conforming; 53.5% and 41.9% had secondary and post-secondary education, respectively; and 48.3% were self-employed. 40.9% reported receptive and 45.4% insertive anal intercourse. A majority (70.8%) reported  $\geq 2$  sexual partners and 30.5% engaged in unprotected sex. On stigma and healthcare access, 48.5% reported feeling ashamed of their sexual orientation (internalized stigma); 38.2% and 25.3% felt that the community and healthcare providers (HCPs), respectively, view MSM as abnormal (perceived stigma); 56.5% anticipated physical harm or threats because of their sexual orientation, with 21.7% anticipating this reaction from HCPs (anticipated stigma); and 49.4% reported that such a reaction from HCPs would inhibit their healthcare seeking decisions. 63.0% had experienced insults or physical harm, with 10.1% reporting experiencing insults at a healthcare facility (enacted stigma).

**Conclusions:** These findings demonstrate high sexual risk behaviours among MSM in western Kenya and shows that stigma is prevalent and inhibit healthcare access. There is need for targeted interventions addressing stigma and high-risk behaviours while promoting inclusive healthcare services.

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## Dapivirine Vaginal Ring versus Long-Acting Cabotegravir: A Comparative Cross-Sectional Assessment of Their Acceptability and Willingness to Pay among Young Women of Reproductive Ages in a Nigerian Rural Community

Ngige A<sup>1</sup>, Isah A<sup>1</sup>

<sup>1</sup>Person Centered Hiv Research Team, Nsukka, Nigeria



**Background:** Dapivirine vaginal ring (DPV-VR) and Long-acting Cabotegravir (CAB-LA) are pre-exposure prophylaxis (PrEP) strategies that reduce the risk of HIV acquisition among vulnerable individuals. PrEP uptake among young people will reduce the high prevalence of HIV in Nigerian. This study compared the acceptability and willingness to pay (WTP) for DPV-VR and CAB-LA among women of reproductive ages in a rural Nigerian community.

**Materials and Methods:** This study adopted a cross-sectional design to obtain responses from women aged 18–35 years in Umuoji, a rural community in Nigeria in 2023. A sample size of 370 was estimated from the eligible population. A 23-item validated questionnaire was used to measure the respondents' acceptability and WTP for DPV-VR and CAB-LA. WTP amount was obtained through a contingent valuation method, with the values obtained in Naira (\$1=N957.51).  $P < 0.05$  was considered statistically significant. Ethical approval was obtained from the Institutional Review Board of a Health Research and Ethics Committee.

**Results:** A total of 262 responses were obtained for the study (response rate=70.81%). Majority of the respondents [209(79.8%)] were aged 18–24 years, with 229(87.4%) being unmarried. Less than half of the respondents [116(44.27%)] knew their HIV status, with three (2.59%) identifying themselves as living with HIV. In addition, 107(40.8%) respondents did not know the status of their sex partners. For the two PrEP strategies, 137(52.3%) and 134(51.1%) respondents would accept to use DPV-VR and CAB-LA, respectively, with 102(38.93%) agreeing to use either of the two ( $p=0.0001$ ). Respondents that indicated a positive WTP for DPV-VR and CAB-LA were 128(48.9%) and 119(45.4%), respectively, although 95(36.26%) agreed to pay for either of them ( $p=0.0001$ ). The mean WTP amount for each PrEP strategy was N6070.42±843.99 for DPV-VR and N417697.18±116504.24 for CAB-LA;  $t(df)=-3.541(70)$ ,  $p=0.0001$ .

**Conclusions:** Although about half of the women of reproductive age in the community were willing to accept and pay to use DPV-VR and CAB-LA as PrEP options more preferred DPV-VR. Those that were willing to pay indicated values that were below the market prices of the two. It is recommended that public health education should be employed towards improving the acceptability of the PrEP strategies among young women in Nigeria.

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## Difficultés Pour Atteindre ET Dépister Les Enfants Des Travailleuses (TS) de Sexe Dans Le Cadre de la Stratégie du Dépistage Indexé AU Mali

**Bouare B**<sup>1</sup>

<sup>1</sup>FHI360, Bamako, Bamako, Mali, Mali

**Contexte :** Le Mali connaît un retard dans l'atteinte des objectifs des 3X95% de l'ONUSIDA pour les enfants, en particulier pour le premier 95, avec un taux de réalisation de 58%. La prévalence du VIH est de 8,7% au Mali chez les TS. La faible fréquentation des services prénataux dans de nombreuses régions du Mali augmente le risque de transmission du VIH aux enfants des TS. Le projet EpiC de FHI 360 Mali financé par PEPFAR/USAID a offert des services de dépistage du VIH aux enfants des TS vivant avec le VIH dans trois régions (Bamako, Sikasso, Ségou) du Mali à travers le dépistage index.

**Description :** Le dépistage index a été proposé à 1097 TS, dont 619 ont acceptés de fournir leurs contacts (soit un taux d'acceptation de 56 %). Au total, 434 enfants de moins de 15 ans (237 garçons et 197 filles) ont été élicités. Cependant, seuls 15% (63/434) des contacts élicités ont été retrouvés et testés dont 11 cas de VIH identifiés, un taux de détection élevé de 17% (11/63) a été constaté chez les enfants des TS.

**Résultats :** Le taux de dépistage reste faible en raison de la mobilité des TS, de l'absence de certains enfants dans la zone d'activité de leur mère, la discrimination et la stigmatisation. Par ailleurs, 44% des TS séropositives n'ont pas élicités de contacts. Des stratégies efficaces, telles que la collaboration avec d'autres partenaires de mise en œuvre dans les zones EpiC et non EpiC, pourraient s'avérer efficaces pour atteindre le nombre maximum d'enfants à dépister.

**Conclusions et Prochaines Étapes :** Le dépistage index nous a permis d'avoir un yield à 17% chez les enfants des TS. Néanmoins le nombre de contact enfants listés et trouvés demeurent faible du fait de plusieurs facteurs tels que la stigmatisation, la discrimination et la mobilité des TS. La lutte contre la stigmatisation, la discrimination, la violence et



l'orientation des prestataires cliniques et communautaires sur l'offre de services index sûr et éthique pourraient s'avérer efficaces afin de toucher le plus grand nombre de contacts enfants à dépister.

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## Facilitating Safe Disclosure of Key Population Identities to Optimize HIV Differentiated Service Delivery in Harare, Zimbabwe in Harare, 2022-2023

Hera C<sup>1</sup>, Moyo P<sup>1</sup>, Muchemwa C<sup>1</sup>, Nyakuwa S<sup>1</sup>, Murungu J<sup>1</sup>, Mahaka I<sup>1</sup>, Mushangwe B<sup>2</sup>, Makunike B<sup>2</sup>, Gonese G<sup>2</sup>, Sola T<sup>3</sup>, Mharadze T<sup>4</sup>, Malaba R<sup>4</sup>, Cham H<sup>4</sup>, Thomson K<sup>5</sup>, Wiktor S<sup>5</sup>

<sup>1</sup>Pangaea Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Zimbabwe Technical Assistance, Training & Education Center for Health (Zim-TTECH), Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Childcare (MOHCC), Harare, Zimbabwe, <sup>4</sup>Division of Global HIV and TB (DGHT), U.S. Centers for Disease Control and Prevention (CDC) Zimbabwe, Harare, Zimbabwe, <sup>5</sup>International Training and Education Center for Health (I-TECH), University of Washington, Seattle, United States

**Background:** In Zimbabwe, criminalization of key populations (KPs) (female sex workers, men who have sex with men, people who inject drugs, and transgender persons) results in non-disclosure of KP status in health service settings. Pangea Zimbabwe (PZ) under the Zimbabwe Partnership to Accelerate AIDS Control (ZimPAAC) consortium supported a KP Program in 21 public health facilities in Harare and conducted a KP reclassification exercise to identify hidden KPs among persons seeking health services. The program's objective was to facilitate safe disclosure of KP status and optimize Differentiated Service Delivery (DSD) Models for HIV care and treatment.

**Description:** Clients on antiretroviral therapy, self-administered KP Classification tool between October 1, 2022, and September 30, 2023, at their scheduled clinical visits. Trained KP-peer community facilitators (CFs) distributed the paper-based tool and offered in-person assistance to clients during health talks and while in service

waiting queues. Where clients could neither read nor write, the CFs helped administer the tool.

**Lessons Learnt:** Over the 12 months, 33,284 clients (47% of all clients on ART) were screened, of whom 3,335 (9.2%) self-identified as KP and were then classified in the clinic records as KP, offered KP-friendly services, linked to CFs in their area and to other support services. 48 (1.44%) clients with unsuppressed viral load (VL) were identified and linked to enhanced adherence counselling, and 518 (15.53%) with missing VL results were linked to VL monitoring programmes. The KP screening questions were also useful for identifying and tailoring services for KPs newly enrolled on ART.

**Conclusions:** The process showed that most KPs were already engaged in care but had not been identified as KPs and were therefore receiving non-tailored services. A similar gap may exist amongst clients seeking HIV prevention services. Differentiated, client-centred KP services within public sector health settings require person-specific tools administered in a confidential, non-judgmental manner to elicit sensitive information that is crucial for care. We recommend further exploration of the experiences leading to non-disclosure of KP status and establish linkages to other services.

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## Population Size Estimation of Female Sex Workers and Sexually Exploited Minors Using Privatized Network Sampling, Rwanda, 2023

Tuyishime E<sup>1</sup>, Kayitesi C<sup>2</sup>, REMERA E<sup>2</sup>, Malamba S<sup>3</sup>, Kabano I<sup>1</sup>, Chukwu A<sup>4</sup>

<sup>1</sup>University of Rwanda - African Center of Excellence in Data Science (ACE-DS), Rwanda, Kigali, Rwanda, <sup>2</sup>HIV/AIDS and STIs Division, Institute of HIV Disease Prevention and Control, Rwanda Biomedical Centre (RBC), Kigali, Rwanda, <sup>3</sup>Health Research and Evaluation Consultant, Uganda, Kampala, Uganda, <sup>4</sup>Department of Statistics, University of Ibadan/Nigeria, Ibadan, Nigeria

**Background:** Female sex workers (FSW) are at increased risk of HIV and other STI. In addition, the burden of HIV infection among this group is much





higher when compared to adult females in the general population. Estimating the number of FSW helps HIV/STI prevention through program design, planning, and implementation in Rwanda.

**Materials and Methods:** Data were collected from May 8th to June 24th, 2023, across 10 study sites countywide. Privatized network sampling (PNS) was used, which is a population size estimation method that uses the network information collected within a bio-behavioral survey (BBS) that used respondent-driven sampling (RDS). To estimate the FSW and sexually exploited minors' population size, three PNS estimators were used: Cross-Sample, Cross-Alter, and Cross-Network.

**Results:** The national-level FSW population size was estimated at 98,587 (95% CI: 82,978 – 114,196), corresponding to 2.3% of the total adult female population aged 15 years and above in Rwanda. We estimated that in the City of Kigali, 5.3%, in the West Province, 2.2%, in the East and South province, 1.7% each, and in the North province 1.6% were FSW as % of adult female population 15 years of age and older who were living in Kigali and these Provinces. We estimated that in the City of Kigali, 5.3%, in the West Province, 2.2%, in the East and South province, 1.7% each, and in the North province 1.6% were FSW as % of adult female population 15 years of age and older who were living in Kigali and these Provinces.

**Conclusions:** This was the first time that PNS was implemented as a PSE method in Rwanda, adding to the emerging tools that we have in the hard-to-reach PSE field. The PSE provides fundamental information to design, plan, and implement programs for FSW at the provincial level in Rwanda. Furthermore, these estimates will help to generate positive policy changes and to advocate for resources that will help in the effort to achieve a sustained HIV epidemic control in the country.

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## Geographical Distribution of Key Populations in Nigeria: A Case for Optimizing HIV Service Coverage- Results from the 2023 Size Estimation Study through Programmatic Mapping in 20 States

Eieckam C<sup>1</sup>, Green K<sup>1</sup>, Udoete A<sup>1</sup>, Oludayo S<sup>1</sup>, Emmanuel F<sup>2</sup>, Isac S<sup>3</sup>, Agbo F<sup>4</sup>, Aguolu R<sup>4</sup>

<sup>1</sup>Institute for Global Public Health, University Of Manitoba (nigeria Office), Abuja, Nigeria, <sup>2</sup>Institute for Global Public Health, University of Manitoba, Winnipeg, Canada, <sup>3</sup>Institute for Global Public Health, University of Manitoba, Utter, India, <sup>4</sup>National Agency for the Control of AIDs, Abuja, Nigeria

**Background:** A 2020 Mode-of-Transmission study reports that 11% of all new infection are caused by Key Population (i.e FSW, MSM), though they constitute only about 2% of the population. To gain epidemic control, it is imperative to scale-up services to reach key populations in places where they are. The 2023 Key population size estimation study used programmatic mapping to show the distribution of KP across Nigeria.

**Materials and Methods:** Four KP groups (FSW, PWID, MSM & Transgender People) were mapped. Programmatic mapping approach involves two sequential data collection steps referred to as level one [L1] and level two [L2]. During L1, information was collected from randomly identified secondary key informants (KIs) on the geographic locations where KPs congregate and on crude estimate of the number of KPs who can be found. L1 interviews were conducted at major markets, parks, streets, recreational gardens, malls, etc, over a 25-day period. In L2, interviews involved primary key informants who validated information collected during L1 over a period of 20 days.

**Results:** A total of 55,418 hotspots were validated in 20 states (FSW:18711, PWID:18419, MSM:10,192, TG:8096). A total of 206,590, 148,365, and 52,361 were estimated amongst the FSW, PWID and TG typology, while 86,283 and 73,925 for physical and virtual MSM respectively. Within the FSW typology, highest number of spots was validated in Kastina (1919)



and lowest in Yobe state (389). Highest number of FSW estimated in a peak day ranged from 4633 in Ekiti to 33995 in Delta. For the MSM typology, highest number of spots was identified in Kastina (1235) and lowest in Yobe (147). Peak day MSM estimate ranged from 939 in Yobe to 14,023 in Kastina. Amongst PWID, Borno state has highest number of hotspots validated at 1974. Peak day PWIDs estimate ranged from 2483 in Bayelsa to 20798 in Zamfara. A total of 980 active hotspots was validated in Kastina for the TG typology, with the peak day TG estimate ranging from 1129 in Kwara and 11604 in Katsina.

**Conclusions:** The result from the study show inter-state differentials both in terms of number of active hotspots and number of key populations by typology found in the various states. It shows how various KP typology are distributed in the 20 states: a critical information that will help KP program gain national saturation in Nigeria.

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## Fading Identities in the COVID 19 era; Improving Access to Gender Affirming Care and HIV Services for Transgender Women and Men in Malawi.

Juao P<sup>1</sup>, Mbilizi Y

<sup>1</sup>Centre for the Development of People (CEDEP), Lilongwe, Malawi

**Background:** The COVID-19 pandemic exacerbated healthcare challenges for transgender people, especially access to essential services like gender-affirming care and its link to HIV services in Malawi. Pandemic-related lockdowns, restricted travel, and limited imports of non-essential drugs and medications (including gender-affirming medications) between 2020/21 had a negative impact on transgender people who were dependent on hormonal use. The cessation of routine doses had serious physical and mental health consequences, discouraging many people from seeking HIV services and care.

**Description:** Recognizing these difficulties, a collaborative effort between two medical practitioners and a local transgender group

addressed the crisis by providing hormone access to 25 transgender women and 20 transgender men. This initiative ensured an uninterrupted supply of routine doses and distributed essential HIV services such as self-test kits, condoms, and lubricants thanks to a global COVID-19 Emergency Response grant from Outright Action International. This intervention not only restored access to essential healthcare but also highlighted the importance of understanding the interactions between hormone treatments and HIV medications to avoid the discontinuation of ART or PrEP.

**Lessons Learnt:** This trailblazing initiative, led by medical professionals, not only provided critical healthcare but also dispelled myths that prevented transgender people on hormones from accessing HIV services. The study emphasized the critical role of hormonal treatments in enabling transgender people to access HIV services, as well as the critical need for inclusive healthcare policies that address the marginalized based on gender identity.

**Conclusions:** To ensure that this marginalized group is not excluded from care, transgender considerations should be incorporated into future pandemic planning and emergency response frameworks. To support equity and ensure broadened gender-responsive pandemic plans for the Ministry of Health, urgent advocacy and gender affirmation therapy integration into HIV programming is required.

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## Influence of the Proposed Anti-LGBTQ+ Bill on HIV&AIDS Programs for Men Who Have Sex with Men (MSM) in Ghana

Owusu S<sup>1</sup>, Wosornu S<sup>1</sup>

<sup>1</sup>Maritime Life Precious Foundation, Takoradi, Ghana

**Background:** Key populations (KPs) such as men who have sex with men (MSM) are particularly vulnerable and disproportionately affected by HIV due to factors such as stigma, discrimination and abuse. Anti-LGBTQ+ laws further threaten human rights and response to HIV&AIDS making it



extremely difficult to reach an already hard-to-reach populations such as MSM with HIV&AIDS services. In June 2021, 'Anti-LGBTQ Bill' was presented to Ghana parliament for review. The proposed bill criminalizes persons identified as LGBTQ+ by a five-year imprisonment. It also makes rendering HIV&AIDS service to LGBTQ+ people a crime punishable by up to 10 years in jail. We sought to assess the influence of the proposed anti LGBTQ+ bill on HIV&AIDS programmes for MSM in Ghana.

**Materials and Methods:** A qualitative cross-sectional survey was conducted to explore the impact of the proposed anti-LGBTQ+ bill on HIV programming for MSM in Ghana. Directors of 3 organizations working with MSM in Ghana, and 30 MSM individuals were purposively sampled and interviewed for this study. In depth individual and focused group interviews were conducted for the directors and MSM respectively between March and April 2022 using a semi-structured interview guide. Interviews were transcribed verbatim and analyzed using inductive thematic analysis.

**Results:** Findings from the study confirmed a considerable reduction in uptake of HIV&AIDS services for MSM in Ghana. MSM participants reported concerns to accessing HIV services at health facilities for fear of being discriminated. Results also confirmed that MSM have been further driven underground and would rather avoid places and or services where they could be easily identified as LGBTQ+. Reports from the KP organizations indicate low turn-out of MSM to community programs that promote HIV prevention, testing and treatment. Findings also revealed increase in stigma and reprisal attacks on the organization leading to some offices halting activities to ensure safety of staff and MSM.

**Conclusions:** The influence of the anti LGBTQ+ bill on HIV&AIDS programming is enormous affecting MSM and the organizations offering services to them. Hence, there is the need for a high-level stakeholder advocacy on the effect of the proposed anti-LGBT bill against sexual minorities in the fight against HIV&AIDS.

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## Improving Retention of ART' for Key Populations through Treatment Provision in Wellness Centers in Four Districts and 11 Sites in Zambia

**Mushisha H**

<sup>1</sup>USAID CHEKUP II, LUSAKA, Zambia

**Background:** Key populations (MSM, FSW, and TGs) in Zambia face a high risk of HIV, despite increased national coverage of testing and treatment services, remain disproportionately under-served. The Activity identified 10 safe spaces in 5 districts to provide KP-friendly integrated ART services to increase access to and retention in client-centered HIV case management among underserved populations.

**Materials and Methods:** The methodology is secondary data analysis from routine HMIS used by the Activity of ≥ 18-year-old clients on life-saving ART in 4 districts and 11 sites of Zambia from April 2023 to November 2023. The Activity further reviewed ART files, appointment reminders, and ART events registers to detect kept visits, missed appointments, and events such as death, Trans outs, and lost to follow up.

**Results:** Against a target of 500 KPs to be initiated and maintained on treatment in 2023, the TX\_CURR of 305 increased to 1736 clients maintained on treatment as of November 2023. Of the 1736 TX\_CURR, 1165 were FSW (67%), 495 MSM (28%), 74 TG (4%) and PWIDS 2 (0.11%). the sharp increase in FSW, MSM, and TG access to treatment due to expanded DSD approaches through training of Health care providers in Key population sensitivity approaches, HIV consolidated guidelines, with specific KP tailored treatment Wellness. Through the DSD approach, the Activity achieved a high retention rate with treatment mortality and lost to follow-up of 58 Clients, or 3% of the total 1736 clients on treatment. KP client advisors ensured that missed clinical appointments and drug pick-ups were traced, located, and linked back to treatment. As a result, 15 clients were restarted on treatment with continuous follow-up and support to other clients. The mobility of KPs contributed to this minor loss of clients.



**Conclusions:** The study shows that the provision of ART treatment services in KP Wellness Centers through client case Management models tailored to KP-friendly approaches accelerates a sense of security, ownership, and ease of access to integrated services for clients.

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## Increasing HIV Prevalence and Prevention Service Access at Hotspots for Key Population in Nigeria— Result from the 2022 Size Estimation Study via Programmatic Mapping in 20 states.

Eieckam C<sup>1</sup>, Green K<sup>1</sup>, Ogio O<sup>1</sup>, Amadi K<sup>1</sup>, Agbo F<sup>2</sup>, Aguolu R<sup>2</sup>

<sup>1</sup>Institute For Global Public Health, University Of Manitoba (Nigeria Office), Abuja, Nigeria, <sup>2</sup>National Agency for the Control of AIDS, Abuja, Nigeria

**Background:** Nigeria national HIV response program has made huge investments towards HIV prevention amongst Key population. As a measure of understanding factors influencing the dynamics in HIV prevalence, transmission etc. amongst Key populations, the 2023 KPSE study assessed the availability of HIV prevention services at hotspots for the 4 KP typology across 20 states in Nigeria.

**Materials and Methods:** Four KP groups (FSW, PWID, TG and MSM) were mapped in 20 states using Programmatic mapping Method. Programmatic mapping which involves two sequential data collection steps known as level one [L1] and level two [L2]. During L1, information was collected from key informants (KIs) on geographic locations/spots where KPs congregate, characteristics of spots and estimate of KPs found there. During L2, KI interviews were conducted to validate spots identified during L1, and so assess the service availability in terms of coverage and quality for Key populations networking in these spots. In L2 interviews, primary Key Informants, mostly members of the KP groups were used to validate information received during L1.

Ethical approval for the study was received from the National Health Research Ethic Committee in Nigeria's Ministry of Health.

### Results:

In terms of available services for KPs at hotspots, aggregation of numbers from the 20-study state showed the following proportions by KP typology

- FSW hotspots: Condom:42%; Lubricant: 28%; HIV Testing: 21%; HIV treatment: 12%; STI treatment:12%; HIV Peer Education: 15%.
- MSM hotspots: Condom: 43%; Lubricant: 38%; HIV Testing: 21%; HIV treatment: 13%; STI treatment: 13%; HIV Peer Education: 15%.
- PWID hotspots: Condom:25%; Lubricant:18%; HIV Testing: 15%; HIV treatment: 9%; STI treatment:7%; HIV Peer Education: 11%; Needle Replacement: 8%; OST: 5% and Needle disposal: 9%.
- TG hotspots: Condom: 52%; Lubricant: 42%; HIV Testing: 23%; HIV treatment: 10%; STI treatment:17%; HIV Peer Education: 15%.

**Conclusions:** The dwindling access to prevention services at spots is a critical rate-limiting factor in Nigeria's push towards attaining epidemic control targets by 2030. With increasing HIV prevalence amongst KPs, it is imperative to target and scale up prevention service in these locations (hotspots) where key population network.

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## Evaluation Qualitative des Facteurs Pouvant Influencer L'Utilisation des Services de Prévention Combinée chez les Populations Clés au Sénégal

Niang D<sup>1</sup>

<sup>1</sup>National council for fight against AIDS, Dakar, Senegal

**Contexte:** Au Sénégal, la prévalence du VIH reste élevée chez les populations clés avec 27.6% chez les Hommes ayant de rapports sexuels avec d'autres hommes (HSH), 9,2% chez les injecteurs de Drogue et 6,6% chez les Professionnelles du Sexe (PS).

**Objectif :** Analyser les facteurs pouvant influencer l'atteinte des résultats des 95 95 95 chez PS, les



HSH et les CDI. Le but de cette étude était de définir des stratégies novatrices pour améliorer l'accès de ces populations clés aux services de dépistage et de traitement.

**Méthodologie :** Cette étude transversale, descriptive et qualitative a été menée à travers une revue documentaire de la réponse actuelle et des entretiens individuels auprès des prestataires de services, ainsi que des focus groupe avec les organisations de populations clés et des partenaires de mise en œuvre à Dakar. 3 focus groupe organisés avec 15 HSH, 10 CDI et 15 PS, 2 réunions ont été organisées une avec 9 organisations d'encadrement et 25 participants et l'autre avec 7 OCB. Les points focaux VIH des ministères de la justice et de l'Intérieur rencontrés

**Résultats :** La connaissance des risques existent chez les leaders chez les HSH, les PS et CDI rencontrées. Chez les PS, il est noté la difficulté de résister au tarif incitatif par les clients pour ne pas utiliser le préservatif.

Chez les HSH, l'auto stigmatisation, le manque de sécurité, le multi partenariat, les rapports sexuels non protégés chez les jeunes, la prostitution déguisée, la pauvreté et la marginalisation sociale constituent les préoccupations majeures. les CDI sont victime de la poly consommation, le partage de la pipe, le syndrome de manque. les femmes CDI souvent plus exposées aux violences, viols et chantages sexuels.

**Conclusions :** L'évaluation a permis de formuler plusieurs recommandations: la mise en place d'une plateforme virtuelle d'anticipation, alerte et de gestion des cas de violations des droits humains des VBG pour documenter les cas ; partage d'informations, gestion des cas par l'assistance d'urgence, médiation et assistance juridique. Rendre disponible les moyens alternatifs de prévention par la prophylaxie pré et post exposition (PrEP). Former sur la sécurité digitale et l'utilisation sécurisée de l'internet.

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## Les Motifs de Dépistage du VIH/Sida chez les Populations Clés dans un Centre de Dépistage à Dakar

**Konare Z<sup>1</sup>**, NGOM/GUEYE N<sup>1,2</sup>, MBOUP A<sup>1</sup>, KA S<sup>1</sup>, DIAGNE A<sup>1</sup>, DIAW K<sup>1</sup>

<sup>1</sup>Centre De Traitement Ambulatoire (cta/opals), Dakar, Senegal, <sup>2</sup>Université Alioune DIOP, Bambey, Sénégal

**Contexte :** Au Sénégal, les dernières estimations montrent une baisse progressive de la prévalence chez la population générale qui est de 0,3 % (Spectrum, ONUSIDA 2022). Par contre l'épidémie est concentrée chez les populations clés, notamment les professionnelles de sexe (5,8 % en 2019), les hommes ayant des rapports sexuels avec d'autres hommes (27,6% en 2017), les consommateurs de drogues injectables (5,2 % en 2021) et les détenus (2,1 % ENSC, 2019). C'est dans ce contexte que cette étude a été menée identifier les motifs du dépistage chez ces populations.

**Matériels et Méthodes :** C'est une étude rétrospective descriptive portant sur les populations clés venus pour un dépistage au niveau de l'unité de dépistage VIH du Centre de Traitement Ambulatoire de Fann. Il a concerné la période allant 1er juin 2022 et 31 Mai 2023. Le counseling a été fait par les assistants sociaux ou les médiateurs en santé. La collecte des données s'est faite à l'aide de registres, de fiches de recueil confectionnés pour le dépistage et des rapports d'activité du dépistage. La saisie et l'analyse des données ont été faites grâce au logiciel Excel.

**Résultats :** Au total, nous avons effectué 3995 dépistages dont de 67 concernait des pop clés soit XXX%. Parmi ces populations, les HSH représentait 75% (n=50) suivis des détenus 12% et les CDI 9%. Les rapports sexuels non protégés/ multi partenariat (N=19), la confirmation sérologique (N=17), le dépistage à l'initiative du prestataire étaient les principaux motifs de dépistage. La présence des anticorps anti VIH était noté chez 52/67 clients pop clés soit 77% dont 65% (n=44) chez les HSH. La sérologie VIH était revenue positive, aussi chez 01 CDI, 05 détenus et 02 PS. Les populations clés positives au VIH était retrouvés en majorité dans la tranche d'âge 25-49 ans (65%).



**Conclusions :** La prise de risque était le moyen le plus fréquent de dépistage chez de jeunes population clés d'où la nécessité de renforcer la prévention auprès de celles-ci d'autant que ces résultats confirment l'épidémie de type concentrée au Sénégal.

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## Addressing the HIV Testing and Treatment Gap: The Integration of Traditional Healers with Local Health Facilities

**Chabane M**<sup>1</sup>

<sup>1</sup>*Aurum Institute, Johannesburg, South Africa*

**Background:** The Aurum Institute in South Africa through its five POP INN clinics provides HIV prevention and treatment for men who have sex with men (MSM) and transgender women (TGW). The uMgungundlovu clinic has experienced challenges with clients who test positive for HIV but do not want to be initiated on ART. Qualitative inquiry through conversations between case facilitators and clients found that similar to the general population of South Africa, a large proportion of TGW and MSM strongly believe in traditional medicine and seek care from traditional healers. The clinic commenced an integration of traditional healers into the program to incorporate culture and religion into mainstream medical care.

**Description:** To address prevention and treatment gaps the uMgungundlovu POP INN team engaged with traditional healers in the local areas and invited them to the clinic for discussions about HIV prevention, treatment, and care from December 2020. During October 2022-September 2023, uMgungundlovu found 198 HIV-positive cases, however, only 169 cases were linked to care using same-day ART initiation. Eleven traditional healers in the uMsunduzi sub-district were invited to the clinic to begin collaborative efforts. The collaboration aimed to establish and build a strong working relationship with traditional healers that will educate and empower them about HIV/AIDS and other related diseases.

**Lessons Learnt:** The collaboration has assisted in the retention of clients and re-initiating of lost clients. Training the traditional healers on HTS has provided a strong referral system – this has expanded to the eThekweni site where two additional traditional healers have been integrated and trained. Engaging with communities and traditional healers through Mpowerment groups resulted in 23 clients being reached and provided with prevention packed (PrEP).

**Next steps:** Collaboration with traditional healers at Aurum POP INN uMgungundlovu continues to grow and expand to provide PrEP consultations and referrals from the traditional healers to the facility. The traditional healers' premises will also be used as 'pick up points' for the clients to reduce and mitigate transport costs, reduce institutional stigma, and bridge the gap between culture and mainstream medicine.

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## “Seducing” Fishermen to Test for HIV: A Qualitative Study of Social Network-Central Promoter Experiences with Encouraging Social Network Members to Test for HIV

**Olugo P**<sup>1</sup>, Gutin S, Kulzer J, Narishma H, Kwena Z, Agot K, Ayieko B, Oluoch L, Angawa D, Thirrumurthy H, Camlin C

<sup>1</sup>*Impact Research And Organization, Kisumu, Kenya*

**Background:** Fishermen, a priority population in Kenya's HIV response, experience low HIV awareness and limited engagement in prevention and treatment. To address sub-optimal HIV testing among them, we conducted a cluster randomized control Owete trial (NCT04772469) engaging highly central fishermen in their social networks as HIV testing promoters. This abstract reports on a qualitative study of promoter experiences with HIV self-test (HIVST) kit distribution at 3-month follow-up.

**Materials and Methods:** Network-central promoters from both control and intervention arms from three beach communities in Siaya



County, Kenya were trained on HIV literacy and testing. Intervention arm promoters received extra training on distributing HIVST kits and transportation vouchers for confirmatory testing at local public clinics. Control arm promoters received HIV test vouchers for redemption at local public clinics. Thirty in-depth interviews (IDIs) were conducted at three months, purposively sampling promoters based on age (<35 and ≥35 years) and beach community. Three-month follow-up in-depth interviews (IDIs) (N=30) were conducted with promoters purposively sampled based on age (<35 and >35 years) and beach community. The in-depth interviews were audio-recorded, transcribed/ translated into English. Through an iterative process a codebook was developed, transcripts were inductively coded, and a framework analysis was conducted to identify themes.

**Results:** Promoters reported positive experiences with HIVST and voucher distribution. Most experienced no challenges with HIVST distribution, educating cluster members, providing HIVST instructions, interpreting results, or encouraging linkage to treatment. Using a one-on-one approach at homes, promoters explained HIVST kits patiently. Some described the importance of introducing the topic slowly to "seduce" cluster members to test. Instruction on HIVST or voucher use was considered "easy." Promoters facilitated normalization of HIV testing and engagement in treatment by encouraging testing and dispelling fears of positive results. Control promoters faced challenges, including appearing empty-handed with only testing vouchers, men preferring HIVST kits over facility testing, and some questioning the efficacy of HIVST.

**Conclusions:** Network central promoters consistently reported positive experiences with HIVST distribution and promoting linkage to prevention and care services in their social networks. Social network approaches are a promising method for increasing HIVST uptake and normalizing testing among hard-to-reach fishermen.

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## Uptake of Post Gender-Based Violence Services Among Adolescent Girls and Young Women Across Four High HIV Burdened Districts of Zimbabwe, October 2022 to September 2023

**Ndlovu M<sup>1</sup>**, Chimwaza T<sup>1</sup>, Mudzengerere F<sup>1</sup>, Muguse J<sup>1</sup>, Chindove B<sup>1</sup>, Muzondo M<sup>1</sup>, Choga G<sup>1</sup>, Tafuma T<sup>1</sup>, Muchedzi A<sup>1</sup>, Apollo T<sup>2</sup>, Gwanzura C<sup>2</sup>, Mupanguri C<sup>2</sup>, Mukuzunga M<sup>2</sup>, Mukungunugwa S<sup>3</sup>, Mhangara M<sup>3</sup>, Nyathi K<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Sibanda T<sup>1</sup>, Nyamundaya T<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe

**Background:** Gender-based violence (GBV) is a widespread concern in Sub-Saharan Africa, affecting the health and well-being of adolescent girls and young women (AGYW). The 2019 violence against children survey in Zimbabwe revealed that 26% of young people aged 18-24 years experienced childhood violence, and those who experienced violence were more likely to have HIV infection. Additionally, GBV increases likelihood of developing mental health disorders. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program across high HIV burdened districts to reduce HIV incidence among AGYW. We assessed uptake of post-GBV services by AGYW.

**Materials and Methods:** A descriptive cross-sectional study was conducted where routine program data for all AGYW enrolled in the DREAMS program in Chipinge, Gweru, Makoni, and Mutare districts for the period October 2022 to September 2023 were extracted from the program DHIS2 database. Data were analyzed using STATA version 17 generating frequencies, proportions, and measures of central tendency, and spread. The assessment was covered by the Medical Research Council of Zimbabwe approved non research determination protocol (MRCZ/E/159).

**Results:** Data for 7,445 AGYW who experienced GBV were analyzed. About 53% (n= 4008) of those



who received post GBV services were aged 20-24; median age (years) was 20 (IQR 23 -18). About 91% (6,762/7,445) experienced emotional and physical violence, and 9% (675/7,445) experienced sexual violence. Of those who experienced sexual violence, 84% (n=564) received rapid HIV tests, 97% (n = 656) STI screening and treatment, 89% (n=600) family planning, and 2% (n=16) psychosocial support (PSS). About 66% (n= 445) of AGYW who experienced sexual abuse were in the 15 – 19-year-age-group. Among those that experienced sexual violence, 5% (31/675) accessed post GBV services within 72 hours, and of these, 74% (n=23) received post exposure prophylaxis (PEP), and 29% (n=9) received emergency contraceptives.

**Conclusions:** There are significant gaps in post-GBV service uptake among adolescent girls and young women, particularly timely access to care, provision of PEP, emergency contraceptives, and psychosocial support. We recommend enhancing awareness and accessibility of immediate post-GBV care, tailoring services to different age groups, especially adolescent girls.

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## Differentiated Case Management for Key Populations Living with HIV Reduces Interruption in Treatment in Mali

Tall M<sup>1</sup>, Casalini C<sup>2</sup>, Daou I<sup>1</sup>, Coulibaly K<sup>1</sup>, Ranebennur V<sup>2</sup>, Lambert A<sup>2</sup>, Cooper E<sup>2</sup>, Bore D<sup>3</sup>, Diarra N<sup>3</sup>, Ag A<sup>4</sup>, Traore B<sup>5</sup>, Maiga I<sup>6</sup>  
<sup>1</sup>FHI360, Bamako, Mali, <sup>2</sup>FHI360, USA, USA, <sup>3</sup>USAID, Bamako, Mali, <sup>4</sup>SOUTOURA, Bamako, Mali, <sup>5</sup>ARCAD Sante Plus, Bamako, Mali, <sup>6</sup>APPF, San, Mali

**Background:** In Mali, key populations (KP) face stigmatization, discrimination, and criminalization, preventing many of them from accessing health services. Long-term treatment success for people living with HIV depends on lifelong adherence and sustained viral suppression. Based on WHO recommendations, KP should be prioritized for peer-led differentiated case management services. U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through U.S. Agency for International

Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project offers HIV treatment services to KP living with HIV (KPLHIV), in three regions (Bamako, Sikasso, Segou) in Mali.

**Description:** At baseline, KPLHIV received health care worker-led, clinic-based three-monthly in-person refill and antiretroviral therapy (ART) adherence counseling. To decrease interruption in treatment (IIT), EpiC Mali developed and deployed a community-based case management approach. The intervention included risk assessment for IIT (advanced HIV disease, substance abuse, mobility, no regular income, homeless, comorbidities, no disclosure, ART misconceptions). If 1 or more risks, KPLHIV were offered peer-led, community-based bi-monthly virtual and in-person support to address risk factors and strengthen ART adherence including reminders about and navigation to clinic appointments; home-delivery of ART if preferred. Upon missing appointment, peer navigators traced KPLHIV to encourage return to care. Using DHIS2-individual level project data, we followed up a cohort of KPLHIV on ART at 10 community clinics, from October 2020 to September 2023. IIT was measure before (October 2020 to September 2021) and after rolling out of differentiated case management (October 2021 to September 2023). Among KPLHIV currently on ART, IIT was defined as missing last appointment for more than 28 days.

**Lessons Learnt:** Prior to the intervention, 33% (298/904) KPLHIV experienced IIT, while after, IIT reduced to 27% (167/606) in the first year of the intervention (October 2021-September 2022) and to 8% (34/439) in the following year (October 2022-September 2023); the latter was lower among MSM than FSW (3% versus 9%, respectively).

**Conclusions:** Using an ART case management approach is feasible and reduces IIT among KPLHIV. Further evaluations are needed to increase our understanding of contributing risk among KPLHIV, and the critical components of a successful peer led differentiated case management approach.





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## Delivering Integrated Next Step Counselling (iNSC) to Perinatal Women at Risk of Acquiring HIV-Site Experiences from the IMPAACT 2009 Study in Zimbabwe

Sango A<sup>1</sup>, Mungate L<sup>1</sup>, Ngwashi C<sup>1</sup>, Chitibura L<sup>1</sup>, Munaiwa O<sup>1</sup>, Mutasa T<sup>1</sup>, Chimutai V<sup>1</sup>, Tamirepi K<sup>1</sup>, Mandima P<sup>1</sup>, Mutambanengwe-Jacobs M<sup>1</sup>, Nematadzira T<sup>1</sup>, Stranix-Chibanda L<sup>1,2</sup>

<sup>1</sup>University of Zimbabwe-Clinical Trials Research Centre (UZ-CTRC), Harare, Zimbabwe, <sup>2</sup>University of Zimbabwe Faculty of Medicine and Health Sciences, Child and Adolescent Health Unit., Harare, Zimbabwe

**Background:** Clinical trials offering pre-exposure prophylaxis (PrEP) to perinatal women often embed adherence support counseling into study visits. Integrated Next Step Counselling (iNSC) is a person-centered, motivational-interviewing informed discussion that allows participants to create their own goals and develop strategies to reach them. In the IMPAACT 2009 study, which enrolled pregnant women wanting to protect themselves against HIV, an embedded iNSC approach broadened the scope of discussions about sexual health protection to include overall mental health and well-being. We report the Zimbabwe site experiences delivering iNSC.

**Description:** Trained counselors implemented iNSC at each study visit regardless of whether participants opted to initiate PrEP. For women on PrEP, monthly dried blood specimens were collected to monitor adherence via tenofovir diphosphate testing, and these results were used to guide targeted iNSC discussions (t-iNSC). The counselors (n=6) met periodically to discuss their experiences. We used the Objective, Reflective, Interpretive, and Decisional framework to collate the counselors' observations of participants' mental health, well-being, and sexual health during the study.

**Lessons Learnt:** In practice, counselors reported several advantages of iNSC/t-iNSC over traditional adherence-focused counseling. On reflection, a counselor reported that iNSC opened helpful conversations about women's contextual and structural challenges. Counselors recalled women

sharing that PrEP was not a priority when there was no food on the table or when experiencing stressors related to pregnancy. The interpretation is that concerns about sexual health are secondary to fundamental requirements; before talking about sexual health difficulties, social and mental health issues need to be addressed. Furthermore, iNSC/t-iNSC activated and improved participants' abilities to manage and adapt to social situations while on PrEP. Despite cultural barriers associated with partner dynamics, iNSC/t-iNSC assisted participants in assessing and determining their sexual health protection, regardless of PrEP use.

**Conclusions:** iNSC/t-iNSC was a crucial tool used by IMPAACT 2009 counselors working with perinatal participants wanting to protect themselves against HIV. Discussing sexual and mental health in addition to HIV-related issues created growth opportunities and reflected the lived realities of perinatal women with limited resources. Our experiences suggest that iNSC/t-iNSC addressed the overall needs of participants and may improve upon traditional approaches.

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## Violence Response Intervention Provided by Peers Is More Effective to That Provided by Traditional Health Care Workers

Mwakibete A<sup>1</sup>, Mpinga E<sup>1</sup>, Herman E<sup>1</sup>, Persaud N<sup>2</sup>, Carpenter D<sup>2</sup>, Walker C<sup>2</sup>, Akolo C<sup>2</sup>, Ng'weshemi J<sup>1</sup>, Ogwang B<sup>1</sup>, Boyee D<sup>1</sup>

<sup>1</sup>FHI360, Dar es salaam, Tanzania, United Republic of, <sup>2</sup>FHI360, Washington DC, USA

**Background:** Violence remains a significant barrier for key and vulnerable populations (KVP) to access health services in both communities and facilities. In Tanzania, 27% of women aged 15-49 years have experienced physical violence, and 12% experienced sexual violence; 38% of these reported seeking help. Peer-led approaches are known to be good strategies for violence prevention and response (VPR). It is speculated that, among violence survivors it's easier to disclose violence experience to a peer than to a health care provider (HCP). EpiC, a PEPFAR/USAID-



funded project is using peer-led approach to reach KVP with education, information, and messages about VPR to create a supportive environment for survivors to seek help. We aim to quantify the outcomes of peer-led approach in helping KVP access post violence care health services.

**Description:** From October-December 2022, 141 peer educators and navigators (PE/PN) in 11 regions were trained on VPR as community VPR teams. We analyzed routine data on violence among KVP who accessed biomedical services between January 2023 and September 2023, and those who disclosed violence at the community through peers. We determined the rate of disclosure of violence through VPR teams against disclosure through health care providers while accessing biomedical services and determined proportion that received different services.

**Lesson Learnt:** 2,186 KVP disclosed violence during biomedical services while 4,102 KVP disclosed violence through peers (3,310 experienced physical/emotional and 566 sexual violence). The violence experience disclosure rate was 47% higher among KVP reached by PE/PN than those reached during biomedical services. 20% of violence survivors reported through HCP while accessing biomedical services referred for post-violence care. Among those KVP disclosed violence through peers, 3,603 received first-line support, and 65% (2,375/3,603) referred for post-violence services. 16% (380/2375) received HTS, 7 tested HIV positive, and 6 linked to HIV treatment. 1% (24/2375) of those referred received contraceptives and 2% (49/2375) received post-exposure prophylaxis (PEP).

**Conclusions:** Peer-led community VPR teams can be an effective approach for coordinating prevention and response among survivors. A well-coordinated VPR presents an opportunity for KVP to access health services. Scaling up the use of peers for VPR is important strategy for effective programming.

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## CTO in HIV-Positive Patients: Navigating Complexities in Interventional Challenges

**Natraj Setty H<sup>1</sup>**, Sridhar L<sup>1</sup>, Jayashree K<sup>1</sup>, Rahul P<sup>1</sup>, Chethan K<sup>1</sup>, Ravindranath K S<sup>1</sup>, Manjunath C N<sup>1</sup>  
<sup>1</sup>*Sri Jayadeva Institute Of Cardiovascular Sciences And Research Bangalore, Bangalore, India*

**Background:** Coronary chronic total occlusions (CTOs) present a unique challenge in coronary artery disease, particularly among individuals living with HIV (PLWH). Successful percutaneous coronary intervention (PCI) for CTOs is essential for improving angina and left ventricular function. PLWH face an increased risk of adverse cardiovascular events due to complex interactions between traditional risk factors and the ongoing endothelial dysfunction, immune activation, inflammation, and heightened thrombosis risk associated with HIV infection.

**Objective:** This prospective observational study aimed to evaluate the procedural success and complications of PCI for CTOs in PLWH.

**Materials and Methods:** From August 2015, we enrolled 25 consecutive PLWH with CTOs in a comprehensive study. Each patient underwent coronary angiography, and clinical presentations were meticulously evaluated. All participants underwent PCI, with clinical follow-up for 5 years.

**Results:** The study demonstrated a 100% procedural success rate with an uneventful in-hospital course. The mean age was 48 years, and HIV duration was 4.1 years. CTO distribution included 15 patients with 100% LAD occlusion, 5 with 100% RCA occlusion, 1 with 100% LMCA and LAD occlusion, and 4 with 100% LCX occlusion. Various vessels were targeted during PCI, with an average stent size of 3x30mm. The fluoroscopy time averaged 2-3 hours. Three deaths occurred during the 5-year follow-up, unrelated to PCI. No major adverse cardiovascular events were reported, and patients experienced significant symptom relief post-PCI.

**Conclusions:** PLWH face an increased risk of coronary CTO lesions at a younger age, predominantly during the initial HIV infection phase. PCI emerges as an effective and safe



coronary revascularization strategy, providing sustained symptomatic and prognostic benefits. HIV status and highly active antiretroviral therapy did not hinder procedural success or impact clinical outcomes.

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## High Estimates of PWIDs in Nigeria: A Call to Scale-up the Harm Reduction Program Intervention

**Andrew A**<sup>1</sup>, Oshagbami O<sup>1</sup>, Aguolu R<sup>1</sup>, Agbo F<sup>1</sup>  
<sup>1</sup>National Agency for The Control Of AIDS, Abuja, Nigeria

**Background:** To end AIDS in Nigeria by 2030, the country has aligned its efforts with global strategies outlined by UNAIDS. One of which is the implementation of the complete package of harm reduction intervention among people who inject drugs (PWIDs). Which is currently being implemented in four states. Knowledge about this estimate is key to ensuring effective planning and coverage for effective programming of this typology.

**Materials and Methods:** A secondary analysis of the 2023 Key Population programmatic mapping and size estimation study conducted in 20 states in Nigeria was done, and two sequential steps were employed

Level 1: – Systematic information gathering from primary and secondary key informants regarding the locations (“hotspots”) where sexual networking and injecting drug practices occur.

Level 2: Validation and profiling of identified “hotspots” to characterize and estimate the size of PWIDs.

**Results:** A total estimate of 18,419 PWID hotspots were identified in 20 states across Nigeria's six geopolitical zones, with Borno having the highest number of active hotspots 1,974 and the lowest in Plateau at 320. 57% of hotspots are in street/public places. The peak day of operation at hotspots was Saturday (30.7%). The total number of PWIDs estimated at 148,365 across the 20 states with Zamfara having the highest number of PWIDs at 15,772 and the lowest in Bayelsa at

1,923. About 12% (18,248) of the total estimated PWIDs were females.

**Conclusions:** The high number of estimated PWIDs underscores the need for a scale-up of comprehensive harm reduction programs beyond the four states to other states of the country. The state estimate variations observed provide useful information for planning and efficient programming.

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## Innovate and Engage: Nudgeathons in Action for PrEP Provision Among Gay Men and Other Men Who Have Sex with Men in South Africa

**Bokolo S**<sup>1</sup>, Mistri P<sup>1</sup>, Govathson C<sup>1</sup>, Vezi L<sup>1</sup>, Ndlovu N<sup>1</sup>, Chetty-Makkan C<sup>1</sup>, Pienaar J<sup>2</sup>, Maughan -Brown B<sup>3</sup>, Thirumurthy H<sup>4</sup>, Pascoe S<sup>1</sup>, Buttenheim A<sup>5</sup>, Long L<sup>1,6</sup>

<sup>1</sup>Health Economics and Epidemiology Research Office, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa, <sup>2</sup>The Aurum Institute, Johannesburg, South Africa, <sup>3</sup>Southern African Labour and Development Research, University of Cape Town, Cape Town, South Africa, <sup>4</sup>Department of Medical Ethics and Health Policy, Perelman School of Medicine, University of Pennsylvania, Philadelphia, United States, <sup>5</sup>Department of Family and Community Health, School of Nursing, University of Pennsylvania, Philadelphia, Philadelphia, United States, <sup>6</sup>Department of Global Health, Boston University School of Public Health, Boston, United States

**Background:** Improving the performance of HIV programs requires collaboration and innovation to design interventions that align with client needs. Nudgeathons are events in which novel, behaviourally informed solutions to a particular problem can be rapidly crowdsourced. Given their limited use in the HIV response, the Indlela nudge unit hosted its inaugural nudgeathon in March 2023 to identify potential ways to increase uptake and persistence of oral PrEP amongst gay men and other men who have sex with men (MSM).

**Materials and Methods:** We conducted a 2-day nudgeathon in Johannesburg and designed activities that followed elements of Indlela's



NUDGE framework for identifying behavioural solutions: (1) Narrow the behavioural problem, 2) Understand the context, 3) Discover insights about barriers to the behaviour, 4) Generate solutions and 5) Evaluate the solutions. A person-centred approach to crafting interventions was adopted, which leveraged several behavioural science tools; including user journey maps to understand the context; the COM-B (Capability, Opportunity, Motivation-Behaviour) model to identify behavioural barriers; and the EAST (Easy, Attractive, Social, Timely) framework to generate behaviourally informed ideas.

**Results:** The nudgathon included a diverse group of 25 participants, including behavioural scientists and health service providers. Over 2-days, 600 ideas for promoting sustained PrEP use were identified. Through an iterative process of refinement and selection, participants and an adjudication panel identified three promising ideas: 1) packaging to improve engagement in event-driven (ED) PrEP; 2) mobile PrEP delivery; and 3) simplifying PrEP access at health clinics. Subsequently, one participating organisation implemented a variation on the strategy to promote ED PrEP and integrated this into its existing MSM program. PrEP starter packs including an HIV self-test and first dose of ED-PrEP were distributed at nightclubs, multiple pride and community events across 2 provinces with a formal evaluation pending.

**Conclusions:** Nudgeathons are a promising way to apply behavioural insights to challenges in HIV prevention and generate solutions to those challenges that can be rapidly integrated into health programs and evaluated.

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## Duration and Other Determinants of Sex Work Practice Amongst Men Who Have Sex with Men – Results from the 2020 Integrated Behavioral and Biological Surveillance Study (IBSS) in Nigeria.

**Ejeckam C**<sup>1</sup>, Green K<sup>1</sup>, Ejembi J<sup>1</sup>, Agbo E<sup>1</sup>, Adesina A<sup>1</sup>, Aguolu R<sup>4</sup>, Ashefor G<sup>4</sup>, Ejeckam O<sup>5</sup>

<sup>1</sup>Institute For Global Public Health, University Of Manitoba (Nigeria Office), Abuja, Nigeria, <sup>2</sup>Institute for Global Public Health, University of Manitoba, Winnipeg, Canada, <sup>3</sup>Institute for Global Public Health, University of Manitoba, Utter, India, <sup>4</sup>National Agency for the Control of AIDs, Abuja, Nigeria, <sup>5</sup>Diadem Consult Initiative, Abuja, Nigeria

**Background:** Key Populations, including Men Who Have Sex with other Men (MSM), serve as reservoirs of new HIV infection both within their different sub-typologies' and in the general populations. Between 2007 and 2020, the HIV prevalence amongst MSM in Nigeria has increased from about 13.5% to 25%. Previous rounds of the IBSS had always included key population (e.g. MSM), with a view to understanding the correlation, if any, between their individual behavioral characteristics and their HIV prevalence, etc. In 2020, the government of Nigeria commissioned an IBSS in order to gain insights into the behavioral characteristics that inform health outcomes amongst men who have sex with men.

**Materials and Methods:** The study adopted a multi-stage sampling procedure, using the hotspots list validated from the 2018 key population size estimation study in Nigeria as sample frame. During field data collection, an eligibility checklist based on UNAIDS blue book guidelines, was administered on sample participants and all those who met the eligibility criteria were randomly selected by trained interviewers until the MSM sample size per state (i.e. 372 per state) was achieved. Ethical approval was obtained from the National Health Research Ethics Committee (NHREC). Data analysis was done using the Stata statistical package, vs 13.



**Results:** A total of 4397 respondents who participated in both the behavioral and biological component of the study were MSM, with about 1087 of them identifying as male sex workers: about 25% of all MSMs are MSWs. The mean age at sex work debut is 20 years with about 50% of all MSM started sex work before the age of nineteen. Approximately, 41% of MSM involved in sex work have spent 5 years and above with only about 4% spending less than 1 year in sex work practice. The mean number of years spent in sex work is 5 years, and the demand for financial gain (63.2%) was the most common reason why MSM get involved in commercial sex work practice.

**Conclusions:** Study evidence will be used for specific KP typology program intervention with regards to HIV prevention, treatment and care amongst MSMs in Nigeria. With the rising HIV prevalence amongst this group, it is imperative to prioritize and plan interventions that responds to community needs and strengthen achievement of Nigeria's 2030 targets.

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## Assessing Unmet SRHR needs among Adolescents Living with Disabilities in Zambia and Kenya: A Mixed Methods Approach

**Banda T**<sup>1</sup>, **Sibeene E**<sup>2</sup>

<sup>1</sup>The University of Zambia, Lusaka, Zambia, <sup>2</sup>Kenyatta University, Nairobi, Kenya

**Background:** Young people with disabilities are among the poorest and most marginalised of the world's youth. There are approximately 180 to 220 million youth with disabilities globally, and nearly 80 percent of them live in developing countries. Yet young people living with disability continue to face gaps in meeting their SRHR needs.

**Materials and Methods:** The study adopted a concurrent mixed methods research approach. In Kenya, the study was carried out in Counties (Embu and Homabay) with the highest disability prevalence with a total of 149 participants. In the case of Zambia, the study was conducted in 3 provinces with high prevalence rates of disability

namely Lusaka, Western and Southern Provinces with a total of 149 participants. 8 Focus Group discussions were also conducted with these adolescents to gain deeper understanding on their challenges accessing SRHR services in Kenya and Zambia. 32 Key Informant interviews were conducted with health facility staff and non-governmental organizations with persons with disabilities from both countries.

**Results:** In Kenya, only 38.4% of the AYP living with disabilities indicated that SRHR services exist in their communities. This was not the same case in Zambia, where most respondents (60.1%) said that SRHR services exist in their communities. The study also established various harmful practices directed at AYP living with disabilities. Stigma and discrimination remained the leading harmful vices affecting AYP living with disabilities (81.5% and 79.1%) in Kenya and Zambia respectively. The study also found that the main perpetrators of these harmful practices were relatives, while guardians and parents came 3rd respectively.

**Conclusions:** There is need to draw lessons from countries successfully implementing SRHR services to bridge existing SRHR services among adolescents living with disabilities.

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## Assessment of Role in Sex with Partners, Knowledge and Utilization of PrEP and PEP Services Amongst Transgender People – Result from the 2020 Integrated Behavioral and Biological Surveillance Survey (IBBSS) In Nigeria.

**Ejeckam C**<sup>1</sup>

<sup>1</sup>Institute For Global Public Health, University Of Manitoba (nigeria Office), Abuja, Nigeria, <sup>2</sup>National Agency for the Control of AIDs, Abuja, Nigeria, <sup>3</sup>Diadem Consult Initiative, Abuja, Nigeria

**Background:** The size and the HIV epidemic profile of Transgender people has never been studied at national scale until the 2020 IBBSS. The risk of acquiring HIV is about 13 times higher among



transgender and gender diverse people than the rest of the adult population 15-49 years old .The global risk indicator for TG tracks unprotected receptive anal intercourse, which bears between 10 – 12 times risk compared to other intercourse methods (UNAIDs Bluebook).Uptake of Pre-exposure Prophylaxis and Post-exposure Prophylaxis is also a critical prevention pillar amongst Key Population, including Transgender people.

**Materials and Methods:** A rapid mapping and validation of TG spots was done through TG friendly community-based organization.The mapping validated active hotspots which was used as sample frame for the study. During field data collection,an eligibility checklist based on UNAIDs blue book guidelines, was administered on sample participants and all those who met the eligibility criteria were randomly selected by trained interviewers until the individual KP typology sample size per state (i.e.372 per state for TG) was achieved.Each participant responded to both the behavioral and to the biological Ethical approval was obtained from the National Health Research Ethics Committee (NHREC).

**Results:** The study shows that approximately 82%,71% and 77% of Transgender people are receptive anal partners during intercourse with their Regular,Casual, and Client partners which was highest across partner type relative to those that play insertive roles. Approximately 22% of TG had insertive intercourse with their casual partners and 19% of TG had insertive sex roles with client (paying) partners respectively.8% of Transgender people play both roles with their Regular partners.In terms of PrEP, approximately 41% and 24% of Transgender have ‘ever heard’ and ‘taken’ PrEP respectively,while 29% and 5% have ‘ever heard’ and ‘taken’ PEP respectively.

**Conclusions:** The comparatively high proportion of Transgender people engaging in receptive anal intercourse and the low awareness and intake of PrEP and PEP services indicates the need for a wholistic mainstreaming of the TG in the national response.A comprehensive prevention,treatment and care intervention, is needed to reach Transgender people, whose prevalence burden is highest at 28.8% (IBBSS 2020)compared to the other Key population sub-typology.

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## Facilitateurs et Obstacles à L'Enrôlement et à la Rétention des Travailleuses du Sexe dans une Cohorte de Santé Sexuelle (ANRS 12381 PRINCESSE) à San-Pedro, Côte d'Ivoire.

Kissi K<sup>1</sup>, Dedocoton R<sup>1,2</sup>, Nouaman M<sup>1,2</sup>, Plazy M<sup>3,4,5,6</sup>, Coffie P<sup>1,2</sup>, Agoua A<sup>7</sup>, Larmarange J<sup>8,9,10,11</sup>, Becquet V<sup>12</sup>

<sup>1</sup>Programme Pacci, Abidjan, Côte d'Ivoire, <sup>2</sup>Université Félix Houphouët-Boigny, Abidjan, Côte d'Ivoire, <sup>3</sup>Université de Bordeaux, Bordeaux, France, <sup>4</sup>INSERM UMR, INSERM UMR 1219, France, <sup>5</sup>IRD EMR, IRD EMR, France, <sup>6</sup>Bordeaux Population Health Research Center, Bordeaux, France, <sup>7</sup>ONG APROSAM, SAN PEDRO, Côte d'Ivoire, <sup>8</sup>CEPED, Paris, France, <sup>9</sup>université, Paris Cité, France, <sup>10</sup>IRD, Paris, France, <sup>11</sup>Inserm, Paris, France, <sup>12</sup>Ined, Aubervilliers, France

**Contexte :** Le projet PRINCESSE (11/2019-06/2023) a proposé une offre de soins en santé sexuelle et reproductive aux travailleuses du sexe (TS) dans la région de San Pedro en Côte d'Ivoire par le biais d'une clinique mobile opérant sur les sites de prostitution.489 femmes ont été incluses, mais moins d'un tiers d'entre elles ont terminé le suivi.Cette étude questionne les facteurs qui favorisent ou freinent l'adhésion et la rétention des bénéficiaires.

**Matériels et Méthodes:** L'étude qualitative menée entre mai 2022 et novembre 2023 a comporté 29 entretiens (dont 16 biographiques) et 3 focus groupes avec des participantes ou non au projet.

**Résultats :** La présence de la clinique mobile sur les lieux de prostitution, les stratégies avancées des pairs éducateurs et l'implication des responsables de site dans la mobilisation communautaire ont facilité leur engagement dans le projet. En outre, les attitudes accueillantes et les compétences du personnel soignant, la distribution gratuite de préservatifs et de gel lubrifiant, ainsi que la fourniture gratuite de soins et de médicaments ont été signalées comme facilitant leur maintien dans le suivi. À l'inverse, l'offre de soins jugées trop lourde a limité l'adhésion au dispositif : prélèvements de sang jugés excessifs ; rumeurs sur une revente de sang ; emplacement de la clinique mobile parfois trop éloigné et exposé aux indiscretions ; visites jugées trop longue. À cela s'ajoute la forte mobilité des TS



; des retards dans la transmission des résultats d'analyses médicales ; une offre de soins ne couvrant pas tous les besoins exprimés ; des préservatifs et lubrifiants en quantités insuffisantes qui n'ont pas facilité la rétention de bon nombre de participantes dans le projet.

**Conclusions :** Il y a une appréhension mitigée de l'offre de santé: cohérente et adaptée pour certaines et pour d'autres non. De manière transversale, les rumeurs autour de la gestion du sang, la forte mobilité des TS et les bénéfices matériels jugés insuffisants ont quelque peu impacté l'engagement des TS. L'équipe du projet s'est avéré un maillon essentiel de l'adhésion et du maintien des TS dans le projet.

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## Adherence and Retention on ART in Cross Border Counties. A Case of Kuria East Sub County Migori County, Kenya

Ochieng J<sup>1</sup>, Okeyo I<sup>2</sup>, Ochola R<sup>3</sup>, Miruka F<sup>4</sup>

<sup>1</sup>Ministry of health Migori County, Migori, Kenya, <sup>2</sup>Tukicheki Program, Migori, Kenya, <sup>3</sup>Tukicheki Program, Migori, Kenya, <sup>4</sup>CDC, Nyanza, Kenya

**Background:** Adherence to and retention on ART are the key factors in improving treatment outcome. Kenya is near to epidemic control hence it is important to put in place measures to identify and address any risks to reversing the gains made this far. As a result, a design of a campaign dubbed project "HIFADHI" i.e. HIV treatment continuity using full accountability of data, health information systems and program interventions. Nevertheless, HIFADHI strategy has not worked optimally for cross-border areas. A case of Migori bordering Tanzania republic where migration, intermarriage, trade, sexual activities, unstable communication networks and difference regimen guidelines leads to sub optimal adherence to ART/retention that eventually increases the risk of HIV transmission. Migori County sought to use peers, expert clients and adherence counselors to trace clients that are likely to miss appointment physically.

**Materials and Methods:** Baseline desk review was conducted to analyze the clients that are missing

appointments by their geographical area, By the use of machine learning for EMR sites and the same concept implemented in the none EMR sites made it easy to predict clients that are most likely to miss appointment and trace them on time. For each facility a team composing of, Health records and information officer and adherence counselor was task to trace the clients in their homes physically and bring them on board.

**Results:** In 2023, 419(8%) missed appointments as compared to 556(11%) in 2022. Of the patients that missed appointment in 2023,22% cited forgetfulness as a course. A total of 18% of missed appointments due to forgetfulness of appointment date were from Tanzania. Small proportion (4% )of the missed appointment were due to lack of transport from Tanzania to Kenya. In addition some clients 47% had adequate drugs and therefore realized no need to return to hospitals, 19% had travelled and 9% were busy at work. This initiative managed to return 389 clients to treatment in 2023 as compared to 108 in 2022. Hence improved in retention and TX\_ML(number of Art patient who are on ART at the beginning of the year and had no clinical encounter since their last expected contact.

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## Assessing the Impact of Climate Disasters on HIV Service Delivery: Lessons from Cyclone Freddy in Malawi

Chiwandira B<sup>1</sup>, Afirima B<sup>2</sup>, Chimbandule T<sup>1</sup>, Nkhonjera J<sup>1</sup>

<sup>1</sup>Ministry of Health - HIV Directorate, Lilongwe, Malawi, <sup>2</sup>National AIDS Commission, Lilongwe, Malawi

**Background:** In March 2023, Cyclone Freddy hit the southern part of Malawi, the region with the highest HIV burden. The impact was catastrophic, with loss of lives, livelihood, and destruction of the already fragile and vulnerable health infrastructures. The health system suffered a severe setback, with widespread disruption of health services, limiting the access and uptake of HIV services such as delivery of life-saving antiretroviral drugs.



This study aims at evaluating the impact of cyclone Freddy on the utilization of HIV services.

**Materials and Methods:** A cross-sectional study deploying the Mann–Whitney test was conducted to evaluate the impact of cyclone Freddy on health service utilization. This non-parametric approach analysed service usage data six months pre- and post-cyclone, focusing on HIV testing, Sexually Transmitted Infection (STI) cases, Antenatal care (ANC) cases, and Alive on anti-retroviral (ART) services using Malawi’s routine program data from 7 health facilities and 4 most affected districts.

**Results:** The study found no significant change in HIV testing and ART services ( $p = 0.716$  for both), indicating stability post-cyclone. In contrast, STI services showed significant disruption ( $p = 0.029$ ), and ANC services exhibited a marginally significant decline ( $p = 0.064$ ), underscoring the cyclone’s varied impact on healthcare services.

**Conclusions:** With the widespread destruction of healthcare infrastructure and disruption of Health Services, we anticipated a significant impact on the HIV program. However, the study found that while HIV testing and Antiretroviral therapy (ART) services remained stable post-cyclone, STI and Antenatal service uptake declined significantly. These findings demonstrate the resilience and adaptability of the HIV program to disaster; and underscores the differentiated level of adaptability of the various health intervention to climate crises.

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## Contextualising Global Thinking into a Local Context: Adaptation of the U=U Campaign to T=T Campaign in Malawi

Chiwandira B<sup>1</sup>, Sato B<sup>2</sup>, Kolola Nyirenda R<sup>1</sup>, Mwansambo A<sup>2</sup>, Mablekisi C<sup>2</sup>

<sup>1</sup>Ministry Of Health, Lilongwe, Malawi, <sup>2</sup>National AIDS Commission, Lilongwe, Malawi

**Background:** In 2018, local Civil Society Organisations (CSOs) called on Malawi to adopt the Undetectable = Untransmissible (U=U) campaign. This global campaign, which was

launched in the USA in 2016, is based on findings from ground-breaking science that revealed the absence of risk for transmission once a person living with HIV attains viral suppression. Studies further reveal that the scale up of Antiretroviral Therapy (ART) has effectively resulted in significant reduction in new HIV infections, through what is known as treatment as prevention.

**Description:** Heeding the call from CSOs, a taskforce was constituted comprising the Ministry of Health, National AIDS Commission, and partners to analyse the feasibility of implementing the U=U campaign in the country. Several parameters were considered including our HIV viral load testing algorithm which predominantly uses dried blood spot (DBS) specimen whose reliability to determine VL suppression has been questioned elsewhere<sup>1</sup>. Upon consultations with WHO and conducting an in-country evaluation to measure comparability of DBS and Plasma-based results, it became evident that adoption of the U=U campaign would require adaptation to suit our context. The adaptation birthed the five-year Tizirombo tochepe = Thanzi labwino (T=T) campaign which translates to ‘suppressed viral load guarantees good health’. The T=T campaign which was officially launched in Malawi in June 2022 boards across promoting treatment literacy, adherence support and viral load monitoring. Under this campaign, Malawi is implementing several interventions using both donor and domestic funding.

**Lessons Learnt:** Implementation of this campaign demonstrates that strong collaborations between government institutions and CSOs are key to implementing successful HIV programs. Additionally, treatment literacy proves to be an effective way of encouraging adherence to ART.

**Conclusions:** The T=T campaign is an effective tool to accelerate efforts towards the 95-95-95 treatment targets and to reduce HIV Infections. Malawi will scale up implementation to maximize gains.





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## Strengthening the Frontiers of Nigerian Health System: Exploring the Linkages between Transformational Leadership and Sustainability of HIV Program

Ekeke V<sup>1</sup>, Ibilbor C<sup>2</sup>, Emenogu N<sup>2</sup>, Okpala K<sup>3</sup>, Babatunde D<sup>4</sup>, Bodunrin S<sup>1</sup>, Wekpe S<sup>1</sup>, Ajayi O<sup>2</sup>, Samuel J<sup>2</sup>, Okonkwo P<sup>2</sup>

<sup>1</sup>APIN Public Health Initiatives, Jos, Nigeria, <sup>2</sup>Apin Public Health Initiatives, Abuja, Nigeria, <sup>3</sup>APIN Public Health Initiatives, Markurdi, Nigeria, <sup>4</sup>APIN Public Health Initiatives, Ibadan, Nigeria

**Background:** The Sustainable Financing Initiative for HIV/AIDS (SFI) seeks to strengthen the HIV response's sustainability by establishing shared financial responsibility with host countries. Over the past decades, donor financing has historically funded 81% of HIV therapies. Although funding is critical for sustainability, transformational leadership is without a doubt, of great value. Transformational leadership is innovative, embraces change and willing to invest in intellectual stimulation, knowledge management and sharing in the wake of the implementation of the sustainable financing initiatives. The research seeks to uncover correlations and significant relationships that can inform strategies for fortifying the healthcare system's ability to sustain HIV programing in Nigeria.

**Materials and Methods:** This was a descriptive, cross-sectional study conducted in 2023 involving 165 healthcare professionals, program administrators, and key stakeholders within Plateau state health system. The study assessed HIV program sustainability and transformative leadership using validated tools. Leadership behaviors and program sustainability were examined using p-values and correlation analysis. Structured, self-administered questionnaires and SmartPLS 4.0.9.6 were used to gather and analyze data. Results were presented as frequencies and percentages for categorical variables.

**Results:** The highest proportion of respondents were in the age groups 30-39 years 71 (43.0%) and 40-49 years 52 (31.5%). Sixty-two (37.6%) of them were resident doctors, 43 (26.1%) medical-officers

and 42 (25.5%) consultants and 18 (10.9%) other public health professionals. The study showed a positive correlation ( $p < 0.05$ ) between transformational leadership qualities and the sustainability of the HIV program. Key variables of transformational leadership, such as inspirational motivation, individualized consideration, intellectual stimulation, and idealized influence, exhibited significant relationships with program sustainability indicators [AVE > 0.5, CR > 0.70, AOR 2.98 95%CI: 1.256-4.969]. The population surveyed comprised healthcare professionals actively engaged in HIV program management.

**Conclusions:** The findings underscore the pivotal role of transformational leadership in ensuring the sustainability of the HIV program within the Nigerian health system. Leadership qualities that inspire, consider individual needs, stimulate intellectual engagement, and exhibit idealized influence were identified as crucial drivers of program sustainability. This research provides actionable insights for policymakers, healthcare administrators, and leaders seeking to fortify the healthcare system's response to the HIV epidemic in Nigeria.

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## Perceptions of Sexual Healthcare Provision in Tanzania: A Key Informant Qualitative Study

Mgopa L<sup>1</sup>, Ross M<sup>2</sup>, Lukumay G<sup>1</sup>, Mushy S<sup>1</sup>, Mkonyi E<sup>1</sup>, Massae A<sup>1</sup>, Mwakawanga D<sup>1</sup>, Mohamed I<sup>2</sup>, Trent M<sup>3</sup>, Bonilla Z<sup>2</sup>, Rosser S<sup>2</sup>

<sup>1</sup>Muhimbili University Of Health And Allied Sciences, Dar Es Salaam, Tanzania, United Republic of, <sup>2</sup>University of Minnesota, Minneapolis, USA, <sup>3</sup>Johns Hopkins University, Baltimore, USA

**Background:** Sexual health care services must be comprehensive, standard and unbiased, guided by a structured healthcare system. Sexual health problems range from sexually transmitted illnesses, unwanted pregnancies, sexual dysfunction and sexual violence, to gender and sex education concerns. There is a scarcity of data on how sexual health care is delivered in Tanzania.

**Materials and Methods:** To address this gap, in July 2019 we interviewed eleven key informants:



cultural and public health experts, and political, religious, and community leaders, selected from different organizations in Dar es Salaam, Tanzania. Participants were asked for their opinions about clinical practices of health care professionals when providing care to patients, with an emphasis on sexual health. We utilized thematic analysis to identify, organize and describe the findings of the study.

**Results:** Participants' responses were classified into three subcategories: strengths, barriers, and gaps in sexual health care. Availability of services, services delivery to adults, and code of conduct were among the strengths observed in clinical care services. Barriers included the health care provider's attitudes, moral values, and inadequacy in health policies and treatment guidelines. Vulnerable populations including youth were frequently reported to face most challenges when seeking sexual healthcare services. In terms of gaps, informants emphasized gender equity in sexual health services provision within care settings.

**Conclusions:** Data indicate that lack of training in sexual health and guidelines for dealing with sexual issues are a barrier to comprehensive health care. These findings can inform the main areas of curriculum developers to focus on, when developing an Afro-centric sexual health curriculum suitable for students in health care professional courses. Moreover, these findings can be useful when developing treatment guidelines and policies that are beneficial to the sexual health well-being of individuals

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## Épidémiologie Moléculaire Des Variants VIH-1 Non M au Cameroun : Fréquence de Détection et Profil de Résistance.

Kifack Zetang A<sup>1,2</sup>, Tagnouokam Ngoupo<sup>1,2</sup>, Waguia C<sup>2</sup>, Zekeng M<sup>2</sup>, Boula R<sup>2</sup>, Lissock F<sup>2</sup>, Mbouyap P<sup>2</sup>, Ngono L<sup>2</sup>, Mbuh Nji A<sup>3</sup>, Njouom R<sup>2</sup>  
<sup>1</sup>Santhe, Durban, South Africa, <sup>2</sup>Centre Pasteur du Cameroun, Yaoundé, Cameroun, <sup>3</sup>Université de Yaoundé 1, Yaoundé, Cameroun



Le VIH-1 comporte 04 groupes ; le groupe M, majoritaire et les autres variants dites non M ; les groupes (O, N et P). L'objectif de notre travail était d'étudier la diversité sérotypique et génotypique des variants non- M chez les personnes-vivants avec le VIH au Cameroun.

Des échantillons positifs au VIH prélevés de janvier 2021 à décembre 2022 lors des activités de diagnostic de routine ont été dépistés pour ces variants non- M à l'aide d'un test de sérotypage. La caractérisation génotypique a été réalisée par PCR, suivie du séquençage et l'analyse phylogénétique. Le profil de résistance des variants non- M détectés a été faite, suivant l'algorithme de l'ANRS d'octobre 2022, version n°33.

1034 échantillons ont été analysés par sérotypage, et les résultats ont montrés ;716(69,2 %) du VIH-1/M, 12(1,2 %) du VIH-1/O, 68(6,6 %) du VIH-1/M+O, 2(0,2 %) du VIH-1/N, 5(0,5 %) du VIH-1/P et 108(10,4 %) autres (réactifs à au moins 3 peptides ou indéterminés). 123(11,9 %) n'ont réagi à aucun peptide utilisé. Parmi les 68 échantillons double réactifs (M+O), la RT-PCR spécifique M et O a donné ; 27(39,7 %) VIH-1/M, 1(1,5 %)VIH-1/O et négative pour 40(58,8 %). Les 7 échantillons classés VIH-1/N ou P en sérotypage étaient négatifs en RT-PCR. Parmi les 13 échantillons de VIH-1/O, la RT-PCR spécifique du VIH-1/O était positive pour 6 et l'analyse phylogénétique des séquences a montré qu'elles appartenaient au sous-groupe H. L'analyse de résistance des régions PROT, RT et INT du groupe O a montré une résistance à l'EVG et/ou au RAL dans 2 échantillons ; 3 échantillons résistants à tous les inhibiteurs non nucléosidiques de la transcriptase inverse, car présence de mutations A98G et Y181C. Aucune résistance dans la protéase.

Cette étude confirme la diversité du VIH au Cameroun avec la présence de tous ces variants non- M, en utilisant un outil sérologique. Bien qu'aucune résistance au dolutégravir n'ait été trouvée avec le VIH-1/O, il est nécessaire de continuer à surveiller sa propagation pour identifier toute émergence.

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## HIV-1 Residual Risk and Pre-treatment Drug Resistance Among Blood Donors: A Sentinel Surveillance from Gabon

**Mangala C**<sup>1,2,3</sup>, Takou D<sup>2</sup>, Maulot-Bangola D<sup>1,2,3</sup>, Beloumou G<sup>2</sup>, Rebienot Pellegrin O<sup>4</sup>, Sosso S<sup>2</sup>, Ambe Chenwi C<sup>2,5</sup>, Ngoufack Jagni Semengue E<sup>2,5</sup>, Nka Durand A<sup>2</sup>, Tommo M<sup>2,3</sup>, Fainguem N<sup>2</sup>, Kamgaing R<sup>2</sup>, Ama Moor<sup>2,6,7</sup> V<sup>2,6,7</sup>, Kamga Gonsu H<sup>2,6,7</sup>, Penlap V<sup>2,8</sup>, Nkoa T<sup>2,6</sup>, Colizzi V<sup>2,9,10</sup>, Perno C<sup>2,11</sup>, Fokam J<sup>2,3,6,12,13</sup>, Ndjolo A<sup>2,6</sup>

<sup>1</sup>Virology Department, National Public Health Laboratory, Libreville, Gabon, <sup>2</sup>Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management (CIRCB), Yaounde, Cameroon, <sup>3</sup>School of Health Sciences, Catholic University of Central Africa (ESS-UCAC), Yaounde, Cameroon, <sup>4</sup>National Blood Transfusion Centre (NBTC), Libreville, Gabon, <sup>5</sup>Faculty of Medicine and Surgery, University of Rome Tor Vergata, Rome, Italy, <sup>6</sup>Faculty of Medicine and Biomedical Sciences, University of Yaoundé 1, Yaounde, Cameroon, <sup>7</sup>Laboratories of Biochemistry and Microbiology, University Teaching Hospital, Yaounde, Cameroon, <sup>8</sup>Biotechnology Centre, University of Yaounde I, Yaounde, Cameroon, <sup>9</sup>Faculty of Science and Technology, Evangelic University of Cameroon, Bandjoun, Cameroon, <sup>10</sup>UNESCO Chair of Biotechnology, University of Rome Tor Vergata, Rome, Italy, <sup>11</sup>Department of Microbiology, Bambino Gesù Pediatric Hospital, Rome, Italy, <sup>12</sup>Faculty of Health Sciences, University of Buea, Buea, Cameroon, <sup>13</sup>National HIV Drug Resistance working group, Ministry of Public Health, Yaounde, Cameroon

**Background:** Surveillance of HIV-1 pre-treatment drug resistance (PDR) is essential for ensuring the success of first-line antiretroviral therapy (ART). Beside population-based surveys, sentinel surveillance of PDR and circulating HIV-1 clades in specific populations such as blood donors could efficiently inform decision-making on ART program. We therefore sought to ascertain HIV-1 residual infection, the threshold of PDR and viral diversity among recently-diagnosed blood donors in transfusion settings of Gabon.

**Materials and Methods:** A sentinel surveillance was conducted among 381 consenting blood donors at the National Blood Transfusion Centre in Libreville-Gabon from August-December 2020. On HIV sero-negative samples by ELISA, molecular analyses were performed to determine residual risk of HIV transmission at the Chantal BIYA International Reference Centre (CIRCB) in Cameroon. Briefly, viral load and HIV-1 Sanger-

sequencing were performed respectively on Abbott m2000® Real-Time PCR assay and Applied Biosystem 3500. Phylogeny was performed using MEGA X; PDR threshold >10% was considered high; and data were analysed using  $p \leq 0.05$  for statistical significance.

**Results:** Among seronegative blood donors, 5 had a detectable viral load, indicating a high residual risk of HIV-transmission (648 per 1,000,000 donations). Among the 16 samples successfully sequenced, four participants had major drug resistance mutations (DRMs), giving a high threshold of PDR of 25% (4/16). By drug class, major DRMs were targeting NNRTI (K103N, E138G), NRTIs (L210W) and PI/r (M46L). A total of five viral clades were found: CRF02\_AG (50%), A1 subtype (18.8%), G subtype (12.5%), CRF45\_cpx (12.5%) and F2 subtype (6.2%). The genetic diversity of HIV-1 had no significant effect on the residual risk in blood transfusion ( $p$ -values=0.30-0.50).

**Conclusions:** This sentinel surveillance indicates a high residual risk of HIV-1 transfusion in Gabon, thereby underscoring the need for optimal screening strategy for blood safety. Moreover, HIV-1 transmission goes with high-risk of PDR, suggesting suboptimal efficacy of ART. Nonetheless, the genetic diversity has limited (if any effect) on the residual risk of infection and PDR in blood donors.

**Keywords:** HIV-1, pre-treatment drug resistance, clade, resistance mutations, Gabon, blood donors

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## Six Months Outcomes for People Living with HIV on Dolutegravir-Based Regimens with High Viral Loads: Lessons from AIDS Healthcare Foundation Eswatini

**Khumalo S**<sup>1</sup>, Mafulu Y<sup>1</sup>, Williams V<sup>2</sup>, Dube N<sup>1</sup>, Simelase B<sup>2</sup>, Haumba S<sup>2</sup>

<sup>1</sup>Aids Healthcare Foundation, Manzini, Eswatini, <sup>2</sup>Centre for Global Health and Impact, Georgetown University, Mbabane, Eswatini



**Background:** Dolutegravir-containing regimens are the most widely used antiretroviral therapy (ART) in Eswatini and are effective at achieving viral load (VL) suppression. The World Health Organisation (WHO) advises that all clients with a high VL (HVL) should receive stepped-up adherence counselling (SUAC) for three months and a repeat VL test to minimise selection resistance and viral transmission. AIDS Healthcare Foundation (AHF) provides HIV services to 32,000 clients at six health facilities in Eswatini. We describe the outcomes of patients on a DTG-containing regimen six months after the initial high VL and three months of SUAC.

**Materials and Methods:** A retrospective cohort analysis was done for records of clients with HVL ( $\geq 1000$  c/ml) reported between July 2022 and July 2023 from six health facilities. Individual client records and six-month cohort reports were used. The sociodemographic and clinical data of clients were extracted from the client management information system (CMIS), and descriptive analysis was used.

**Results:** Of 581 clients, 406 (68.9%) were females; the median age was 34 years (interquartile range 28-41), and 352 (60.5%) were 20 – 39 years. Ninety-one percent (n=531) had at least one SUAC session. The median time between the VL result and the first SUAC was 33 days, and 75% (n=434) had a repeat VL at six months. For those with repeat VL results, 321 (74%) were virologically undetectable, 66 (15.2%) had low-level viraemia (VL $\geq 50$ , <1000), and 45 (10.4%) had persistent HVL. The median time to the first adherence session was 54 days for clients who received >3 months of ART prescriptions. Only one pregnant patient was switched to a second-line regimen after a second HVL. Loss to follow-up within the cohort was 10.2% (n=59).

**Conclusions:** Most clients achieved virologic suppression within six months following SUAC. However, a notable proportion showed low-level viraemia or persistent HVL, signifying a need for continued adherence counselling. The loss to follow-up of 10.2% underscores the importance of improved retention strategies to address other barriers to ART, particularly in clients with evidence of adherence challenges. Remote counselling should be considered for clients with  $\geq 3$  months of prescriptions who are usually reluctant to return for SUAC.

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## The Use of Dried Blood Spot Specimens in the Community by Peer Outreach Workers Increases HIV Viral Load Testing Coverage in Mali

Sogoba K<sup>1</sup>, Tall M<sup>1</sup>, Coulibaly K<sup>1</sup>, Daou I<sup>1</sup>, Diarra S<sup>1</sup>, Coulibaly M<sup>1</sup>, Ruberintwari M<sup>1</sup>, Diallo Y<sup>2</sup>, Diarra N<sup>3</sup>, Boré D<sup>3</sup>, Ranebennur V<sup>4</sup>, Castalini C<sup>4</sup>

<sup>1</sup>EpiC FHI360, Bamako, Mali, Mali, <sup>2</sup>CSLS-TBH MSDS, Bamako, Mali, Mali, <sup>3</sup>USAID, Bamako, Mali, Mali, <sup>4</sup>FHI360, USA, USA

**Background:** In 2017, the World Health Organization (WHO) recommended the use of dried blood spot (DBS) specimens to monitor HIV viral load (VL). However, as of September 2020, Mali was still collecting plasma specimens despite facing logistical, infrastructural, and operational barriers preventing routine VL monitoring. Estimated HIV prevalence is 0.8%. Among people living with HIV (PLHIV), 59% know their status and 53% are on treatment. There is no data on VL suppression. The U.S. President's Emergency Plan for AIDS Relief through the U.S. Agency for International Development funded the Meeting Targets and Maintaining Epidemic Control (EpiC) project that offers HIV VL monitoring to key and priority populations living with HIV (KPLHIV/PPLHIV) through public and civil society organization (CSO) led clinics, in the Bamako, Sikasso, and Segou regions in Mali.

**Description:** Changes in VL testing coverage were measured before (October 2019 to September 2020) and after (October 2020 to September 2023) the roll out of an intervention for which DBS specimens were collected by peer outreach workers in the community (e.g. CSO-led clinics, clients' residences). Before the intervention, specimens for VL were collected only at public clinics by a laboratory technician using whole blood. Retrospective client records were analyzed from October 2019 to September 2023 through aggregated project data of KP/PPLHIV of all ages and sexes who were on antiretroviral therapy (ART) and eligible for VL testing in public and CSO-led clinics. Viral load coverage was defined as the number of KP/PPLHIV whose specimens were collected from those KP/PPLHIV who were eligible for VL testing.



**Lessons Learnt:** Following the roll out of the intervention, the VL coverage progressively increased from 50% (253/507) at baseline (October-2019-September 2020) to 72% (1,262/1,747) at first follow up (October 2020-September 2021), to 82% (2,910/3,558) at second follow up (October 2021-September 2022), to 89% (3,670/4,128) at third follow up (October 2022-September 2023).

**Conclusions:** Our study confirms that the use of DBS in the community and by peer outreach workers is feasible and it can address logistical, infrastructural, or operational barriers, and result in increased VL coverage among KP/PPLHIV, which is key to ensure optimal ART case management.

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## Investigating Three-Year Viral Outcome Among Clients with Low Level Viraemia in an ART Clinic in Abuja

Julius S<sup>1</sup>, Oluwatobi V<sup>1</sup>, Michael C<sup>1</sup>, Nwabueze E<sup>1</sup>, Ijezie E<sup>1</sup>, Buzaalirwa L<sup>1</sup>, Lutung P<sup>1</sup>  
<sup>1</sup>AIDS Healthcare Foundation, Abuja, Nigeria

**Background:** The goal of Anti-retroviral therapy is to improve clinical outcome and achieve viral suppression. In Nigeria viral load result of <1000 copies/ml is regarded as viral suppression. However, viral load of >50copies/ml to <1000 copies/ml categorized as Low Level Viraemia (LLV) can lead to poor clinical outcomes. The objective of this study is to investigate the viral load patterns and outcome among clients with Low Level Viraemia in an ART Clinic in Abuja over a 3-year period.

**Materials and Methods:** A retrospective three-year desk review of 221 clients with low level viraemia (LLV) in 2021 with three consecutive follow-up viral load results between 2021-2023 attending AHF Nigeria ART clinic in Abuja was conducted to ascertain the pattern of viral progression.

**Results:** From the viral load audit, 221 clients had low level viraemia. 129 (58%) of these clients are within the age range of 26-45 while 127 (57%) are

females. Of the 221 clients reviewed, 176 (80%) clients were categorized as Low Low Level Viraemia (LLL) with viral load (VL) of  $\geq 50$  copies/ml to <200 copies/ml. 25 (11%) had Mid Low Level Viraemia (MLLV) with viral load result of  $\geq 200$  copies/ml to <399 copies/ml while High Low Level Viraemia (HLLV) were 20 (9%) with viral load results of between 400 copies/ml to 999copies/ml. At the second annual VL check, 130 (59%) clients out of the 221 had moved to undetectable levels of <50 copies/ml, 73 (33%) remained in the LLV pool while 18 (8%) had become unsuppressed. At the third annual VL check, 119 (54%) are undetectable while those with LLV increased to 77 (35%) and 25 (11%) became unsuppressed.

**Conclusions:** Despite instituting adherence counselling for clients with low level viremia, a small proportion (11%) still progress to having unsuppressed viral load, raising questions about the adequacy of interventions and long-term survival of these clients. Retrospective studies like this provides valuable information as regards the pattern and burden of LLV that can be useful for program planning and implementation of strategies to prevent poor treatment outcomes.

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## Soluble Cluster Differentiation 30, Interleukin-10 and 8-Hydroxy -2- Deoxyquanosine Expression in People Living with HIV Infection Attending Clinic in University Teaching Hospital, Calabar

Okpokam D<sup>1</sup>, Coco-Bassey S<sup>1</sup>, Mwankon J<sup>1</sup>, Akwiwu E<sup>1</sup>, Okpokam O<sup>2</sup>, Akpotuzor J<sup>1</sup>  
<sup>1</sup>University of Calabar, Calabar, Nigeria, <sup>2</sup>FHI360, Nnewi, Nigeria

**Background:** Globally, multiple studies have shown that people living with HIV (PLWHIV) are at increased risk of developing certain kind of cancers called AIDS-Defining cancers; Kaposi Sarcoma, Non-Hodgkin Lymphoma and Cervical Cancers. (Shields et al., 2015). Aim: The primary aim is to establish the levels of sCD30, IL-10, 8-OHdG, and CD4 as cancer biomarkers alongside



haematological parameters among people living with HIV infection.

**Materials and Methods:** A case-control study involving 180 subjects was conducted, with 100 seropositive participants and 80 seronegative controls. Informed consent was gotten, case folders were used and questionnaire filled for the study. Blood samples were collected and analyzed for sCD30, IL-10, 8-OHdG using ELISA method, CD4 T cell count using Cyflow counter machine, viral load using Real-time PCR method, and other haematologic parameters Mythic-22, a five-Part haematology analyser. Statistical analysis was performed using SPSS version 23.0.

**Results:** The study revealed elevated serum levels of sCD30, IL-10, and 8-OHdG as potential cancer biomarkers in people living with HIV. The highest prevalence was observed among women of child-bearing age, highlighting the need for focused interventions. The first-line regimen (Tenofovir/Lamivudine/Dolutegravir) demonstrated strong immunologic and haematological success, emphasizing its efficacy in HIV management. Duration of treatment, gender and age did not influence the level of sCD30, IL-10 and 8-OHdG in people living with HIV in his locality. CD4 count has a very strong negative relationship with sCD30, IL-10, 8-OHdG as well as viral load. Anaemia, leucopenia, thrombocytopenia, viremia as well as reduced CD4 counts are found to be common.

**Conclusions:** The findings suggest a significant association between sCD30, IL-10, and 8-OHdG expression and HIV infection, indicating their potential as cancer biomarkers. CD4 count remains a valuable tool for disease staging and monitoring. Regular fruit consumption is recommended for its beneficial effects on nutritional needs and quality of life in HIV-infected individuals. The study recommends the sustained use of the TLD combination regimen as the first-line HIV management approach. CD4 count should continue to be utilized for monitoring and managing HIV infection.

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## Place du Comptage des CD4 au Bénin à l'Ère du Monitoring par la Charge Virale en 2023

Keke K<sup>1</sup>

<sup>1</sup>PSLS/ Laboratoire National de Référence, Cotonou, Bénin

**Contexte :** Depuis les recommandations 2015 de l'OMS de monitorer le suivi des patients par la charge virale, une moindre importance est accordée au comptage des CD4 qui demeure un examen capital dans la prévention de certaines infections opportunistes pour réduire le risque de mortalité lié au VIH. Cette étude vise à déterminer la valeur ajoutée du comptage des CD4 à l'initiation et dans le suivi dans un contexte de test and treat.

**Matériels et Méthodes :** Etude transversale descriptive prenant en compte l'exhaustivité des dossiers des PVVIH de la file active suivie sur les sites à septembre 2023 en colligeant les informations sur les CD4 à l'initiation et ceux réalisés dans les 12 mois précédents l'enquête. Les données collectées ont été traitées et apurées avec le logiciel SPSS, Excel et Python 3.10.9 avec les librairies Pandas, Numpy.

**Résultats :** Sur les 56895 PVVIH suivis sur les sites de prise en charge et sites PTME, 73,3% des PVVIH étaient aux stades 1 ou 2 de l'OMS. 31384 (55,16%) ont bénéficié du comptage de CD4 avec des variations de 26% (Collines) à 75% (Littoral) selon les départements. La valeur moyenne de CD4 à l'initiation était de 299 cellules/ul. Parmi les patients ayant eu une numération des CD4, 44,2% avaient une immunodépression sévère (CD4 < 200 cellules/mm<sup>3</sup>) ; 17,4% ont démarré le traitement sans immunodépression (CD4 > 500 cellules/mm<sup>3</sup>). Chez les enfants, les CD4 ont été réalisés chez 38,7% à l'initiation. La majorité des PVVIH de la FA ont entre 2 et 10 ans de prise d'ARV tandis que celles de plus de 15 ans de prise représentaient 7%. En 2023, 25% des PVVIH de la FA ont bénéficié du comptage de CD4 représentatif, et parmi ces derniers, 5,20% ont encore une immunodépression sévère (CD4 < 100) et 13,7% (CD4 < 100), tandis que 48,91% ont une bonne immunité (CD4 ≥ 500)

**Conclusions :** Malgré le démarrage précoce des ARV il persiste toujours des PVVIH avec une



immunodépression sévère d'où la nécessité de poursuivre la réalisation annuelle des CD4 afin de mieux prévenir les infections opportunistes chez les PVVIH en immunodépression profonde.

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## Monitoring HIV Viral Load Sample Rejection Rates in Polymerase Chain Reaction Laboratories in Nigeria: A Two Years Prospective

Omo-Emmanuel U<sup>1</sup>, Jegede F<sup>2</sup>, Onwuzuruigbo U<sup>3</sup>, Anika O<sup>4</sup>, Oyelaran O<sup>1</sup>, Adelanwa A<sup>1</sup>

<sup>1</sup>United States Agency for International Development, Abuja, Nigeria, Abuja, Nigeria, <sup>2</sup>C/o Life Science Department, Bayero University, Kano, Nigeria, <sup>3</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, <sup>4</sup>Family Health International (FHI360), Uyo, Nigeria

**Background:** Globally UNAIDS 95%:95%:95% targets timeline is by 2030. Success of People with HIV on treatment is measured by third 95%-HIV Viral Load(HVL) coverage and suppression indicators. Utilization of Plan Do Check and Act (PDCA) as Continuous Quality Improvement (CQI) model in pre-analytical phase of Laboratory workflow focusing on Samples Rejection Rate (SRR) provide insights to laboratory testing quality and gauge total Laboratory testing processes success or gaps. We report HVL SRR improvement outcomes in Hub- Spoke National referral network using PDCA model across three PCR Laboratories(PCL) supported by the US Agency for International Development(USAID) in Nigeria.

**Materials and Methods:** Three PEPFAR-supported PCR Laboratories(PCRL) in Nigeria through USAID were mapped by National Integrated Samples Referral Network to receive HVL samples from more than 530 Health Facilities (HFs) based on proximity and geo-political location. All three PCRL has functional National Laboratory Management Information System for timely results return to end users. We monitored performance trends of HVL samples rejected between October 2020-September 2022, two Financial Years (FY21 and FY22). Data were collected, tracked using sample rejection tools, summarized (weekly/monthly/quarterly) and reported in an excel file. Feedback was provided to sample riders

and end users and hard copies log documented in PCLs logs. Interventions included 2 days centralized specimen management training in June 2021 and on-site training provided to respective HFs including stakeholders on gaps closing modalities. Variables monitored were specimen management, Samples Rejection (SR) and reasons for rejection. Data were presented in frequency and percentage compared each year with 5% National SR rate thresholds.

**Results:** Three PCRL (Nigerian Institute of Medical Research (NIMR), Lagos mapped with three States, University of Uyo Teaching Hospital (UUTH) Akwa Ibom mapped with four states and Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) Akwa mapped with four States. In FY21, a total of 261,564 HVL samples received, tested, 4,457(3.2%) SRR while FY22 5,701 (4.4%) of 345,372 samples received/tested were rejected. All Quarters in FY21 and FY22 HVL SRR ranged 0.05-2.1% across three PCRL. Combined major reasons for sample rejection across the three laboratories were insufficient volume 55% and clotted samples, mismatched samples and hemolyzed samples 23.5% in both FYs.

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## Evaluation of Performance Characteristics of Hologic-APTIMA® for Detection of Human Papillomavirus Cervical Collection and Transport Specimens Using In-House-Panels in a Polymerase Chain Reaction Laboratory in Nigeria

Omo-Emmanuel U<sup>1</sup>, Yakubu T<sup>2</sup>, Abdulrasheed U<sup>3</sup>, Oyelaran O<sup>1</sup>, Goldstein R<sup>1</sup>

<sup>1</sup>United States Agency for International Development, Abuja, Nigeria, Abuja, Nigeria, <sup>2</sup>ICAP Global Health at Columbia University, Abuja, Nigeria, <sup>3</sup>Federal Medical Center Jalingo, Jalingo, Nigeria

**Background:** Human papilloma virus(HPV) infection constitutes a major risk for cervical cancer among sexually active women of reproductive age, especially the two high risk HPV16 and HPV18 genotypes. Screening women of



reproductive age population for HPV infection serves as a critical strategy for secondary prevention, especially among the high risk among sub-types. Accurate diagnosis of HPV is best done by Deoxyribonucleic Acid assay through Polymerase Chain Reaction (PCR). This study reports on performance characteristics of Human papillomavirus using PCR verification methods in Federal Medical Centre Jalingo (FMCJ) Laboratory in August 2022.

**Materials and Methods:** Three hundred (150 positive and 150 negative) in-house HPV Cervical verification panels from previously tested and known HPV positive and negative cervical cancer specimen were received from Lagos State University Teaching Hospital (LASUTH), Lagos using Roche COBAS 4800 (RC4). PCR verification was carried out at FMCJ for Hologic Aptima PCR (HAP) instrument. The verification was carried out according to protocol earlier developed by FMCJ Laboratory and following manufacturer's instruction on HAP platform using assay reagent kits. Data were collected in an excel file, reviewed, cleaned and various diagnostics characteristics such as sensitivity and specificity, positive and negative predictive values computed and compared between the PCR Laboratories and with Manufacturer's predetermined references.

**Results:** Of 150 positive specimens analyzed, 81.3% (n=122) indicated concordance positivity and 74.7% (n=112) were concordant negative. The sensitivity was comparable for both test sites (97.5% for LASUTH and 96.3% for FMCJ) and were within ranges provided by Manufacturer of HAP (Sensitivity (95% CI) = 92.6% (89.8-94.7)). The specificity for platforms at LASUTH and HAP in FMCJ was 94.0% and 71.2% respectively. The specificity of HAP obtained (71.2%) was lower than that provided by manufacturer (specificity (95% CI) = 98.5% (96.6-99.4)). The Positive Predictive Values were 94.3% for LASUTH and 64.8% for FMCJ while Negative Predictive Values obtained from both sites was 97.3%. However, considering that sensitivity (0.96) and specificity (0.71) when expressed as ratios were both greater than 0.5, the HAP can be adjudged stable for HPV diagnosis. The sensitivity and specificity of a perfect testing system is equal to one (1).

**Conclusions:** This verification outcomes showed that HAP performance characteristics is comparable with RC4 platform and is suitable for HPV Assay in PCR Laboratory settings.

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## Soluble Cluster Differentiation 30, Interleukin 10 and 8-Hydroxy-2-Deoxyquanosine Levels in People Living with HIV Attending Clinic in University Teaching Hospital, Calabar.

Coco-Bassey S<sup>2</sup>, Akpotuzor J<sup>1</sup>, Okpokam D<sup>1</sup>, Akwiwu E<sup>1</sup>

<sup>1</sup>University Of Calabar, Calabar, Nigeria, <sup>2</sup>University of Calabar Teaching Hospital Calabar, Calabar, Nigeria

Raised immunologic biomarkers have been reported to be common among people living with HIV infection and this development increases susceptibility to oncogenesis. This study was carried out to determine the level of some cancer biomarkers in HIV-infected subjects. One hundred HIV-infected subjects comprising sixty on HAART and forty naïve subjects attending clinic at the University of Calabar Teaching Hospital were recruited. Another eighty age and sex-matched apparently healthy HIV-negative subjects drawn from the public were recruited to serve as control group. Ethical approval (NHREC/07/10/2012) was obtained from the University of Calabar Teaching Hospital Ethical Committee while informed consent was obtained from each participant. A structured questionnaire was administered to participants for their biodata and other demographic parameters. Blood specimen was collected for analysis of CD4 count by cyflow counter, viral load by PCR method, soluble cluster differentiation 30 (sCD30), interleukin-10 (IL-10) and 8-hydroxy-2-deoxyquanosine (8-OHdG) using enzyme-linked immunosorbent assay. Data analysis was done using SPSS version 22.00, while statistical significance was drawn at  $p \leq 0.05$ . The age range of the study group for both gender is between 15-60 years. Females, 57% were more than their male, 45% counterparts. Those on treatment 48% were on two types of regimens Dolutegravir combination as first line drug and 12% on Lopinavir & Ritonavir as second line drug. Mean values of sCD30, IL-10, 8-OHdG were significantly higher in HIV-infected subjects in the ratio of 2:5:3 when compared with the control subjects; (sCD30,  $14.6 \pm 3.00$  pg./ml, IL-10  $6.73 \pm 1.21$  ng/l, 8-OHdG  $11.46 \pm 6.73$  ng/m. Those on





HAART had significantly lower sCD30, IL-10, 8-OHdG when compared with those not on HAART. CD4 revealed stronger negative correlations with sCD30  $r = -0.678$   $p=0.000$ , IL-10,  $r = -0.706$   $p=0.000$ , 8-OHdG  $r = -0.575$   $p=0.000$ . and viral load VL,  $r = -0.757$   $p=0.000$ . The study concludes that there are raised levels of sCD30, IL-10 and 8-OHdG with very strong negative association with CD4 count. HIV subjects on HAART had improved parameters of sCD30, IL-10, 8-OHdG compared to those not on HAART.

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## Incidence Density Mortality Rate Among HIV-Positive Children on ART in Ethiopia

**Kefeni B**<sup>1</sup>, Ayana K<sup>2</sup>, Debele G<sup>3</sup>, Bejiga B<sup>3</sup>

<sup>1</sup>Public Health Department, College of Health science, Mattu University, Metu, Ethiopia, <sup>2</sup>Public Health Department, College of Health science, Dire Dawa University, Metu, Ethiopia, <sup>3</sup>HIV unit Department, Ethiopian public Health Institution, Addis Ababa, Ethiopia

**Background:** As of 2022, 1.5 million children aged 0-14 were living with HIV, which is a leading cause of mortality worldwide, particularly in Africa. Ethiopia has done a number of researches on HIV-related child mortality, but the total incidence density death rate among HIV-positive children is unclear. Therefore, this systematic review and meta-analysis aimed to estimate the pooled incidence density mortality rate among HIV-positive children on ART and identify its associated factors in Ethiopia.

**Materials and Methods:** PubMed, HINARI, Science Direct, Google Scholar, and African Journals Online were browsed using different search terms. The Joanna Briggs Institute checklist was used to appraise the quality of studies. I-square statistics was used to identify the heterogeneity between studies. Publication bias was tested using a funnel plot, Egger's and Begg's test. The pooled incidence DMR and HR were presented using a forest plot with a 95% confidence interval. Random and Fixed effect models were used to compute the pooled estimate.

**Results:** A total of 22 studies were incorporated into this systematic review. The overall pooled incidence density mortality rate among HIV-

positive children was 2.52 per 100 child years (95% CI: 0.0182, 0.035). Advanced WHO clinical stage (HR: 3.45, 95% CI: 2.64, 4.51), low CD4 count (HR: 2.6, 95% CI: 2.08, 3.27), tuberculosis co-infection (HR: 3.19, 95% CI: 2.08, 4.88), being stunting (3.22, 95% CI: 2.46, 4.22), underweight (HR: 2.71, 95% CI: 1.72, 4.26), being wasting (HR: 4.14, 95% CI: 2.27, 7.58), not receiving Isoniazid preventive therapy (HR: 3.33, 95% CI: 2.22, 4.99), anemia (HR: 3.03, 95% CI: 2.52, 3.64), fair or poor antiretroviral therapy adherence (HR: 4.14, 95% CI: 3.28, 5.28) and not receiving cotrimoxazole preventive therapy (HR: 3.82, 95% CI: 2.49, 5.86) were factors associated with a higher hazard of HIV related child mortality.

**Conclusions:** The overall pooled incidence density mortality rate among HIV-positive children was high in Ethiopia. Therefore, Maximizing HIV testing capacity and commencing ART treatment in early HIV stages is critical to reduce the risk of HIV-related mortality. Counseling on ART drug adherence should be strengthened. Moreover, regular checkups of hemoglobin levels and nutritional status should be done for children living with HIV.

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## Altered Immune Response to Tetanus Pediatric Vaccines Among HIV Exposed Uninfected Infants

**Osawe S**<sup>1</sup>, Chukwu C<sup>2</sup>, Okopi J<sup>3</sup>, Abimiku A<sup>1,4</sup>

<sup>1</sup>International Research Center of Excellence, Institute of Human Virology Nigeria, Abuja, Nigeria, <sup>2</sup>National Veterinary Research Institute, Medical Laboratory Science, Vom, Nigeria, <sup>3</sup>Federal University of Health Sciences, Department of Microbiology, Otuokpo, Nigeria, <sup>4</sup>Institute of Human Virology, School of Medicine, University of Maryland, Baltimore, USA

**Background:** Evidence suggests that the developing immune system of HIV exposed but uninfected (HEU) infants early in life, differ from their HIV unexposed (HU) peers. More so, reports show that HEU infants do not respond optimally to pediatric vaccinations, thereby increasing their vulnerability to infectious diseases and raising the potential for elevated rates of morbidity and mortality. This study documented the impact of



HIV exposure on how infants respond to a pediatric vaccination.

**Materials and Methods:** We documented the immune responses in HEU and HU infants and their moms by quantifying the total IgG antibodies against Tetanus toxoid (TT), one of the prescribed pediatric vaccines, in a Nigerian birth cohort. Plasma samples collected from each mother-infant pair at Birth (mother and infant) and Week 15 (infants only), were tested to quantify specific anti-TT IgG titers.

**Results:** A total of 200 pregnant women were enrolled with their infants, 140 living with HIV and 60 living without HIV. Mean maternal age was similar for both groups ( $p=0.24$ ) as were the number of pregnancies, number of live births and mode of delivery ( $p=0.19$ ,  $p=0.38$  and  $p=0.77$ ). A total of 205 infants were enrolled at birth with 144 HEU infants and 61 HU infants with significant differences in weight ( $p=0.00$ ), height ( $p=0.03$ ) and head circumference ( $p=0.016$ ). There was also a 12% decrease in the median transfer of anti-TT IgG antibodies in mothers living with HIV ( $p=0.02$ ). HU infants maintained significantly higher anti-TT IgG titers at Week 15 compared to HEU infants at birth ( $p=0.018$ ) and Week 15 ( $p=0.001$ ).

**Conclusions:** Our data shows that HEU infants present with altered immune responses compared to HU infants. Exposure to HIV in these infants may alter the responses to infectious diseases and how well they respond to childhood immunization highlighting the need for focused strategies to improve responses to vaccine-preventable diseases and the possibility of including additional booster shots.

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## Influence du Partage du Statut Sérologique des Mères Infectées au VIH avec Leurs Conjointes sur le Suivi Médical de Leurs Enfants

Enianloko N<sup>1</sup>, Yakoubou A<sup>1</sup>, Midété J<sup>2</sup>, FIOSSI KPADONOU E<sup>1</sup>

<sup>1</sup>chu-mel et FSS, cotonou, Bénin, <sup>2</sup>CHU-MEL, Cotonou, Bénin

**Contexte :** Le non-partage du statut sérologique des personnes vivant avec le VIH avec son conjoint pourrait constituer un obstacle à la prévention de la transmission du VIH de la mère à l'enfant (PTME). L'objectif de cette étude était d'apprécier l'influence du partage du statut sérologique des mères infectées au VIH avec leurs conjoints sur le suivi de leurs enfants dans ce cadre de la PTME.

**Matériels et Méthodes :** Il s'agissait d'une étude transversale, descriptive et analytique réalisée de Mars à Septembre 2021. La population d'étude était constituée des couples mères - enfants suivis dans le cadre de la PTME. Les données recueillies après interview des mères, à l'examen clinique et biologique des enfants ainsi qu'après dépouillement des dossiers ont été saisies et analysées à l'aide du logiciel SPSS. Pour déterminer l'influence du partage ou du non-partage sur le suivi médical et le devenir des enfants, et identifier les facteurs associés au partage du statut VIH des mères avec leurs conjoints, une analyse univariée par régression logistique a été réalisée à l'aide du même logiciel.

**Résultats :** Au total, 105 mères séropositives au VIH ont été enquêtées et 105 enfants suivis. La majorité des mères étaient dépistées avant la grossesse ( $n=65$ ) et avaient une charge virale indétectable au dernier trimestre de la grossesse ( $n=90$ ). Parmi elles, Cinquante-six avaient partagé leur statut avec leur conjoint soit un taux de partage de 53,33%. Les principales raisons de non-partage du statut sérologique avec le conjoint étaient la peur de la répudiation (93,9%), la stigmatisation (61,2%). Le suivi était régulier dans 97,1% des cas ( $n=102$ ). La relation entre le non-partage du statut sérologique VIH des mères séropositives avec leurs conjoints et le suivi médical de leurs enfants n'était pas significative. Le régime matrimonial ( $p=0,000$ ), le statut sérologique du conjoint ( $p=0,000$ ) et la vie en couple ( $p=0,000$ ) étaient statistiquement associés au partage du statut sérologique avec le conjoint.

**Conclusions :** Dans notre série, le partage du statut sérologique VIH avec le conjoint était fréquent et le suivi des enfants régulier sans lien significatif.



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## Attitudes et Pratiques de la Sexualité Des Adultes Jeunes Vivants Avec le VIH à Transmission Verticale à Ouagadougou

Salamata S<sup>1</sup>, A G Arsène O<sup>2</sup>, Hamadé Z<sup>3</sup>, Annette O<sup>4</sup>, Arouna G<sup>5</sup>, Abdoulaye S<sup>6</sup>, Ismael D<sup>7</sup>, K Apolline S<sup>8</sup>

<sup>1</sup>Centre Hospitalier Universitaire Yalgado Ouédraogo, OUAGAOUGOU, Burkina Faso, <sup>2</sup>Centre Hospitalier Universitaire Yalgado Ouédraogo, OUAGAOUGOU, Burkina Faso, <sup>3</sup>Centre Hospitalier Universitaire Yalgado Ouédraogo, OUAGADOUGOU, Burkina Faso, <sup>4</sup>Centre Hospitalier Universitaire Yalgado Ouédraogo, OUAGADOUGOU, BURKINA FASO, <sup>5</sup>Centre Hospitalier Universitaire Yalgado Ouédraogo, OUAGADOUGOU, Burkina Faso, <sup>6</sup>Centre Hospitalier Universitaire Regional de Ouahigouya, Ouahigouya, Burkina Faso, <sup>7</sup>Université Joseph Ki-Zerbo, OUAGAOUGOU, Burkina Faso, <sup>8</sup>Université Joseph Ki-Zerbo, OUAGAOUGOU, Burkina Faso

**Contexte :** Connaitre les pratiques sexuelles des jeunes, leurs attitudes et leurs croyances en matière de sexualité, ne relève pas seulement d'une préoccupation scientifique : c'est aussi une urgence sociale. Particulièrement chez des personnes en quête d'expérience, d'indépendance et ayant un long passé avec le VIH.

**Matériels et Méthodes :** il s'est agi d'une étude transversale descriptive réalisée du 01 Février au 30 Juin 2023, concernant les PVVIH de 18 à 30 ans suivis au service de maladie Infectieuse du CHU-YO. Les données ont été saisies par le logiciel Kobocollect et analysé par le logiciel STATA 14.

**Résultats :** Au total, 47 adultes jeunes infectés par le VIH à transmission verticale suivis au CHU-YO ont participé à notre étude. Leur âge moyen était de  $22,7 \pm 0,3$  et les hommes représentaient 51,1%. Dans 93,6%, les adultes jeunes étaient scolarisés dont 27,7% avaient un niveau d'étude supérieur. Les adultes jeunes étaient célibataires dans 70,2% et 19% avaient déjà une enfant dont tous séronégatifs au VIH. Parmi les 47 adultes jeunes, 28(59,6%) avaient une vie sexuelle et pour 17(6,1%), le(a) conjoint(e) connais leur statut VIH. L'âge moyen du premier rapport était de 17,7 ans, 13(46,4%) de ceux qui une vie sexuelle avait plusieurs partenaires et les rapports sexuels étaient non protégés dans 17,8%. Le nombre moyen de rapport sexuels par an était de  $11 \pm 3$ . Les rapports annaux et oraux étaient pratiqués

chez respectivement 3(10,7%) et 7(25%) sur les 28 ayant une vie sexuelle. Un seul adulte jeune se déclarait être un homme ayant des rapports sexuels avec des hommes.

**Conclusions :** Les adultes jeunes infectés par le VIH à transmission verticale sont sexuellement actifs et les pratiques sexuels sont variées avec des pratiques sexuels à risques de contamination. Une éducation sexuelle s'avère nécessaire afin de contribuer à minimiser la transmission du VIH à leurs partenaires sexuels.

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## L'Entrée dans la Sexualité des Adolescents Nés avec le VIH au Cameroun

Laborde-balen G<sup>1</sup>, Breton G<sup>2</sup>, Fako Hendji G<sup>3</sup>, Estevenin C<sup>2</sup>, Hadja H<sup>4</sup>, Ajeh A<sup>4</sup>, Essamba S<sup>4</sup>, Djomo A<sup>4</sup>

<sup>1</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France, <sup>2</sup>Solthis, Paris, France, <sup>3</sup>Care and Health Program, Yaounde, Cameroon, <sup>4</sup>Comité National de Lutte contre le sida, Yaounde, Cameroon

**Contexte :** Au Cameroun, environ 20 000 enfants et adolescents vivant avec le VIH (EAvVIH) sont suivis dans les formations sanitaires (FOSA). En 2023, une analyse situationnelle de la prise en charge pédiatrique a été menée à l'échelle nationale ainsi qu'une étude anthropologique. L'un des objectifs de l'étude anthropologique était d'identifier les facteurs freinant l'efficacité de la prise en charge des EAvVIH.

**Matériels et Méthodes :** L'étude a été menée de mars à juillet 2023. Quarante-deux entretiens semi-directifs, des observations et des focus groups ont eu lieu dans trois FOSA à Yaoundé et une à Bafia, ainsi qu'avec les autorités de santé, des responsables de programmes, des associations de PvVIH, dont des jeunes. Les entretiens ont fait l'objet d'une analyse thématique.

**Résultats :** Un ensemble de facteurs structurels et sociaux freinent l'efficacité de la prise en charge des EAvVIH.

– Les facteurs structurels : la distance géographique entre le domicile et les FOSA, notamment en zone rurale ; le faible nombre et le turn-over de soignants ; le manque d'intégration



des services de PTME et de prise en charge pédiatrique ; l'absence de dispositif de transition vers les consultations adultes ; des ruptures d'ARV pédiatriques et un accès limité à la mesure de charge virale ; un accompagnement psychosocial parfois limité. L'étude montre des disparités importantes entre FOSA, surtout en zone rurale. – Les facteurs sociaux concernent les difficultés d'observance et d'entrée dans la sexualité des adolescents, la condition d'orphelin, les faibles ressources économiques, et une stigmatisation sociale persistante.

**Conclusions :** L'étude montre un ensemble de difficultés persistantes qui freinent l'efficacité de la prise en charge des EAvVIH et la nécessité de renforcer l'appui aux FOSA rurales et aux programmes visant les adolescents en matière d'observance, santé sexuelle et transition vers les services VIH adultes en s'appuyant sur les associations de jeunes. L'appui aux familles à faibles revenus et la lutte contre la stigmatisation sociale sont des éléments essentiels à maintenir et renforcer dans les stratégies nationales de lutte contre le VIH.

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## Decentralizing Uganda's Early Infant Diagnosis (EID) Services to Improve the Efficiency of Community EID Point of Care (PoC) Testing in Teso Region. A Pilot Cross Sectional Study

Otaala T<sup>1</sup>

<sup>1</sup>AIC Soroti Region Project, Kampala, Uganda

**Background:** Ministry of Health (MOH) Uganda established a centralized National Health Laboratory Diagnostic Services (NHLDS) in 2011 to improve HIV and EID polymerase chain reaction (PCR) testing. The services involved the establishment of a specimen transport system to collect EID samples from across the country to the central testing laboratory point for testing and then dispatch the results through the same hub mechanism. This was associated with the prolonged turnaround time (TAT) of results taking between 30-60 days, thus delaying ART initiation

for infants living with HIV. We therefore introduced and piloted a point of care EID PCR testing in the Teso sub-region between 2019-2022 to improve the result (TAT) and prompt linkage to care for children identified as living with HIV.

**Materials and Methods:** We piloted a decentralized EID PCR testing points of care (PoC) in 4 high volume facilities in the region to reduce the TAT for EID test results. The process of decentralization involved site assessment and validation, mentorship, and data management plans. We documented the TAT for the two methods and conducted a comparative analysis of the TAT between the 4 pilot sites and 5 non pilot facilities. We extracted and reviewed data from the NHLDS and PEPFAR surge dashboard on EID TAT for October-December 2022. Data was analyzed using Stata version 15.0. Descriptive statistics and t-test were conducted to compare the differences in TAT for the two approaches.

**Results:** A total of 494 EID PCR tests were done within the pilot period in the 9 selected facilities, of which 40.3% (n=199) were analyzed using decentralized PoC. The average TAT for this period was 16.6 (SD=12.7) days. The TAT for EID PoC was 1.3(SD=0.4) days while the TAT for centralized laboratory was 26.9(SD=1.9) days, and this difference was statistically significant (P<0.0001). All the identified HIV positive infants (n=5, 1.0%) were initiated on ART within 2 weeks of receiving results.

**Conclusions:** There was a significant reduction in TAT to less than 2 days using the EID PoC testing. POC testing to improve TAT across all facilities needs to be scaled up to enable quick clinical decisions and improve patient care.

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## Effective Antiretroviral Therapy Does Not Prevent Archived Hiv-1 Drug Resistance Mutations in Adolescents

Kenou Djonang L<sup>1</sup>

<sup>1</sup>The Chantal Biya International Reference Center For Research On The Prevention And Management Of HIV/AIDS, Maternité de Bafou, Cameroon



**Background:** The long-term persistence of HIV-1 in latent reservoirs represents a major challenge to the eradication of HIV-1 infection. Indeed, antiretroviral therapy (ART) is unable to purge HIV-1 proviral DNA in viral reservoirs. The aim of our work was to characterize HIV-1 drug resistance mutations archived in the cellular reservoirs of ART-treated adolescents vertically infected with HIV in the Centre Region of Cameroon.

**Materials and Methods:** We conducted a cross-sectional and analytical study, at the Centre International de Reference Chantal Biya (CIRCB) from April 2022 to May 2023. Samples were collected from three HIV treatment centers. We assessed their immune-virological response to ART and identified most prevalent archived drug resistance mutations in the reservoirs using amplification refractory mutation system - polymerase chain reaction (ARMS-PCR). Statistical analyses were performed using Graphpad prism; Pearson's Chi-Square test was used to assess association between categorical variables, and Spearman's Chi-Square test was used for correlations; p-values < 0.05 were considered statistically significant.

**Results:** The study population consisted of 40 adolescents, predominantly male (55%), with a median age of 15.5 [12-15.5] years. The median CD4 count was 639 [375-942] cells/mm<sup>3</sup> and the median plasmatic viral load was 40 copies/ml. K103N, a NNRTI-associated mutation was the most prevalent (28/40 or 70%) followed by M184V, a NRTI-associated mutation (11/40 or 27.5%). We observed a significant association (p=0, 0001) between viremia and archived mutations in the reservoirs (HIV-1 pro-viral DNA).

**Conclusions:** In the context of effective ART with successful immunological and virological responses, we found a high proportion of archived NNRTI-associated drug resistance mutations in vertically HIV-1 infected adolescents in Cameroon. Therefore, calling for a rapid transition to ART regimens excluding NNRTIs to warrant long-term successful management of vertically HIV-1 infected adolescents.

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## Uptake of Oral Pre-exposure Prophylaxis (PrEP) Among Pregnant Women Attending Antenatal Clinics in KwaZulu-Natal and Mpumalanga Provinces in South Africa

**Makaba Z<sup>1</sup>**, Naidu V<sup>1</sup>, Beesham I<sup>1</sup>, Serrao C<sup>1</sup>, Prins M<sup>1</sup>, Shelembe Z<sup>1</sup>, Naidoo D<sup>1</sup>, Ncube A<sup>1</sup>, Malekela K<sup>1</sup>, Mosome R<sup>1</sup>, Ntshangase G<sup>1</sup>, Ndingi S<sup>1</sup>, Mkhize N<sup>1</sup>, Motlhamme J<sup>2</sup>, Hlatshwayo N<sup>2</sup>, Hlophe K<sup>3</sup>, Dlamini L<sup>3</sup>, Malone T<sup>1</sup>

<sup>1</sup>Broadreach Health Development, Cape Town, South Africa, <sup>2</sup>Mpumalanga Department of Health, Mpumalanga, South Africa, <sup>3</sup>KwaZulu-Natal Department of Health, KwaZulu-Natal, South Africa

**Background:** Pregnant women in South Africa are at increased risk of HIV acquisition that can result in transmission to the foetus/newborn. Oral pre-exposure prophylaxis (PrEP) for pregnant and breastfeeding women was included in the country's PrEP guidelines since 2019 to reduce maternal acquisition and perinatal transmission of HIV. BroadReach Health Development, supported by PEPFAR/USAID collaborates with the Department of Health in Mpumalanga and KwaZulu-Natal provinces to help end the HIV/AIDS epidemic. We describe PrEP uptake among pregnant women in these provinces in South Africa.

**Materials and Methods:** BroadReach supports PrEP delivery to pregnant women by providing technical assistance, in-service training, mentoring of clinicians, messages on the benefits of PrEP, and direct service delivery in public clinics and the community. PrEP data among pregnant women were collected using tick registers (Mpumalanga) and daily summary sheets (KwaZulu-Natal) and were captured into the District Health Information System since 2022. Reasons for not initiating PrEP were collected from healthcare workers during mentoring sessions. Descriptive analyses were conducted.

**Results:** From July-September 2022, 1,616 pregnant women initiated PrEP, increasing to 4,762 from July-September 2023. Additional analysis from July-September 2023 found that 17,785 pregnant women were tested for HIV. Of



these, 13,014 (73%) tested negative, and 37% (4,762/13,014) initiated PrEP. PrEP uptake was highest in uGu district (59%), followed by Gert Sibande district (37%), King Cetshwayo district (36%) and lowest in Nkangala district (28%). Efforts to increase PrEP uptake included community outreach, creating awareness, demand creation, culturally sensitive PrEP messaging, healthcare worker mentorship and counselling on the safety of PrEP during pregnancy. Reasons for not initiating PrEP included client factors such as safety concerns about PrEP use during pregnancy, challenges with taking a daily pill and lack of information about PrEP; and healthcare providers not offering PrEP to pregnant women. Overall, from July-September 2023, PrEP uptake was 13% (55,726/415,991) among the general population versus 37% among pregnant women.

**Conclusions:** Our research shows strong demand for PrEP among pregnant women in South Africa. Given the increased risk of maternal acquisition and perinatal transmission of HIV, further efforts to scale up PrEP uptake are needed.

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## Cascade de la Prévention de la Transmission Mère-enfant du VIH chez les Femmes Enceintes Dépistées Vivant avec le VIH dans les Centres de Santé Informels en Milieu Urbain et Semi Rural au Cameroun

Amboua Schouame Onambebe L<sup>1</sup>, Socpa A, Kwedi Nolna S

<sup>1</sup>Ecole des Sciences de la Santé / Université Catholique d'Afrique Centrale, Yaoundé, Cameroun

**Contexte :** Le profil de l'offre de soins de santé au Cameroun est caractérisé par une présence non négligeable des centres de santé informels (CeSIs). Ces derniers offrent le plus souvent des services de consultations prénatales (CPN). Cependant, peu d'informations sont disponibles sur le devenir des femmes enceintes dépistées vivant avec le VIH (FEC VIH+), au cours des CPN dans ces structures. Ainsi, ce travail décrit la cascade de la PTME au sein de cette population.

**Matériels et Méthodes :** Dans le cadre du projet ECIP, nous avons mené une étude de cohorte prospective du 01er Mai 2019 au 31 Août 2020. L'étude s'est déroulée dans les CeSIs des villes de Douala (milieu urbain) et Ebolowa (milieu semi-rural) au Cameroun. L'échantillon était constitué de 85 FEC VIH+ à leur première consultation prénatale, et naïves de traitement antirétroviral (TARV). Celles-ci étaient suivies de leur première consultation prénatale jusqu'à trois mois post partum. Les analyses descriptives ont été effectuées dans SPSS version 23.0.

**Résultats :** L'âge médian et l'âge gestationnel médian des participantes à leur inclusion dans l'étude étaient respectivement de 29 ans (rang interquartile (IQR), 23-33), et de 28 semaines d'aménorrhées (RIQ, 20-32). Plus de la moitié (64% (54/85)) avait un niveau d'étude secondaire. La majorité des participantes ne disposait d'aucune activité génératrice de revenus (71% (60/85)), et était mariée ou engagée dans des unions libres (65% (55/85)). Au total, 35% (30/85) des FEC VIH+ ont initié le TARV au cours de l'étude. Sur les 77 enfants exposés (EE) nés vivants, 36% (28/77) ont reçu une prophylaxie par les ARVs. Par ailleurs, 21% (16/77) d'EE ont été précocement dépistés pour le VIH, et un cas d'infection était enregistré. Les proportions de rétention dans la cascade PTME n'étaient pas statistiquement différentes entre le milieu urbain et le milieu semi-rural.

**Conclusions :** Au regard des faibles indicateurs de la cascade PTME enregistrés chez les FEC VIH+ dans les CeSIs, celles devraient bénéficier d'une plus grande attention du Programme National de PTME. Une implication des Communautaires pour une meilleure rétention de cette cible est à investiguer.



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## Residual Transmission, Five Years After Adoption of 2015 Oms Recommendation, Case of Atlantique and Littoral Departments of Benin

Dagba Gbessin H<sup>1</sup>

<sup>1</sup>NATIONAL PROGRAM FIGHTING AGAINST AIDS, Cotonou, Benin

**Background:** The advent of antiretrovirals in the management of HIV infection has reduced the incidence of HIV among children thanks to the Prevention of Mother-to-Child Transmission (PMTCT) programme initiated and recommended by WHO. Six years after the adoption and implementation of these recommendations in Benin, it is necessary to assess the progress made in the transmission of the infection to exposed children, and to identify the determinants.

**Materials and Methods:** This is a retrospective study in exposed children who received PCR between the 6th and 8th week of life. Early diagnostic testing is performed using Abbott Laboratories' m2000 RealTime platform. Proportion comparison tests (analysis of the significance of the difference in prevalence) with a threshold of error of 5% were used to assess the effectiveness of treatments and diets on mother-to-child transmission of HIV infection. Statistical analysis was performed with statistical software R, version 6.0.

**Results:** A total of 5,793 children benefited from early diagnosis by PCR between 2016 and 2021. Of these, 52% are male. Pre-pregnancy triple therapy is the main treatment used by mothers (30.6%) and monotherapy is the main treatment used by newborns (70%). Mixed breastfeeding is the most prevalent type of feeding. The overall transmission rate is 3.4% over the six years. The highest prevalence is obtained in 2018 (4.2%) and the lowest in 2021 (2.7%). The prevalence is lower when mothers are on triple therapy before pregnancy. The determinants of transmission are: mixed breastfeeding, no treatment in mothers (22.4%,  $p=0.003$ ), no treatment in children (19.7%,  $p=0.005$ ), undefined treatments or no treatment in the mother-child pair. **Conclusion:** This study shows the importance of the treatment of mothers in the

success of PMTCT and the necessity of the proper conduct of treatment in any woman of childbearing age.

**Conclusions:** This study shows that the success of PMTCT is treatment-dependent, the importance of maternal treatment in the success of PMTCT, and the need for proper treatment in any woman of childbearing age.

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## HIV Case-finding among the Pediatric and Adolescent Sub-population through Facility and Community testing in Plateau State, Nigeria

Isah E<sup>1</sup>, Oguejiofor I<sup>1</sup>, Ekeke V<sup>1</sup>, Isah A<sup>2</sup>, Stevens C<sup>1</sup>, Daniel P<sup>1</sup>, Osayi E<sup>1</sup>, Bodunrin S<sup>1</sup>, Wekpe S<sup>1</sup>, Ajayi O<sup>2</sup>, Ogunshola O<sup>2</sup>, Onwuatuolo I<sup>2</sup>, Samuels J<sup>2</sup>, Okonkwo P<sup>2</sup>

<sup>1</sup>APIN Public Health Initiatives of Nigeria, Rayfield, Jos, Nigeria,

<sup>2</sup>APIN Public Health Initiatives of Nigeria, Apo resettlement, Nigeria

**Background:** HIV poses a significant public health challenge, particularly with a high incidence among children and adolescents. Achieving equilibrium between facility and community-based approaches for children and adolescents in Nigeria is crucial. Diversifying testing strategies is imperative to cater to varied demographics, aiding in the early identification of acquired HIV, timely care provision, and mitigation of HIV's impact especially for the children and adolescent age group (0-19 years). This abstract aims to succinctly outline the current HIV case-finding status among individuals aged 0-19 in 29 selected facilities and communities across 14 Local Government Areas in Plateau State, Nigeria.

**Materials and Methods:** This was a retrospective study using data from pediatric and adolescent HIV testing and case findings during 12 months (October 2021-September 2022) in health facilities and communities respectively and sourced from the DATIM across 29 facilities selected from 14 Local Government Areas in Plateau State. HIV testing efforts and positivity by age and sex across the testing settings were compared for any



significant difference and association using the X<sup>2</sup>-test and a decision was made at  $pV \leq 0.05$ .

**Results:** A total of 13,333 clients aged 0-19 years were tested during the reporting period, with facility and community test settings contributing 10,748 (80.6%) and 2,585 (19.4%) respectively. Positivity was found to be 1.8% (196) and 1.7% (45) for facilities and communities respectively with the difference found to be statistically significant ( $pV = 0.04058$ ). Positivity among male and female groups was 2.2% (108) and 1.6% (133) respectively with statistically significant differences ( $pV = 0.005$ ), despite the higher proportion of females (63.9%) to males (36.1%). Positivity rates were higher for the age group of 0-4 years in both settings with that of the community (7.4%) being higher than that of the facility (3.1%), with evident association between age and positivity rate.

**Conclusions:** The study reveals a relatively higher transmission rate among the age group 0-4 years in both settings, particularly in the community setting. It is advisable to focus collaborative efforts on early childhood HIV screening, especially within communities, to prevent pediatric HIV.

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## Monitoring Trends in Mother-To-Child Transmission of HIV in Nigeria: A Retrospective Six-Year Study

Abah I<sup>1</sup>, Nyang L<sup>1</sup>, Kamara J<sup>1</sup>, Momodu O<sup>1</sup>, Ondura E<sup>1</sup>, Ogorry O<sup>1</sup>, Dauda D<sup>1</sup>, Claussen L<sup>1</sup>, Michelle L<sup>1</sup>, Asaolu O<sup>2</sup>, Onime D<sup>2</sup>, Obiora-Okafo C<sup>2</sup>, Idemudia A<sup>2</sup>, Nwadike C<sup>2</sup>, Kakanfo K<sup>2</sup>, Pius B<sup>2</sup>, Onimode B<sup>2</sup>, Oyawola B<sup>2</sup>, Bashorun A<sup>3</sup>, Gambo A<sup>4</sup>, Pius J<sup>2</sup>, Oyelaran O<sup>2</sup>, Goldstein R<sup>2</sup>

<sup>1</sup>Data.FI Palladium, Abuja, Nigeria, <sup>2</sup>Office of HIV/AIDS and TB, United States Agency for International Development, Nigeria, <sup>3</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Nigeria, <sup>4</sup>National Agency for the Control of AIDS (NACA), Nigeria

**Background:** According to UNAIDS' 2019 report, Nigeria accounts for 41% of vertically transmitted HIV among children in the West and Central African region. This study delves into the evolving

trends in transmission rates among infants exposed to HIV.

**Materials and Methods:** A retrospective study was conducted using aggregate data from 539 primary, secondary, and tertiary healthcare facilities across 17 states in Nigeria between July 2017 and September 2022. The analysis focused on the infants exposed to HIV (IEH) (IEH load) and the proportion of those infants diagnosed with HIV (transmission rate). The transmission rate was assessed across both urban and rural population settings. Inferential statistics (Kendall's Tau correlation and Kruskal-Wallis H test) were employed to determine the correlation between the transmission rate, the service level (primary, secondary, and tertiary), and IEH load.

**Results:** Among the 53,318 IEH, 2,300 were diagnosed with HIV, yielding a transmission rate of 4.3%. In urban facilities, comprising 68.4% (1,573 infants) of the IEH, the transmission rate was 4.5% (1,573 out of 34,764), while rural facilities showed a lower rate of 3.9% (727 out of 18,554). Secondary health facilities accounted for 51% (1,178 infants) of HIV cases but had the lowest transmission rate at 3.7% (1,178 out of 31,498). Tertiary facilities exhibited the highest transmission rate at 6.5% (495 out of 7,626), and primary health facilities recorded a rate of 4.4% (627 out of 14,194). Significant differences were observed across service levels ( $H = 16.8$ ,  $p = 0.0002246$ ). The transmission rate peaked in 2021 at 6.0% (660 out of 11,004 infants) and decreased to 1.9% (240 out of 12,735 infants) in 2022. A moderate negative correlation was found between IEH load and transmission rate ( $\tau = -0.3405849$ ,  $p = 8.3e-17$ ).

**Conclusions:** Urban settings and secondary facilities had the highest number of IEH, but tertiary facilities had the highest transmission rate. The service level had an impact on the transmission rate. The facilities with lower IEH loads recorded higher transmission rates, and this may suggest the need for more resources to care for these infants. To curb the vertical transmission of HIV, strategic and focused interventions are essential.





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## Adolescent PMTCT Trends in USAID Supported Sites in Nigeria 2020 to 2023: A Retrospective Analysis

Gado P<sup>1</sup>, Okafo C<sup>1</sup>, Asaolu O<sup>1</sup>, Idemudia A<sup>1</sup>, Omo-Emmanuel U<sup>1</sup>

<sup>1</sup>United States Agency for International Development, Abuja, Nigeria

**Background:** Adolescent girls receiving Prevention of mother to child transmission HIV (PMTCT) services in 17 United States agency for international development (USAID) states in Nigeria have increased in the last three years. Globally, girls 10–14 years in 2022 had an estimated 12 million live births within Africa contributing as high as 4.6 per 1000 births and account for 63% of new HIV infections. PMTCT interventions have considerably decreased vertical HIV transmission, however, there are still gaps in providing tailored services to address the global youth bulge and stem the HIV incidence among adolescents. This retrospective analysis examines the trend of adolescent PMTCT services in 17 states of Nigeria.

**Materials and Methods:** We conducted a retrospective analysis of routine patient PMTCT data (newly tested and newly enrolled on ART) for adolescents attending antenatal care (ANC) in 17 USAID supported states between Oct 2019 to Sept 2023. Opt-out HIV Testing services were provided to all ANC attendees and data recorded in EMR. Analysis was stratified by fine age disaggregation <10, 10-14 and 15-19 years.

**Results:** There were 232,443 patients aged 10 – 19 years attending ANC and newly tested for HIV between 2020 to 2023. 460 known HIV positive adolescents accessing PMTCT were identified while 445 (0.19%) of the patients within the age bracket were newly identified as positive for HIV. Thirty two (3.55%) ART enrolled were younger than 15 years while 873 (96.45%) of 905 patients entering care were aged 15–19 years. During the study period, the number of patients aged 10-19 years receiving PMTCT care increased by 48% from 191 in 2020 to 283 in 2023. This is significantly higher than incident rates for adults >19 years (48% against 28% increase for adults >19 years) diagnosed for the corresponding years.

**Conclusions:** The number of adolescents attending ANC and receiving PMTCT reflects the aging of children entering care at ages 10–19 years and echoes early sexual debut and high-risk behavior among adolescents aged 10–19 years noted in the Nigeria 2018 DHS. We project that the number of adolescents on ART will continue to rise without specific large scale adolescent interventions to stem this.

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## Maternal Gender-Based Violence Experience and Child HIV Treatment Outcomes

Nwakamma I<sup>1</sup>, Samson G, Erinmwinhe A, Ikpe G, Amuta C

<sup>1</sup>INERELA+ Nigeria, Abuja, Nigeria, <sup>2</sup>Caritas Nigeria, Umuahia, Nigeria

**Background:** Existing literature suggests a strong influence of maternal factors on child well-being. Yet, the intricate relationship between maternal experiences of Gender-Based Violence (GBV), and the impact on their children living with HIV remains understudied. This study conducted in Anambra

State, Nigeria aimed to assess the relationship between maternal GBV experience and child HIV treatment outcomes.

**Materials and Methods:** This was a cohort study of 427 women and their 681 children initiating Antiretroviral Therapy (ART) between March 2022 and June 2022, with an 18-month follow-up period. Child outcomes, measured were viral suppression, opportunistic infections, viral rebound, and advanced HIV disease. Descriptive and inferential analysis were conducted, and covariate analyses carried out to explore the influence of various factors on the outcomes.

**Results:** The Mean age of maternal age was 32 years, ranging from 20 to 50 years. The majority of the women had secondary education (45%), and most were engaged in the private sector (35%), with 40% living in urban areas. Inferential statistics revealed a significant negative correlation between maternal GBV experience and child viral suppression ( $r = -0.25$ ,  $p < 0.05$ ). Chi-square tests showed association between maternal education



and child viral suppression ( $\chi^2 = 15.6$ ,  $p < 0.01$ ), with higher viral suppression rates in children of mothers with post-secondary education. ANOVA demonstrated differences in child viral suppression across maternal age groups ( $F(4, 222) = 7.2$ ,  $p < 0.001$ ), showing children of mothers aged 26-35 exhibiting higher rates. Logistic regression showed maternal GBV, education, and maternal viral load as predictors of child viral suppression ( $p < 0.05$ ). T-tests indicated significantly higher viral suppression rates in children of virally suppressed mothers compared to those of unsuppressed mothers ( $t(225) = 4.8$ ,  $p < 0.001$ ).

**Conclusions:** The study underscores the complex factors influencing child HIV treatment outcomes. This evidence will contribute to the broader understanding of the challenges faced by children living with HIV in the context of maternal GBV experience. The study serves as a foundation for future research and the development of effective strategies to mitigate the adverse effects of maternal GBV on child health outcomes in the context of HIV treatment.

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## Implementing Global Positioning System (GPS) to Improve Continuation in HIV Treatment for Children: Lessons from the District Hospital and Urban Clinic in Petauke, Zambia

Malebe T<sup>1</sup>, Kibombwe G<sup>1</sup>, Mwenya D<sup>1</sup>, Goma M<sup>1</sup>, Oladele E<sup>1</sup>, Persaud N<sup>2</sup>, Satti H<sup>2</sup>, Carpenter D<sup>2</sup>, Chabikuli O<sup>4,5</sup>, N'gambi M<sup>3</sup>

<sup>1</sup>FHI 360, Lusaka, Zambia, <sup>2</sup>FHI 360 Washington, Washington, United State of America, <sup>3</sup>MOH, Chipata, Zambia, <sup>4</sup>FHI 360, Pretoria, South Africa, <sup>5</sup>Howard University, Washington DC, USA

**Background:** Zambia has made considerable progress toward scaling antiretroviral therapy (ART), with 98% of people who know their HIV status on ART. However, this causes increased workload in health facilities amid personnel shortages, adversely affecting continuation in care, particularly for children. In April 2022, the CDC

technical assistance project piloted the use of global positioning system (GPS) technology to improve accuracy of tracking clients with interruption in treatment (IIT).

**Description:** The implementation had a pilot phase conducted at Petauke District Hospital, and scale-up phase which included Petauke Urban Clinic. Steps included:

1. Orienting community health workers on GPS
2. Deploying CHWs to capture coordinates for children active in care.
3. Utilizing MS Excel template to download and store coordinates.
4. Employing clustering and proximity methods in quantum geographic information system (QGIS) to generate shape files.

The pilot captured 154 pediatric clients active in care: 107 residing within 20km radius and 47 beyond 20km. Of the 107 residing within 20 km radius, 87 (81%) were mapped.

**Lessons Learnt:** During pilot phase, 12 pediatric clients or adolescents and young people (AYP) had IIT: eight due for viral load (VL) sample collection and four for ART refill. Utilizing coordinates obtained previously, Google Maps navigation led to all 12 (100%) correct addresses within an hour. Of the eight clients due for VL, seven were found at home and 100% VL sample collection achieved. The four due for ART refill all received their medication.

During scale-up, an additional 197 children were mapped. Of these, 33 had IIT: 66% (22) missed ART refill appointment and 33% (11) VL sample collection. GPS was successful in tracking all 22 houses for children that missed their appointment within four hours. Outcomes were: 18% (4) relocated and 72% (16) returned to care. All 11 (100%) children due for VL had samples collected.

**Conclusions:** GPS technology implemented with real time tracking of appointments quickens the location of clients missing appointments. When implemented and scaled up while incorporated in electronic health medical records systems, it could contribute to improving continuation in treatment and care and attaining HIV epidemic control in Zambia.



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## Role Of Mentor Mothers in the Elimination of Mother-To-Child Transmission of HIV In Military Health Units in Mozambique

Nhambi L<sup>1</sup>, Santos C<sup>1</sup>, Juenta L<sup>1</sup>, Viegas A<sup>1</sup>, Machalela C<sup>1</sup>, Macaringue L<sup>1</sup>, Tuzine O<sup>2</sup>, Massangaie S<sup>2</sup>, Joaquim L<sup>2</sup>, Kelbert S<sup>1</sup>, Strachan M<sup>1</sup>  
<sup>1</sup>Jhpiego, Maputo, Mozambique, <sup>2</sup>FADM, Maputo, Mozambique

**Background:** Despite national efforts to prevent mother-to-child transmission (PMTCT) of HIV and a reduction in vertical transmission rates from 14% in 2019 to 10% in 2023, challenges remain. Associated factors include poor treatment continuation among pregnant women living with HIV, as well as cultural, economic, social and structural factors. Jhpiego and the FADM (Armed Forces of Mozambique) introduced the Mentor Mothers (MM) strategy in 2019 in 10 medium or high-volume FADM-supported health facilities (HFs).

**Materials and Methods:** This is a retrospective analysis of the role of MM in reducing MTCT of HIV. The PMTCT cascade was assessed using data from 10 military HFs with MM and 12 HFs without mentor mothers, between the period of 2021 to 2023. Data included 3,116 HIV-exposed infants from HFs with the MM strategy, 190 HIV exposed infants in HFs without the MM strategy. MM are trained HIV-positive women in care who provide support and share experiences and healthy practices with other HIV-positive pregnant or breastfeeding women (PBFW) with HIV-exposed children.

**Results:** Of 3,116 children exposed to HIV in HFs with MM, 84% (2,626/3,116) of children had PCR tests administered at 4-8 weeks of age. Of these children, 3.1% (99/2626) had a positive PCR result for HIV and of these, 92.9% (93/99) started ART. In comparison, at the HFs without MM, of the 190 HIV exposed children, 67% (128/190) had PCR tests at 4-8 weeks of age. Of these children, 2.6% (5/128) had a positive PCR result for HIV and of these, 60% (3/5) started ART. In HFs with MM, 58% (18,200/30,081) of the partners of PBFW came in for HIV testing, compared to 45% (1,136/2,527) among HFs without MM.

**Conclusions:** These preliminary findings show an increased coverage of testing for HIV exposed infants, ART initiation for children who tested HIV-positive, and increased coverage of partner testing in HFs using the MM approach. Additional follow-up time and research in more HFs are needed to assess long-term impact and scale up of the intervention.

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## Infection Chronique par le VIH et Vieillesse : Stratégies D'Adaptation des Personnes Vivant avec le VIH à Abidjan, Côte d'Ivoire

Assoumou A<sup>1</sup>, Nédelec E<sup>2</sup>, Debeaudrap P<sup>3,2</sup>, Coffie P<sup>1</sup>

<sup>1</sup>Programme Pac-ci, Abidjan, Côte d'Ivoire, <sup>2</sup>CEPED, Paris, France, <sup>3</sup>IRD, Paris, France

**Contexte :** Avec l'accès aux antirétroviraux (ARV), le VIH est devenu une maladie chronique avec laquelle on peut vieillir. Cependant, des perturbations peuvent apparaître au cours du vieillissement avec le VIH. Dans une étude conduite à Abidjan, les capacités physiques des participants vivant avec le VIH (PvVIH) étaient similaires à celles des témoins non infectés et les comorbidités étaient moins fréquentes. Cette étude qualitative vise à comprendre les stratégies d'adaptation face au VIH et au vieillissement.

**Matériels et Méthodes :** De mars 2022 à décembre 2023, une enquête de terrain basée sur des entretiens semi-directifs a été menée auprès de 35 PvVIH âgées de 30 à 75 ans et de 5 soignants du Service des Maladies Infectieuses et Tropicales, au Centre Hospitalier et Universitaires de Treichville, à Abidjan.

**Résultats :** Le parcours de vie avec le VIH des participants à l'étude est marqué par trois périodes. La première correspond à la découverte du VIH et est caractérisée par des maladies répétitives, l'incertitude, l'anxiété et des difficultés à assumer pleinement les rôles sociaux. La deuxième correspond à la prise en main de la santé par l'observance du traitement antirétroviral. Constatant une amélioration de leur



capacité physique, les participants ont développé une confiance en eux ainsi que dans l'efficacité des antirétroviraux et dans la possibilité de vivre longtemps. Cela leur a permis de reprendre leurs rôles sociaux. La troisième correspond au vieillissement avec le VIH. Dans cette phase, les participants rencontrent une baisse de leurs capacités physiques, des difficultés de déplacement, des angoisses à propos d'éventuelles maladies liées au vieillissement ou à l'idée de ne pas pouvoir réaliser des projets, ainsi qu'une baisse du désir sexuel. Ainsi, ils renforcent leur pratique d'activité physique, développent une perception positive de soi et adoptent des pratiques religieuses pouvant leur procurer plus de sérénité.

**Conclusions :** Différentes stratégies d'adaptation ont été mises en place au cours de la vie avec le VIH. Grâce à cela, les PvVIH ont pu se réapproprier leur vie et devenir acteur de leur santé, ce qui leur offre plus d'autonomie pour aborder le vieillissement.

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## A Qualitative Study of HIV Testing Experiences and HIV Self-Testing Perspectives Among Men in Northern Nigeria.

Iliyasu Z<sup>2</sup>, Bashir H<sup>3</sup>, Iliyasu B<sup>2</sup>, Haladu Z<sup>2</sup>, Tsiga-Ahmed F<sup>2</sup>, Amole T<sup>2</sup>, Salihu H<sup>4</sup>, Aliyu M<sup>1</sup>

<sup>1</sup>Vanderbilt University Medical Center, Nashville, United States,

<sup>2</sup>Aminu Kano Teaching Hospital, Kano, Nigeria, <sup>3</sup>Oxford University, Oxford, United Kingdom, <sup>4</sup>Kano Independent Research Centre Trust, Nigeria, Kano, Nigeria

**Background:** HIV self-testing holds promise for accessing hard-to-reach populations by overcoming socio-cultural and structural barriers to HIV status awareness. We explored the experiences and perspectives of married men in Kano, northern Nigeria, regarding HIV testing and counseling and HIV self-testing.

**Materials and Methods:** Twenty married men from diverse socioeconomic backgrounds participated in in-depth interviews conducted in the local language. We employed thematic

analysis to analyze the data, yielding key themes related to prior test experiences, knowledge of self-testing, and perceived ease of use, in addition to motivation for self-testing, and concerns about reliability and counseling support.

**Results:** Our findings shed light on the impact of past facility-based HIV testing experiences on the perspectives of participants. Concerns related to delays, overcrowding, discomfort, fear, and unsupportive attitudes from healthcare providers influenced their perceptions. Initially, participants had limited awareness of HIV self-testing but expressed interest upon learning about its availability. Among persons with previous self-testing experience, initial uneasiness was overcome with repeated use, highlighting the ease of use associated with HIV self-testing. Motivations for self-testing included privacy, convenience, personal empowerment, improved infection detection, and efficiency. Concerns were raised regarding the reliability of self-testing results compared to hospital-based testing and the absence of counseling support during self-testing.

**Conclusions:** Our findings underscore the need to address infrastructural limitations, enhance counseling support, and promote awareness and knowledge of HIV self-testing in similar settings.

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## Enhanced Re-engagement for PLHIV with Interrupted Treatment through Person-Centered Empathetic Communication (“Uzwelo/Empathy”): a Quasi-Experimental Study

Dhodho E<sup>1</sup>, Takarinda K<sup>1</sup>, Masiye K<sup>1</sup>, Webb K<sup>1</sup>, Chimberengwa P<sup>1</sup>

<sup>1</sup>OPHID, Harare, Zimbabwe

**Background:** The Uzwelo approach, grounded in empathy and the philosophy of Ubuntu, was developed to optimize efforts to trace and re-engage clients interrupted-in-treatment (IIT) from HIV care. This study aimed to evaluate the effectiveness of Uzwelo in increasing the



proportion of HIV clients identified as IIT who are successfully re-engaged to care in Zimbabwe's HIV Program.

**Materials and Methods:** A quasi-experimental pre/post-test design was used to evaluate return-to-care rates among clients identified as Interrupted in Treatment (IIT) in Chitungwiza, Zimbabwe. In April 2023, a simple random sample of 202 clients was selected from a pool of 1,100 individuals classified as IIT. The study compared the standard-of-care, which involved client-based phone calls only, and the Uzwelo approach, which entailed additional client follow-up, using the T-test for paired proportions. To understand the underlying reasons for treatment interruption, qualitative methods were utilized. Client responses were collected and analyzed thematically, employing a socioecological framework.

**Results:** In the cohort of 202 clients identified as Interrupted in Treatment (IIT), the effectiveness of the Uzwelo approach was compared with the standard phone call method. A significantly higher number of clients were successfully traced using the Uzwelo approach, with 148 out of 202 (73%;  $p < 0.01$ ), as opposed to 91 out of 202 (45%;  $p < 0.01$ ) with the standard phone call approach. In terms of re-engagement to care or determination of outcome in care, the Uzwelo approach again proved more effective. A total of 101 out of 202 (45%;  $p < 0.01$ ) were successfully re-engaged using the Uzwelo approach, compared to 48 out of 202 clients (24%;  $p < 0.01$ ) with the standard phone call approach. Furthermore, among clients on Antiretroviral Therapy (ART) for more than one year, Uzwelo increased re-engagement from 24% to 50% ( $p < 0.01$ ). NoK shared more details that led to establishment of patient status because they felt "valued" and important in the patient's care. They felt they were critical stakeholders rather than just sources of information.

**Conclusions:** The Uzwelo model, by emphasizing respectful interactions with both patients and their Next of Kin offers a promising model for effective patient centered engagements in culturally sensitive settings.

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## A Systematic Approach to Addressing Inconsistencies in Self-Reported Age at First Sex and Marriage among Kisesa Youth and Older Populations, Tanzania: Serial Cross-Sectional Survey (1994-2016)

**Materu J**<sup>1,2</sup>, **Todd J**<sup>1,3</sup>, **Slaymaker E**<sup>3</sup>, **Urassa M**<sup>1</sup>, **Marston M**<sup>3</sup>, **Boerma T**<sup>4</sup>, **Konje E**<sup>2</sup>

<sup>1</sup>Department of Sexual and Reproductive Health, National Institute for Medical Research, Mwanza Centre, Tanzania, Mwanza, Tanzania, <sup>2</sup>Department of Biostatistics, Epidemiology and Behavioral Sciences, School of Public Health, Catholic University of Health, and Allied Sciences, Mwanza, Tanzania, <sup>3</sup>Department of Population Health, London School of Hygiene and Tropical Medicine, London, United Kingdom, <sup>4</sup>Institute for Global Public Health, University of Manitoba, Canada

**Background:** Unlocking information on human behavior requires accurate and consistent data, making it crucial to understand whether self-reports are consistent. In the realm of health and demographic surveillance, the reported ages at first sex (AFS) and first marriage (AFM) serve as crucial indicators for sexual health. Spurious trends and misdirected program efforts can result from unreliable data, emphasizing the need to scrutinize the consistency and variability of reported ages for these events.

**Materials and Methods:** This study used data from Magu Health and Demographic Surveillance System (MaguHDSS) to explore AFS and AFM across eight survey rounds from 1994 to 2016. We categorized reported AFS/AFM into consistent and inconsistent, and data into usable and unusable, a robust fixed-effect panel regression model was used to uncover within-individual variability. Following meticulous data preparation, we scrutinized 58,654 observations from 33,177 individuals of whom 31,522 were eligible for analysis of reported AFS, and 31,627 for reported AFM.

**Results:** The results show substantial within-individual variability, with over half (52% for AFS and 69% for AFM) of the reported variations explained by individual-specific changes over different time points. Overall, 52% reported



consistent AFS, 56% reported consistent AFM, with 27% of AFS and 21% of AFM data deemed unusable due to inconsistency. In the young population (15-24 years), around 50% reported consistently for AFS, 68% for AFM, and 19% of AFS and 8% of AFM data considered unusable due to inconsistency. Sub-analysis showed age, gender, residence area, HIV status, pregnancy status, and education level influencing variability and consistency. Younger individuals, especially adolescents, tended to report more consistently. Females exhibited higher consistency in AFS (56.7%) and AFM (61.0%) compared to males (43.5% and 44.9%, respectively). Reporting consistency varied based on education level, residence area, HIV status, and pregnancy status, although differences were small.

**Conclusions:** Findings suggest caution in approaching self-reported AFS and AFM data due to inherent variability and inconsistency in reports at different time points. A systematic analytical approach is crucial for improving data quality, considering the challenge of face-to-face questionnaires for sensitive events, where some studies indicate little to no improvement when alternative data collection methods were used.

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## Personal Touch Model of Care: A Strategic Approach to Improve Health Outcomes for Children and Adolescents Living with HIV in 4 Counties in Kenya

Matu L<sup>1</sup>

<sup>1</sup>Gold Star Kenya, Nairobi, Kenya, <sup>2</sup> USAID Tujenge Jamii, Nairobi, Kenya

**Background:** Despite the progress made by Kenya in identifying and starting children and adolescents on treatment, achieving optimal viral load suppression of at least 95% remains a challenge. In September 2019, viral load suppression among children aged 0-9 and 10-19 years was 70% and 73% respectively across the 200 USAID Tujenge Jamii (UTJ) project supported sites. To achieve the

3rd 95%, a different approach was needed, and this informed the personal touch model of care

**Materials and Methods:** UTJ team together with the health facility teams formed a multi-disciplinary team (MDT) that discussed and reviewed children and adolescents who had high viral load (HVL) across 200 sites in four counties in Kenya. The MDT then invited the children and their guardians for a one-on-one discussion using a case management approach where barriers to optimal viral load suppression were explored. Most of the barriers identified were social and structural in nature and varied from family to family. Personalized and achievable health, social, education and other life goals were set jointly with the families. Timelines were given within which to achieve these goals and a date for review and repeat viral load was set. A case manager was identified to walk with the family beyond that initial discussion with the MDT. This approach was named “The Personal Touch Model of Care- PTMc” and was implemented in all sites that were serving children 0-9 and adolescents 10-19 years.

**Results:** Viral load suppression improved 70% and 73% at baseline in 2019 to 91% and 93% for children 0-9yrs and adolescents 10-19yrs respectively. Personalizing care to each family based on individual circumstances and involving them in the decision making helped achieve set goals including viral load suppression.

**Conclusions:** Personal Touch Model of Care is a low-cost easy to implement intervention that takes us closer to the 3rd 95 especially among children and adolescents. To achieve the 3rd 95, social and structural barriers must be addressed alongside clinical management, and project managers need to incorporate this as an integral part of the package of care for children and adolescents living with HIV.



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## “Prostitutes Are the Ones Who Like Using PrEP”: A Qualitative Analysis Exploring Barriers and Facilitators to PrEP Uptake Among DREAMS Recipients in Zambia

Toussaint S<sup>1</sup>, Stobenau K<sup>1</sup>, Mwale M<sup>2</sup>, Muchanga G<sup>2</sup>, Maambo C<sup>2</sup>, Mwambax M<sup>3</sup>, Kashyap A<sup>1</sup>, Alvarez-Peralta M<sup>1</sup>, Mwango L<sup>3</sup>, Baumhart C<sup>4,5</sup>, Muleya C<sup>6</sup>, Mwila A<sup>6</sup>, Claassen C<sup>2,4,5</sup>

<sup>1</sup>University of Maryland, College Park, United States, <sup>2</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, United States, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

In sub-Saharan Africa, including Zambia, adolescent girls and young women (AGYW) face a heightened risk of contracting HIV. To combat this issue, the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program provides a comprehensive approach to HIV prevention, including social and economic empowerment, youth-friendly sexual and reproductive healthcare, and access to pre-exposure prophylaxis (PrEP). To encourage greater use of PrEP among AGYW, it is essential to identify the barriers and facilitators of PrEP usage within the DREAMS program.

Our team evaluated the DREAMS program in three districts of Zambia between April – July 2023. We collected data from AGYW beneficiaries (n=55) and program implementers (n=51) using interviews and focus groups. Using thematic analysis, we identified factors that influenced beneficiaries' PrEP use as described by DREAMS beneficiaries and implementers. Data were analyzed by a team of Zambia and U.S.-based researchers using Atlas-ti(v23).

Beneficiaries described benefits and facilitators of PrEP use. We identified two themes: 1) improved knowledge of PrEP and its benefits 2) PrEP as security and empowerment. Beneficiaries expressed a sense of distrust toward their partners, driven by uncertainties about their partners' HIV status or potential engagement in

other relationships, which emerged as facilitators for PrEP use.

Beneficiaries expressed barriers to PrEP use, including concerns about potential consequences and PrEP stigma, some grounded in misconceptions. Some AGYW mistakenly believed that PrEP was the same as antiretroviral drugs and could lead to illness. Beneficiaries also expressed concerns about potential stigma, fearing that using PrEP could lead to promiscuity and negative labeling as they associated PrEP use with sex workers. Implementers also described misconceptions about PrEP as a key barrier to its use, along with the need for parental consent for AGYW under age 16.

The inclusion of PrEP services within the DREAMS biomedical packages has been well-received by AGYWs in Zambia, underscoring its significance in empowering them to manage their health effectively. However, despite its benefits, certain beneficiaries still face challenges in accessing PrEP due to stigmatization. Therefore, it is imperative to implement targeted interventions to address and alleviate PrEP-related stigma and ensure equal access to PrEP services for all.

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## “In a Community That Is Strict About Contraceptives, I Have Been Able to Access Them Because of DREAMS”: An Analysis of the Facilitators and Barriers of Contraception Use Amongst Adolescent Girls and Young Women in Zambia

Maambo C<sup>1</sup>

<sup>1</sup>Maryland Global Initiatives Corporation, Lusaka, Zambia

**Background:** Adolescent girls and young women (AGYW) in sub-Saharan Africa are at a high risk of teenage and unplanned pregnancies. DREAMS (Determined, Resilient, Empowered, Aids-Free, Mentored, and Safe) is a multilayered HIV prevention program that empowers AGYW to make informed decisions about their bodies,



including by offering contraceptives. Through physical centers, DREAMS offers an alternative source of contraception. We explored the facilitators and ongoing barriers to this approach.

**Materials and Methods:** A qualitative evaluation was conducted in three districts in Zambia (one rural district and 2 urban districts). Data were collected from audio-recorded in-depth interviews (IDIs) and focus groups with DREAMS beneficiaries aged 16-21 (n=55), and program implementers (n=51). During IDIs, a romantic life history calendar gained insight into the participants' romantic and sexual relationships over time. To analyze these data, we used thematic and narrative analysis. For thematic analysis, we coded data, and categorized results from data coded on reproductive health. For narrative analysis, we wrote, reviewed and compared narratives of beneficiaries' contraceptive use in romantic relationships.

**Results:** Beneficiaries appreciated that they had a DREAMS center where they were comfortable accessing contraceptives in their local area. In the rural site, the DREAMS program served as the only local provider of these services. Beneficiaries described the value of the information and accessibility of these services through DREAMS. They highlighted their understanding that early pregnancy can result in school drop-out, and noted contraceptives helped avoid unwanted pregnancies and allowed them to stay in school as well. Despite improved education efforts and increased accessibility, some beneficiaries reported ongoing misconceptions, namely the belief that contraceptives were only safe for a woman who had already given birth. Further, continued accessibility challenges were reported – in the rural sites there were limited contraceptive method options. Some reported not using contraceptives because the methods they preferred were unavailable. Additionally, others complained of side-effects.

**Conclusions:** The inclusion of contraception in the DREAMS program has provided many AGYW with added resources and choices to meet their reproductive health needs. However, there is still need to further improve accessibility and choice of family planning methods, particularly in rural sites.

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## Effectiveness of Work Readiness Training in Improving Job Retention Rates and Career Advancement Opportunities for Adolescent Girls and Young Women; Lessons from Mangwe and Bulilima Districts of Zimbabwe, 2023

**Sibanda T**<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Mudokwani F<sup>1</sup>, Yogo K<sup>1</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Nyamwanza B<sup>2</sup>, Bhatasara T<sup>3</sup>, Mutseta M<sup>4</sup>, Tachiwenyika E<sup>1</sup>, Mudzengerere F<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Adolescent girls and young women (AGYW) aged 15-24 in low-resource settings remain at high risk of HIV infection. Zimbabwe Health Interventions is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program to reduce HIV incidence among AGYW. DREAMS program offers comprehensive HIV prevention interventions among them economic strengthening through work-readiness meant to empower AGYW with skills and knowledge to navigate the work environment. Between October 2021 and September 2023, Bulilima and Mangwe districts recorded low (12%) job retention and suboptimal career advancement among AGYW enrolled in the DREAMS program. We documented lessons learnt from work readiness initiative in improving job retention rates and career advancement among AGYW in Bulilima and Mangwe districts of Zimbabwe.

**Materials and Methods:** A descriptive cross-sectional, mixed-methods study was conducted among AGYW aged 15 to 24 years enrolled in the DREAMS program in Bulilima and Mangwe districts who attended Internal Savings and Lending (ISAL) and work-readiness training between October 2021 and September 2023. Data were collected from AGYW and employers using in-depth interviews and survey-questionnaire. Qualitative





data were analysed using thematic analysis, and quantitative data were analysed using SPSS generating proportions, and measures of central tendency, and spread.

**Results:** A total of 125 AGYW were interviewed of which 54% (68/125) were aged 18 to 24 years. About 54% (68/125) received training on work-readiness skills and out of these, 22% (n=15) managed to progress with their careers from internship to formal employment. About 71% (46/68) indicated curriculum vitae writing and interview skills, self-assessment, goal setting, and career planning enabled them to identify their desired career paths, stay updated to industry-trends, mentors, and employers increasing their potential for advancement. A total of 6 employers were interviewed reported foundation skills like communication, time management, negotiation-skills equipped AGYW to adapt to work environment. Thematic analysis identified following themes related to career advancement and job retention for AGYW: adaptability to job environment, professionalism and work-ethics, education and skills development, coaching and mentorship.

**Conclusions:** Work-readiness skills empowered AGYW with knowledge and skills required to secure and retain employment. We recommend all AGYW trained on economic strengthening to receive work-readiness training.

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## Adolescents and Youth Prefer Mobile Adolescent and Youth Friendly Services to Receive HIV Preventive Care in Southern Mozambique

Lain M<sup>1</sup>, Chicumbe S<sup>2</sup>, Manetiane I<sup>3</sup>, Bila D<sup>1</sup>, Bruno C<sup>4</sup>, Mboa C<sup>1</sup>, Stefanutto M<sup>1</sup>, Cumbi L<sup>2</sup>, Braz Chidassicua J<sup>2</sup>, Simone T<sup>5</sup>, Couto A<sup>5</sup>, Vaz P<sup>1</sup>

<sup>1</sup>Fundação Ariel Glaser, Maputo, Mozambique, <sup>2</sup>Instituto Nacional de Saúde, Marracuene, Mozambique, <sup>3</sup>Adolescent and Youth Health National Program, Ministry of Health, Maputo, Mozambique, <sup>4</sup>Provincial Health Directorate, Maputo Province, Mozambique, <sup>5</sup>National HIV/STI Program, Ministry of Health, Maputo, Mozambique

**Background:** Access to HIV preventive care integrated into broader Sexual and Reproductive Health (SRH) services, remains suboptimal among adolescents and youth (AY) in Mozambique. Differentiated service delivery models to reach AY in the community are key to engage them in quality and comprehensive SRH. We evaluated selected HIV variables following the implementation of a Mobile Adolescent and Youth Friendly Service (Mobile-AYFS) in southern Mozambique.

**Materials and Methods:** We conducted a cross-sectional, quantitative study in July-August 2023, following the implementation of Mobile-AYFS in Matola and Marracuene districts, Maputo Province. AY 10-24 years-old answered a structured questionnaire to assess knowledge, services received including preferences, regarding HIV, sexually transmitted infections, SRH, among other topics. A descriptive analysis of frequency distribution and 95% Confidence Interval was done using SPSS v. 25.0. We present a comparative analysis among districts for selected HIV indicators.

**Results:** A total of 862 AY, 412 (48%) in Matola, answered the questionnaire, 560 (65%) were females, the mean age was 17.4 years (95% CI 17.3-17.6); 375 (91%) in Matola and 419 (93%) in Marracuene attended the Mobile-AYFS, compared to 268 (65%) and 202 (45%) AYFS attendance at the HF respectively; 351 (86%) AY in Matola and 388 (87%) in Marracuene reported correct HIV definition; 371 (91%) in Matola and 428 (96%) in Marracuene, reported correct knowledge of HIV transmission; 367 (90%) AY in Matola and 398 (89%) in Marracuene received HIV counselling, 255 (88%) in Matola and 235 (83%) in Marracuene requested an HIV test, 284 (70%) and 281 (63%) respectively were tested, 157 (38%) and 352 (79%) p<0.05, answered they would need to repeat the test in the future, 316 (77%) and 366 (75%) would prefer to be retested at the Mobile-AYFS, 28 (7%) and 12 (3%) p<0.05, would prefer a self-test. Overall, 350 (85%) AY in Matola and 366 (81%) in Marracuene, reported to prefer the Mobile-AYFS approach to the AYFS at HF.

**Conclusions:** The Mobile-AYFS model was preferred by AY to receive SRH services including HIV counselling and testing. However, HIV testing coverage was suboptimal. Effective promotion of self-test modality is needed to increase testing coverage among this population.



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## Training Socially-Connected Fishermen in Western Kenya to Distribute HIV Self-Test Kits and Health Facility Referral Vouchers

**Onyango Okore J**<sup>1</sup>, S. Camlin C<sup>2,3</sup>, Lewis-Kulzer J<sup>2</sup>, A. Gutin S<sup>4</sup>, Charlebois E<sup>3</sup>, Ayieko B<sup>1</sup>, Kwena Z<sup>5</sup>, Agot K<sup>1</sup>

<sup>1</sup>Impact Research & Development Organization, Kisumu, Kenya,

<sup>2</sup>Department of Obstetrics, Gynecology and Reproductive Sciences, University of California San Francisco, USA, San Francisco, United States, <sup>3</sup>Department of Medicine, Division of Prevention Sciences, University of California San Francisco, USA, San Francisco, United States, <sup>4</sup>Department of Community Health Systems, School of Nursing, University of California San Francisco, USA, San Francisco, United States, <sup>5</sup>Centre for Microbiology Research, Kenya Medical Research Institute, Kisumu, Kenya, Kisumu, Kenya

**Background:** Despite significant progress on the HIV response in Kenya, HIV prevalence around Lake Victoria remains high. A key challenge is low HIV testing among men, particularly highly mobile fishermen. The Owete Study (NCT#04772469) employed a social network-based approach to promote testing and linkage to HIV services among fishermen in Siaya County, Kenya. Social networks of fishermen in three beach communities were mapped to identify highly influential and socially-connected men ('Promoters') and close social networks, who were then randomized to intervention or control arms. We describe Owete's training approach and Promoters' training experiences to offer implementation insights.

**Materials and Methods:** Experienced trainers employed interactive methodologies to enhance comprehension among Promoter trainees with diverse educational backgrounds. Training lasted two days: day 1 included both arms, involving: study overview, Promoter-roles, HIV literacy, HIV testing including self-testing, and prevention and treatment information. Intervention Promoters participated in day 2 which focused on: HIV self-testing demonstrations and peer communication role-plays. After training, control Promoters received non-monetary referral vouchers for peer distribution for local health facility linkage for HIV testing. Intervention Promoters received HIV self-testing kits for peer distribution, with incentive vouchers (~USD \$3.50) for local health facility linkage following self-testing.

**Results:** There were 146 Promoter trainees (balanced across arms). Promoters were highly engaged, eager to learn, and supportive of targeted health talks and trainings for men, whom they felt had been left out of the HIV response. Promoters felt the knowledge gained improved their understanding of health matters and elevated their social status. Trainer demonstrations and HIV self-testing role plays elicited participant excitement. Promoters felt empowered knowing how to interpret self-testing results. Promoters were pleased that the training provided an opportunity to answer questions about PrEP use and correct misconceptions.

**Conclusions:** Training and engaging social network-central Promoters as lay health workers to spearhead campaigns on health issues affecting fishermen, can leverage established relationships and may prompt increased participation of highly mobile men in health seeking practices. Capacity building through training and providing Promoters with tools to deliver health information and HIV self-testing kits may expand knowledge, trust, and help overcome limited health service access among fishermen.

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## Drug and Substance Abuse; A Public Health and Socio-Pathological Threat to HIV Prevention Efforts Among Adolescent Girls and Young Women in Bulawayo City of Zimbabwe, 2023

**Mushayi I**<sup>1</sup>, Nyathi J<sup>1</sup>, Mateko Y<sup>1</sup>, Mudzengerere F<sup>1</sup>, Mafaune H<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mudhokwani F<sup>1</sup>, Masoka T<sup>1</sup>, Dhakwa D<sup>1</sup>, Muchedzi A<sup>1</sup>, Tafuma T<sup>1</sup>, Yogo K<sup>1</sup>, Nyamwanza B<sup>2</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Bhatasara T<sup>3</sup>, Matambo P<sup>3</sup>, Metseta M<sup>4</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child care, Harare, Zimbabwe

**Background:** Drug and substance abuse among youth is a public health concern globally, with an



estimated 11.8 million young people using drugs in 2022. Studies have demonstrated an association between drug/substance abuse with HIV infection risk, with drug/substance abusers being two times more likely to be HIV infected than non-users. Zimbabwe Civil Liberties and Drugs Network (ZCLDN) estimated that youths who abused drugs increased from 43% in 2017 to 57% in 2019. Drug/substance abuse among youths is prevalent in Bulawayo city, facilitated by youth-organized sex “Vuzu” parties.

**Materials and Methods:** An analytic cross-sectional study was conducted using data for AGYW aged 15-19 years enrolled in Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program in Bulawayo city between October 2022 and September 2023. Quantitative data on drug/substance abuse and sexual behaviors were collected using structured AGYW enrolment questionnaire, beneficiary-level data were captured in the DREAMS program DHIS 2 database. Data were downloaded from the DHIS2 database and analyzed using SPSS generating frequencies, proportions, and measures of association. Assessment received ethics approval from Medical Research Council of Zimbabwe (MRCZ/E/254).

**Results:** Data for 7,868 AGYW aged 15-19 years were analyzed of which 16.1% (1,265/7,868) reported abusing drugs and alcohol. About 43.6% (3,430/7,868) reported having no or irregular condom use, and 6.2% (489/7,868) had a sexually transmitted infection (STI). Among AGYW who abused drugs and alcohol, 42.7% (540/1,265) reported having no or irregular condom use, and 16.7% (211/1,265) reported having had an STI. AGYW who abused drugs and alcohol were more likely to have no/irregular condom use [COR=0.957, (95%CI 0.847;1.081)]. Similarly, AGYW who abused drugs and alcohol were more likely to have an STI [COR= 4.56, (95% CI 3.77; 5.51)].

**Conclusions:** AGYW who abused drugs, alcohol and other substances were more likely to have risky sexual behavior including no/irregular condom use and having STIs. We recommend customized interventions for AGYW who abuse drugs and alcohol reduce risk of contracting HIV among AGYW.

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## Understanding Different User Segments Is Crucial for the Development of Effective Condom Programming Strategies: Lessons Learned from Zimbabwe

Sithole H<sup>1</sup>, Chatora K<sup>1</sup>, Machiha A<sup>1</sup>, Munjoma M<sup>1</sup>, Munjoma M<sup>1</sup>, Taruberekera N<sup>1</sup>, Leuschner S<sup>2</sup>,

Machiha A<sup>3</sup>, Chidiya S, Balasubramanian S

<sup>1</sup>Population Solutions for Health, Harare, Zimbabwe,

<sup>2</sup>Population Services International, Harare, Zimbabwe, <sup>3</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Zimbabwe has a significant distribution of condoms but falls short of meeting the total need for condoms, with only 54% of the demand being fulfilled. Wastage resulting from lack of effective targeting of public sector condoms and failure to better serve key populations, AGYW and high-risk men were cited as some of the reasons for the unmet need. The condom program had limited knowledge of market dynamics including users of the different condoms in the market.

**Materials and Methods:** In 2020, we conducted a qualitative study in 8 districts across the country to identify the market dynamics, target audience segments, barriers, motivators, and influencers driving condom use behaviours among users of public, commercial and social marketing brands to develop effective marketing strategies. We conducted 20 focus group discussions and 10 in-depth interviews with 130 participants, including sexually active adults, users and non-condom users, purchasers, men who have sex with men, sex workers, and high-risk individuals.

**Results:** We identified six distinct consumer typologies: influencers (26%), pleasure seekers (25%), tacticians (20.2%), adventurers (17%), idealists (9%), and realists (2%). Pleasure seekers prioritize short-term relationships and socializing, whereas realists are planned condom purchasers who value ordinary connections. Tacticians are experienced sex workers and skilled negotiators, and influencers seek luxury and exclusivity. Idealists prioritize traditional values, and adventurers seek sexual exploration. Women dominated the adventurer, idealist, and realist



segments, while men were prominent in the influencer and pleasure seeker segments. Price points emerged as a significant barrier, with free public sector and social marketing brands (pegged at the USD 50 cents price point) effectively addressing this challenge. Accessibility and reliability were also important factors for condom users in promoting its use.

**Conclusions:** Understanding the diverse user segments and their preferences is crucial for developing effective condom programming strategies in Zimbabwe. Brands offering a variety of price points and variants are more likely to succeed. Public brands are distributed freely and social marketing brands offering affordability and excitement are preferred options. Tailoring interventions to specific target audiences is essential for promoting total market growth and ensuring sustainable condom programming in the country.

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## Beneficial Social Impacts (BSIs) of Participating in HIV Prevention Trials: Perspectives from Adolescent Girls and Young Women and their Male Partners

**Mutero P<sup>1</sup>**, Murombedzi C<sup>1</sup>, Musara P<sup>1</sup>, Dandadzi A<sup>1</sup>, Jambaya J<sup>1</sup>, Gatsi V<sup>1</sup>, Thompson M<sup>1</sup>, Sedze N<sup>1</sup>, Hanif H<sup>2</sup>, Tolley E<sup>3</sup>, Lenzi-Weisbecker R<sup>3</sup>, Memmott C, Mgodini N<sup>1</sup>

<sup>1</sup>HHRC, Harare, Zimbabwe, <sup>2</sup>CONRAD/EVMS, Norfolk, United States, <sup>3</sup>FHI 360, 359 Blackwell Street, United States

**Background:** Clinical trials require a robust informed consent (IC) process with discussion on risks and benefits of study participation. Direct benefits are not necessarily apparent in first-in-human (FIH) studies. Furthermore, although some Phase 2 or 3 studies may be conducted with known drugs, others are designed to evaluate and define adverse events and effectiveness. Research communities might find it challenging to accept and/or approve these studies where there are no perceived benefits.

**Materials and Methods:** Protocol B20-151, an acceptability study of oral Descovy<sup>®</sup> versus Truvada<sup>®</sup> was conducted with adolescent girls and young women (AGYW) in South Africa and Zimbabwe. In Zimbabwe, we purposively selected a subset of trial participants (N=26) for In-Depth Interviews (IDIs), to explore acceptability of study products. We recruited male partners for IDIs (N=10) and focus group discussions FGD (N=1) with 12 participants to understand their perceptions of trial and product acceptability. Audio recorded data collected were transcribed, translated, and reviewed to identify recurring themes.

**Results:** Median age of AGYW was 19 years, 92% completed secondary school, 30% were unemployed and 50% were married. Median age of male partners was 25 years, 33% completed secondary school, 33% were formally employed, 83% were married and had other sexual partners. Participants highlighted direct benefits of accessing PrEP pills for HIV prevention. Participants and male partners described indirect benefits broadly categorized as:

1. Altruism.
2. Access to free medical care, tests, and treatment.
3. Increase in knowledge about Sexual Reproductive Health.
4. Economic empowerment from networking with other young women.
5. Self-care (hygiene/ cleanliness) and personal development.
6. Psychosocial benefits (interacting with study staff and other AGYW gave participants a sense of purpose and belonging.)

**Conclusions:** Results show that besides obvious benefits of study participation there are other soft social benefits not usually included in the IC process. Documenting these beneficial social impacts (BSIs) is important in research community engagement in preparation for FIH or studies where the direct benefits are not proven. Moreover, such findings may trigger a favorable trial participation intention. We recommend future studies incorporate questions on BSIs to contribute more to the literature on this topic.



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## Demand Generation Strategies for HIV Prevention Products Among Adolescent and Young People from a Community-Based Mobile Clinic

Jonas M<sup>1</sup>, Bekker L, Rousseau E, Fuzile P, Lebelo K, Leonard B, Mathola N

<sup>1</sup>Desmond Tutu Health Foundation, Woodstock, South Africa

**Background:** Pre-exposure prophylaxis (PrEP) is an ideal HIV prevention option for key populations who are at high risk of HIV acquisition. PrEP demand generation seeks to connect people who will most benefit from PrEP to PrEP service delivery platforms. We implemented a wide-spread demand creation campaign in a large PrEP scale up program and evaluated which demand creation strategies were most effective.

**Materials and Methods:** FASTPrEP is an implementation science project that provides PrEP to adolescent and young people aged 15 – 29y through differentiated community-based delivery in Cape Town, South Africa. FASTPrEP's demand generation campaign includes youth-directed and co-created branding of mobile clinics, printed leaflets, community events, community outreach through PrEP champions and peer navigators and social media exposure. These strategies were designed to increase awareness through positively framed, tailored information on HIV prevention including PrEP. Mass media including social media platforms, radio and television interviews was used to disseminate key information as widely as possible in the target district. A survey was conducted at the point of PrEP initiation to examine the effectiveness of these methods in connecting adolescent and young people to mobile PrEP clinics.

**Results:** Between June and December 2023, 4 398 young people aged 15-29 years attended the mobile clinic hubs in FastPrEP. Of these 2299 were adolescent girls and young women (AGYW), 1 876 male sexual partners (MSP), 127 pregnant young women (PYW) and 96 were men who have sex with men (MSM). Across these populations, more than half (64.7%) were drawn to initiate PrEP when they organically saw the mobile clinics in their community. While PrEP champions were

indicated by 26.2% as the primary source of demand creation towards initiating PrEP on that day and 6% was invited by a friend.

**Conclusions:** For adolescent and young people opportunistic access through highly visible mobiles co-designed with youth. In addition, PrEP champions played a key role in improving the linkage of young people to community-based accessible PrEP services.

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## Sexual Violence Against Children: A Public Health Issue in Tanzania

Tesha J<sup>1</sup>, Maguhwa F<sup>1</sup>, Ngerangera D<sup>1</sup>, Mlange R<sup>1</sup>, Temba A<sup>1</sup>, Magoma M<sup>1</sup>, Selemani K<sup>2</sup>, Magige H<sup>2</sup>, Van de Ven R<sup>2</sup>, Haraka F<sup>2</sup>, Kimambo S<sup>2</sup>

<sup>1</sup>Engender Health, Dar es Salaam, Tanzania, United Republic of, <sup>2</sup>Elizabeth Glaser Paediatric AIDS Foundation, , Dar es Salaam, Tanzania

**Background:** The Tanzania Human Rights Survey 2022 found that sexual violence constitutes over 80% of all violence against children (VAC) incidents. In 2022, 5,899 children were raped across the country, averaging 491 child rapes each month. During the same period, 93 boys were subjected to sodomy. These numbers raise concerns for the government. We report on sexual violence against children (SVAC) in central and northern Tanzania where a 5-year USAID funded client centered program known as "USAID Afya yangu" implements VAC awareness and screening as part of the integrated gender-based violence program.

**Description:** The project integrated first-line support into HIV services using the LIVES approach (Listen, Inquire, Validate, Enhance Safety, and Support). Furthermore, the project established One-Stop Centres to provide comprehensive care for survivors of GBV, including VAC and HIV testing services at different entry points, including in outpatient departments, HIV clinics, reproductive and child health clinics, male friendly corners, and youth clubs. The project analyzed routine de-identified annual data from October 2021 to September 2023 from the National DHIS2 database.



**Lesson Learnt:** The number of reported sexual violence cases across all age groups increased by 23% from 4,151 from October 2021 – September 2022 to 5,121 from October 2022 - September 2023. Among these cases, 6,926 (75%) occurred among individuals aged 0-19 years, and of these 5,697 (82%) were female. The age group distribution was as follows: 4% in the 0-5 years, 17% in the 5-9 years, 20% in the 10-14 years, and 59% in the 15-19 years. All identified survivors received both clinical and non-clinical packages, as outlined in the national guidelines. Services provided include post-exposure HIV prophylaxis administered to 3,002 survivors (100% of the eligible survivors), treatment for sexually transmitted infections to 2,996 survivors, and emergency contraceptives offered to 2,004 survivors.

**Conclusions:** Sexual violence mostly affects children and adolescent girls. The integration of VAC services and the LIVES approach at different entry points contributed to increasing case identification. However, collective efforts are needed to strengthen awareness and empower children to speak out and prevent VAC especially SVAC as a key measure to address the increased HIV incidence.

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## “Lean On Me Support Group” Transforms Lives: A Success Story in Baringo County, Kenya.

**Munyua** S<sup>1</sup>, **Ajuoga** S<sup>2</sup>, **Kiprop** C<sup>3</sup>, **Chepsoi** E<sup>4</sup>  
<sup>1</sup>Goldstark Kenya, Nakuru, Kenya, <sup>2</sup>USAID Tujenge Jamii, Nakuru, Kenya, <sup>3</sup>GoldStar Kenya, Kabarnet, Kenya, <sup>4</sup>Marigat SubCounty Hospital, Kabarnet, Kenya

**Background:** Baringo County, is known for its picturesque landscapes, grappled with high rates of alcoholism and HIV/AIDS. Recognizing the intricate connection between these two health issues, local health authorities partnered with community leaders to establish the "Lean On Me Support Group." The group targeted individuals facing the dual burden of chronic alcoholism and the need for consistent adherence to ARV drugs. In the year 2022-2023 we analyzed 39 out of 70 persons living with HIV and seeking ARVs health

services at Marigat Sub County Hospital who were struggling with Alcoholism that negatively affected their treatment outcomes.

**Description:** The support group adopted a holistic approach to address the physical, mental, and social aspects of its members' lives. Regular counseling sessions were provided to help individuals cope with the challenges of both alcoholism and living with HIV/AIDS. Also Peer Support Mentorship, Education, Awareness and Community Integration.

**Lessons Learnt:** Members of the Lean On Me Support Group reported a significant improvement in their adherence to ARV medications. The group's emphasis on education and peer support contributed to better understanding and commitment to treatment plans, Hence Viral Load Suppression rate improved from 13/39 (33%) in August 2022 to 36/39 ( 92%) in May 2023. Also Reduction in Alcohol Consumption, Enhanced Mental Well-being and Community Transformation through this support group by way of exhibiting tender loving care to those struggling with alcohol and other substance use disorder.

**Conclusions/Next steps:** The "Lean On Me Support Group" in Baringo County stands as a beacon of hope, showcasing the transformative power of community-based interventions. By addressing the unique challenges faced by individuals dealing with chronic alcoholism and HIV/AIDS simultaneously, this initiative has not only improved treatment outcomes but has also contributed to a positive shift in community attitudes. The success of this support group serves as a model for similar interventions in regions facing similar health challenges, demonstrating that a holistic and community-driven approach can make a lasting impact on individuals' lives.



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## Linkage to HIV Care and Early Retention in HIV Care among Men in the 'Universal Test-And-Treat' Era in a High Hiv-Burdened District, Kwazulu-Natal, South Africa

Hlongwa M<sup>1</sup>, Nicol E<sup>2</sup>

<sup>1</sup>University of KwaZulu-Natal, Durban, South Africa, <sup>2</sup>SA Medical Research Council, Cape Town, South Africa

**Background:** Despite the numerous efforts and initiatives, males with HIV are still less likely than women to receive HIV treatment. Across Sub-Saharan Africa, men are tested, linked, and retained in HIV care at lower rates than women, and South Africa is no exception. This is despite the introduction of the universal test-and-treat (UTT) prevention strategy anticipated to improve the uptake of HIV services. The aim of this study was to investigate linkage to and retention in care rates of an HIV-positive cohort of men in a high HIV prevalence rural district in KwaZulu-Natal province, South Africa.

**Materials and Methods:** From January 2018 to July 2019, we conducted an observational cohort study in 18 primary health care institutions in the uThukela district. Patient-level survey and clinical data were collected at baseline, 4-months and 12-months, using isiZulu and English REDCap-based questionnaires. We verified data through TIER.Net, Rapid mortality survey (RMS), and the National Health Laboratory Service (NHLS) databases. Data were analyzed using STATA version 15.1, with confidence intervals and p-value of  $\leq 0.05$  considered statistically significant.

**Results:** The study sample consisted of 343 male participants diagnosed with HIV and who reside in uThukela District. The median age was 33 years (interquartile range (IQR): 29-40), and more than half (56%; n=193) were aged 18-34 years. Almost all participants (99.7%; n=342) were Black African, with 84.5% (n=290) being in a romantic relationship. The majority of participants (85%; n=292) were linked to care within three months of follow-up. Short-term retention in care ( $\leq 12$  months) was 46% (n=132) among men who were linked to care within three months.

**Conclusions:** While the implementation of the UTT strategy has had positive influence on improving linkage to care, men's access of HIV treatment remains inconsistent and may require additional innovative strategies.

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## Assessing HIV Behavioral Risks and Their Socio-Demographic Factors among Adolescents: Survey Findings from HIV Risk Education Program in Nimule Peri-Urban Town, South Sudan

Bojo S<sup>1</sup>

<sup>1</sup>Strathmore University, Nairobi, South Sudan

**Background:** As the world advances toward HIV epidemic control by 2023, gains made are being slowed by an increase in new HIV infections particularly among adolescents which have been fuelled by an increase in behavioral risk factors. Limited studies have explored these risk factors and their socio-demographic factors. This study aimed at assessing self-reported HIV behavioural risks and their associated socio-demographic factors.

**Materials and Methods:** We undertook a before-after study of adolescents aged 10-17 years who were purposively recruited into a risk education program between December 2020 and 2022. All participants consented to participate in the program. Before receiving the risk education sessions, a baseline survey was conducted in December 2020 to assess self-reported HIV behavioural risks, and their associated socio-demographic factors. After completing the program, an end-line survey was also conducted in December 2022. A binary logistic regression analysis was performed to assess the association between self-reported behavioural risks and the associated sociodemographic variables.

**Results:** of the total of 577 adolescents aged 10-17 years enrolled, 301 (54.0%) were female and 256 (46.0%) were males. The median age was 14 (IQR: 11-16) years at baseline and 15(IQR: 12-17)



years at end-line. The odds of self-reported HIV risks were 23% lower at the end line compared to the baseline survey (aOR 0.77, 95% CI:0.73-0.80,  $p<0.001$ ). Male adolescents had 11% higher odds of reporting HIV risks compared to their female counterparts (aOR 1.11, 95% CI:1.06-1.15,  $p<0.001$ ). Adolescents aged 15-17 years had 27% higher odds of self-reported HIV risks (aOR 1.27, 95% CI:1.21-1.34,  $p<0.001$ ). Unemployed adolescents had 20% higher odds of self-reported risks (aOR 1.2, 95% CI: 1.21-1.34,  $p<0.001$ ). Equally, adolescents cared for by non-parents had 29% higher odds of self-reported risks (aOR 1.29, 95% CI:1.21-1.36,  $p<0.001$ ).

**Conclusions:** The program reduced the odds of self-reported HIV behavioural risks among adolescents at the end-line survey. Gender (male), age (15-17 years) unemployment, and being cared for by a non-parent relative were associated with higher odds of self-reported HIV risks. These findings suggest the adoption and suitability of HIV risk education programs in reducing risks of HIV infections among adolescents

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## Facilitators and Barriers to Implementation of Adolescents Sexual Reproductive Health Rights among Adolescents Aged 11-18 years in Chitungwiza, Zimbabwe: A Qualitative Study.

Mutasa T<sup>1</sup>, Munasirei. P<sup>1</sup>, Mudiwa G<sup>1</sup>, Mavhudzi T<sup>1,2</sup>, Madhunguyo F<sup>3</sup>

<sup>1</sup>Africa University, College of Social Sciences, Theology, Humanities and Education., Mutare, Zimbabwe, <sup>2</sup>Zvitambo Institute for Maternal and Child Health Research., Harare, Zimbabwe, <sup>3</sup>Zimbabwe National Family Planning Council., Harare, Zimbabwe

**Background:** The United Nations Convention on the Rights of the Child (UNCRC) 1989, a legally binding international agreement, outlining civil, political, economic, social, health and cultural rights of children under the age of 18 years. Globally, 196 countries have signed the UNCRC.

Zimbabwe signed the UNCRC in 1990 and committed to fulfilment of children's rights. Adolescents' right to Sexual and Reproductive Health (SRH) information and services is one of the children's rights and a key factor in improving adolescents' health outcomes.

**Objective:** To investigate the facilitators and barriers to implementation of adolescents Sexual and Reproductive Health Rights (SRHR) among adolescents aged 11-18 years.

**Materials and Methods:** A mixed method study was used to investigate the milestones and hindrances in implementation of the SRHR of adolescents aged between 11-18 years in Chitungwiza, Zimbabwe. This report covers proceedings of the qualitative component of the study. Starting October 2018 to February 2019, Qualitative data was collected using semi-structured Questionnaires during face-to-face In-Depth Interviews (IDI) with 20 adolescents (10 females and 10 males) and 4 key informants purposely selected from civil society organizations and teachers (2 males and 2 females). In addition, two Focus Group Discussions (FGD) were conducted with a group of 8 adolescents in each group (4 males, 4 females). Data from IDI and FGDs was transcribed. NVivo 10 software was used to analyze the data into themes and sub-themes.

**Results:** Adolescents felt that they had limited access to SRH information and services. The school curriculum was their main source of information, internet, and non-governmental organizations respectively. However, adolescents cited cultural barriers in discussing SRH information with parents and family members. Adolescents stated that SRHR were generally misunderstood by parents as teaching adolescents' sexual activity. Parents indicated that SRH presented a culturally taboo subject in parenting, and they felt this right cannot be accorded to minors. Socio-cultural and religious gate keepers presented adolescents with SRH information in line with their own agenda.

**Conclusions:** Strengthening understanding of adolescents SRHR among parents, caregivers and communities through community sensitization helps to shift negative social norms on SRHR thereby improving HIV prevention programmes in communities.





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## Knowledge, Attitudes, and Practices About HIV Pre-exposure Prophylaxis Among Adolescent Girls and Young Women Aged 15-24 Years in Rural Mangwe District of Zimbabwe, 2023

Ndou M<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Mudokwani F<sup>1</sup>, Yogo K<sup>1</sup>, Masoka T<sup>1</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Nyamwanza B<sup>2</sup>, Bhatasara T<sup>3</sup>, Mudzengerere F<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mutseta M<sup>4</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Despite availability of pre-exposure prophylaxis (PrEP) as an effective HIV prevention method, adolescent girls and young women (AGYW) in rural settings remain disproportionately affected by HIV. Zimbabwe Health Interventions is implementing the Determined, Resilient, Empowered, AIDS free, Mentored, and Safe women (DREAMS) program across 9 high HIV burdened districts of Zimbabwe. Between October 2022 and September 2023, routine DREAMS program data showed low PrEP uptake among AGYW (7%) in Mangwe district. We assessed knowledge, attitudes, practices, and uptake of PrEP among AGYW enrolled in the DREAMS program in Mangwe district of Zimbabwe.

**Materials and Methods:** A descriptive cross-sectional mixed methods study was conducted among AGYW aged 15 to 24 years enrolled in the DREAMS program in Mangwe district between October 2022 and September 2023 where the uptake was only 7% (220/3360) who were enrolled with a 25% (55/220) continuing PrEP. Study focused on knowledge about and uptake of PrEP, attitudes, and perceptions among AGYW. Data were collected from purposively selected AGYW using a semi-structured questionnaire. Quantitative data were analysed using SPSS version 23 generating frequencies, proportions, and measures of central tendency and association; content thematic analysis was used to group related themes for qualitative data. Study was covered by the Medical Research Council of

Zimbabwe approved non-research determination protocol (MRCZ/E/254).

**Results:** A total of 63 AGYW were interviewed of which 74% (47/63) know about PrEP although there was lack of knowledge on its specific functions and benefits. PrEP uptake among the AGYW was 74% (47/63) and 31% (20/63) reported that there was stigma associated with PrEP use. Of those who initiated on PrEP, no one continued with the service, all emanating from the knowledge levels as well as stigma associated with PrEP.

**Conclusions:** We recommend targeted education campaigns tailored to AGYW in rural settings, addressing misconceptions about PrEP, providing accurate information about its benefits and side effects, and empowering AGYW to make informed decisions about their sexual health. Additionally, interventions should address social and cultural barriers to PrEP use and create supportive environments that encourage open communication and access to services.

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## Factors Influencing Sexual Risk Behavior Among Adolescents and Young People Living With HIV/AIDS In Niger State, Nigeria.

Umeh C<sup>1</sup>, Ogungbade O<sup>2</sup>, Ubiukwu V<sup>3</sup>

<sup>1</sup>Heartland Alliance Limited by Guarantee (HALG), Ikeja, Nigeria, <sup>2</sup>West Africa Center for Public Health and Development (HALG), Ikeja, Nigeria, <sup>3</sup>Independent Consultant, Minna, Nigeria

**Background:** Adolescents and Young People Living with HIV and AIDS (AYPLHIV) face unique challenges in managing their health while navigating the normal developmental milestones of adolescence, including sexual exploration. This study explores the intricate issue of sexual risk behavior among AYPLHIV in Niger State, Nigeria. The research delves into the complex interplay of socio-demographic factors that contribute to the prevalence of risky sexual behaviors among AYPLHIV.



**Materials and Methods:** Descriptive cross-sectional survey design was used to investigate sexual risk behavior among AYPLHIV in three LGAs within Niger State. Multistage sampling technique was adopted for the study and the data was analyzed using SPSS Version 23. Pearson's chi-square was used to examine the association between the socio demographic factors and sexual risk behavior.

**Results:** A total of 350 respondents participated, of which 148 (42.3%) were male, and 202 (57.7%) female. The ages of the respondents ranged from 10–24 years of which 51 (14.6%) of them are <15 years old, 165 (47.1%) of 16 to 19 years and 134 (38.3%) >19 years old. The data shows that 93.1 % of the respondents were single while 5.7% were married. Furthermore, 14.9 % of the respondents have tertiary education, 80.9% acquired secondary education, 3.4% had primary education while only 0.9% of the respondents had non-formal education. However, of the 87/350 (25%) respondents who are sexually active, 29/87 participants within age 16 - 19 years old (33%) and 58/87 participants >19 years old (67%). The data reveals that the age play a factor in the risky sexual behavior of AYPLHIV, the older they are the more they are involved in sexual activity and engaged in high sexual risky behavior as respondents >19 years old are more involve in such risky sexual behavior with a P value (0.001).

**Conclusions:** The research shows that age play a factor in the risky sexual behavior of AYPLHIV. It further highlights the urgent need for tailored interventions that address the unique challenges faced by AYPLHIV in Niger State. Such interventions should focus on improving access to sexual health education, and empowering adolescents to make informed and responsible decisions about their sexual health.

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## Almost Half a Century Later...Are We Really HIV Aware?: Knowledge About Female Genital Schistosomiasis (FGS), Family Planning, Mental Health and HIV in Zimbabwe

Choga K<sup>1</sup>, Charashika P<sup>1</sup>, Takarinda K<sup>1</sup>, Masiye K<sup>1</sup>, Nhiringi I<sup>1</sup>, Gale L<sup>2</sup>, Moore S<sup>2</sup>, Webb K<sup>1</sup>

<sup>1</sup>Organisation of Public Health Interventions and Development, Harare, Zimbabwe, <sup>2</sup>Avert, London, United Kingdom

**Background:** Risk perception and awareness about HIV pathogenesis is critical to HIV prevention, diagnosis and treatment. Community health-workers (CHWs) form the backbone of HIV information and services in high burden countries. Our objective was to explore the knowledge and awareness of CHWs around evidence-based risk factors for HIV acquisition including access to family planning methods prevention and treatment of FGS and mental health disorders.

**Materials and Methods:** From April to May 2023, we conducted a mixed-method evaluation with 465 CHWs in 9 districts of Zimbabwe about HIV transmission, awareness of family planning methods, FGS and mental health disorders. We collected quantitative data from 465 CHWs using Open Data Kit. Focus group discussions were conducted in April to May 2023 and analyzed thematically.

**Results:** There were high levels of awareness among CHWs (100%; n=465) regarding the importance of HIV testing for personal health awareness. The importance of lifelong adherence to antiretroviral medications among HIV-positive individuals was well recognized in both CHW survey and FGDs. Knowledge of family planning methods was evident, with condoms being the most frequently mentioned (77%; n=357). However, awareness of Female Genital Schistosomiasis (FGS) was limited (56%; n=260) with varying understanding of its transmission and treatment locations. While participants suggested diverse sources for seeking treatment for MHDs including church-based support, awareness about clinical MHDs was limited.



**Conclusions:** We find that while HIV-awareness in affected communities is high, critical gaps remain. These findings underscore the need for targeted education on FSG and mental health interventions in the community.

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## The Perception of Group Counselling on the Psychological Adjustment of People Living with HIV in Ojo Local Government Area of Lagos State Nigeria

Adebayo A<sup>1</sup>

<sup>1</sup>Lagos State University, Ojo, Nigeria

**Background:** Group Counselling is a cognitive-based therapy (CBT) method used as a therapeutic approach for the Psychological adjustment of people living with Hiv. This study assessed the socio-behavioral impact of group counseling on the psychological adjustment of people living with Hiv in Ojo Local government area of Lagos State Nigeria.

**Materials and Methods:** A Cross-sectional study method was used with a qualitative data collection strategy. Interviews were conducted amongst people living with Hiv at three public hospitals in the Ojo Local government area of Lagos. The interviews were transcribed and then analyzed using an inductive thematic analysis approach

**Results:** 20 People living with Hiv were interviewed, Age 45% (n=9) were 18-25 years, 25% (n=5) 25-30 years, 20% (n=4) 30-35 years, while 10% (n=2) were above the age of 40. Overall Participants generally observed positive social behavior change after a series of group Counselling sessions within a period of (2-3 months) which helped them in their psychological adjustment. some respondent observed the disparity between the Counselling strategy used and their personality trait  
 "I think during the course of the group Counselling sessions, I particularly didn't engage as much, As I wasn't comfortable with the Counselling strategy used in the sessions"



**Conclusions:** Group Counselling had a positive impact on people living with Hiv in the Ojo local government area of Lagos but counselling strategies can be improved to suit the individual personality traits of group members.

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## Gender Socialization, Masculine and Sexual Norms and Future Sexual and Reproductive Health Among Very Young Male Adolescents: Formative Research Findings from Zimbabwe

Nyamwanza O<sup>1</sup>, Bikwayi T<sup>1</sup>, Chinozvina T<sup>1</sup>, Makoni L<sup>1</sup>, Muronzi F<sup>2</sup>, Changombe M<sup>2</sup>, Hargreaves J<sup>3</sup>, Obasi A<sup>4</sup>, Xaba S<sup>5</sup>, Mugurungi O<sup>5</sup>, Cowan F<sup>1,4</sup>, Mavhu W<sup>1,4</sup>

<sup>1</sup>Centre for Sexual Health HIV AIDS Research (CeSHHAR) Zimbabwe, Harare, Zimbabwe, <sup>2</sup>Restless Development, Harare, Zimbabwe, <sup>3</sup>Department of Epidemiology and Evaluation, London School of Hygiene and Tropical Medicine, London, United Kingdom, <sup>4</sup>Liverpool School of Tropical Medicine, Liverpool, United Kingdom, <sup>5</sup>AIDS and TB Unit, Ministry of Health and Childcare, Harare, Zimbabwe

**Background:** Adolescence shapes boys' future masculine and sexual norms. These norms ultimately impact their health outcomes, including in relation to HIV and other STIs. We explored these norms among very young adolescents (VYA, 10-14 years old) to inform an intervention theory of change.

**Materials and Methods:** March to June 2023, we collected data from a purposive sample of 80 VYA, 24 older adolescents (15-19 years-old), 24 parents/guardians and 14 key informants in 4 peri urban locations. We used participatory workshops (n=4) with VYA, encompassing various activities. Further, we held 4 FGDs with older adolescents and parents/guardians (n=48). We also conducted interviews (n=14) with influential others, and used interpretive thematic analysis to generate themes across data.

**Results:** Through role playing, adolescent boys exhibited an affinity to masculine norms like

independence, self-reliance, physicality/aggression, noting that they were socialized to be enterprising self-and-family providers. Such masculine norms likely increase their susceptibility to HIV as they promote poor sexual and health practices (e.g. unprotected sex). Male participants also used physicality trait to justify bullying and interpersonal violence as something “natural” to boys. This promotes gender-based/intimate-partner violence which increases sexual and reproductive health risks in adult life. Masculine norms including male power, risk-taking, dominance, were also notable among VYA as participants acknowledged the dominance of boys in establishing romantic relationships and initiating sex. Boys who took the lead were highly regarded, while girls were attacked as “loose” if they initiated sex. This likely influences boys’ risky sexual conduct, including multiple, concurrent sexual partnerships, unsafe sex, which heighten their chances of contracting and/or transmitting HIV. We further established that drug and substance abuse norms feed off masculine and sexual norms, resulting in risks which compromise health and wellbeing. Of note, adolescents generally disapproved these norms, pointing to the opportunity to shift these norms subsequently.

**Conclusions:** We identified key gender stereotypes, information which is critical for informing a gender-transformative intervention theory of change. Although deeply-seated, these stereotypes are not insurmountable, particularly among VYA. Intervening in early adolescence provides the opportunity to promote gender-equitable identities, and challenge inequitable gender stereotypes before they are solidified and become less amenable to change.

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## Higher Knowledge of HIV and Sexual and Reproductive Health Among Adolescents Is Associated to Mobile Adolescent and Youth Friendly Services Attendance: A Cross Sectional Study in Southern Mozambique

Lain M<sup>1</sup>, Chicumbe S<sup>2</sup>, Manetiane I<sup>3</sup>, Mboa C<sup>1</sup>, Bila D<sup>1</sup>, Bruno C<sup>4</sup>, Stefanutto M<sup>1</sup>, Cumbi L<sup>2</sup>, Braz Chidassicua J<sup>2</sup>, Simone T<sup>5</sup>, Couto A<sup>5</sup>, Vaz P<sup>1</sup>

<sup>1</sup>Fundação Ariel Glaser Contra o SIDA Pediátrico, Maputo, Mozambique, <sup>2</sup>Instituto Nacional de Saúde, Marracuene, Mozambique, <sup>3</sup>Adolescent and Youth Health National Program, Ministry of Health, Maputo, Mozambique, <sup>4</sup>Provincial Health Directorate, Maputo Province, Mozambique, <sup>5</sup>National HIV/STI Program, Ministry of Health, Maputo, Mozambique

**Background:** Adolescents and Youth (AY) knowledge of Sexual and Reproductive Health (SRH) topics, including HIV, is still suboptimal in Mozambique. We assessed the knowledge and associated factors among AY attending Mobile AY Friendly Service (Mobile-AYFS) implemented in the community in southern Mozambique.

**Materials and Methods:** A cross-sectional, quantitative study was conducted in July-August 2023, following the implementation of Mobile-AYFS in Matola and Marracuene districts, Maputo province. AY answered a structured questionnaire to assess knowledge regarding HIV, sexually transmitted infections (STI), SRH, Gender Based Violence (GBV), among other topics. A descriptive analysis of frequency distribution and 95% confidence interval was done using SPSS v. 25.0. Simple and adjusted binary logistic regression were used to assess the association between respondents’ sociodemographic characteristics and composite knowledge index on HIV, STI, GBV, and SRH.

**Results:** A total of 862 AY responded to the questionnaire, 560 (65%) females, 69 (8%) had 10-14 years, 672 (78%) had 15-19 years, 121 (14%) had 20-24 years, 396 (46%) were Catholic; 448 (52%) had secondary education. A total of 794 (92%) AY attended the Mobile-AYFS, the median number of visits to the Mobile-AYFS was 3 (IQR 2-



3); 765 (90%) AY received HIV counselling, 713 (83%) STI counselling, 586 (68%) GBV counselling. Correct definition of HIV was reported by 736 (85%), of HIV transmission routes by 799 (94%); 708 (82%) and 472 (55%) respectively reported that gonorrhea and syphilis are STI, 765 (89%) reported that male condoms can prevent STI; 664 (80%) reported a correct GBV definition, 376 (82%) knew the procedures to follow in case of GBV notification. Factors positively associated with higher knowledge were: age 15-24 years (AOR 2.8, 95% CI 1.3-5.9), age 10-14 years (AOR 2.2, 95% CI 1.2-4.2), paternal higher education (AOR 1.7, 95% CI 1.3-2.5), mother secondary education (AOR 1.4, 95% CI 1-2), Mobile-AYFS utilization (AOR 2.5, 95% CI 1.8-3.4), being Catholic (AOR 1.7, 95% CI 1.3-2.3); while being male was negatively associated (AOR 0.7, 95% CI 0.5-0.9).

**Conclusions:** Attendance to Mobile-AYFS increases HIV, STI, SRH and GBV knowledge among AY. Additional efforts are required to address the gaps among young boys.

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## Une Transition Difficile de la Pédiatrie vers les Services Adultes chez les Adolescents Nés avec le VIH au Cameroun

Laborde-balen G<sup>1</sup>, Breton G<sup>2</sup>, Fako Hendji G<sup>3</sup>, Estevenin C<sup>2</sup>, Hadja H<sup>4</sup>, Ajeh A<sup>4</sup>, Essamba S<sup>4</sup>, Djomo A<sup>4</sup>

<sup>1</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France, <sup>2</sup>Solthis, Paris, France, <sup>3</sup>Care and Health Program, Yaounde, Cameroon, <sup>4</sup>Comité National de Lutte contre le sida, Yaounde, Cameroon

**Contexte :** Au Cameroun, environ 20 000 enfants et adolescents vivant avec le VIH sont suivis dans les formations sanitaires (FOSA). La majorité d'entre eux sont nés avec le VIH. A l'adolescence, ils doivent passer de la pédiatrie au service adultes. Cette transition peut être difficile. En 2023, une analyse situationnelle de la prise en charge du VIH pédiatrique a été réalisée, ainsi qu'une étude anthropologique. L'une des thématiques de l'étude anthropologique concernait les expériences de transition.

**Matériels et Méthodes :** L'étude a été menée de mars à juillet 2023. Quarante-deux entretiens semi-directifs et des focus groups ont eu lieu dans quatre FOSA de Yaoundé et de Bafia, ainsi qu'avec les autorités de santé, des responsables de programmes, des associations de PvVIH, dont des jeunes. La transition des adolescents de la pédiatrie vers les services pour adultes a été fait l'objet d'une analyse spécifique.

**Résultats :** Dans les hôpitaux de district, ce sont souvent les mêmes agents de santé – médecins, infirmières, assistants psychosociaux – qui s'occupent des adultes et des enfants. Le passage s'effectue habituellement sans problème. En revanche, dans les FOSA où le personnel et le fonctionnement des deux services sont différents, il existe des difficultés majeures. Les adolescents en transition ont été confrontés à une nouvelle équipe, pas toujours aussi accueillante et attentive que l'ancienne et à un nouveau circuit de soins. Plongés dans un univers d'adultes, ils se sentaient anonymisés. Le passage s'est soldé par des abandons de suivi. Le processus a été stoppé et les services de pédiatrie suivent à nouveau les adolescents devenus jeunes adultes. L'une des FOSA envisage de renouveler le processus, une autre préfère temporiser.

**Conclusions :** Cet échec révèle une préparation insuffisante des équipes et des adolescents. La mise en œuvre d'un programme de transition nécessite une concertation entre services, afin que les jeunes puissent se familiariser avec leur nouvel environnement. Des expériences dans différents pays ont montré la nécessité d'une planification de la transition, l'implication active des adolescents et l'organisation de groupes d'entraides. Les associations de jeunes vivant avec le VIH existant au Cameroun pourraient faciliter la transition.



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## To What Extent Do Young Adults in Nigeria Exhibit Awareness and Acceptance of the Undetectable=Untransmittable Concept? A National Sample Analysis

Nworie K<sup>1,2</sup>, Agbom U<sup>1,2</sup>, Akumu E<sup>3</sup>

<sup>1</sup>YOUALIVE AIDS Nigeria, Enugu, Nigeria, <sup>2</sup>University of Nigeria, Nsukka, Nigeria, <sup>3</sup>Infectious Disease Institute, Uganda

**Background:** The U=U statement is widely regarded as an empowering campaign that aims to reduce stigma against PLWH and raise knowledge about treatment as prevention for HIV. However, there is a dearth of information about the its impact and reach in developing nations. In a nationwide sample of HIV-negative young adults from Nigeria, we examined the sociodemographic characteristics, sexual practices and preferences associated with an awareness and trust in U=U.

**Materials and Methods:** Cross-sectional cohort study of a survey conducted online between March and September 2023 among 3,720 young adults in Nigeria who were HIV-negative. Socio-demographics, sexual practices and preferences, awareness of and trust in U=U were among the measures. The characteristics correlated with awareness of and trust in U=U, as well as patterns of willingness to have condom-free sex depending on trust in U=U, were determined using descriptive statistics and multivariable logistic regression.

**Results:** The mean age of the participants was 24.63±4.29 years. 57% of participants acknowledged they were aware and understood the concept of U=U. Of the people who knew about U=U, 60.0% said they trust in it, 28% said they did not, and 17% said they weren't sure of it. Being aware of U=U was substantially correlated with gender identity, sexual orientation, and having tested for HIV during the previous six months. Compared to gay participants, non-gay individuals had a three-fold higher likelihood of being aware of the U=U concept (OR =3.17; 95% CI: 1.82–9.36). Similarly, there was a strong correlation found between people who trust in

U=U and their gender identity, sexual orientation, and having tested for HIV within the previous six months. For this model, there were no significant differences regarding age, education level, area, or recent condom-free sex. In general, individuals were more likely to have condom-free intercourse with partners who were HIV-negative than with those who were HIV-positive. Nonetheless, trust in U=U was linked to the willingness to have condom-free intercourse with an HIV-positive but Undetectable partner.

**Conclusions:** The U=U message is still unheard and mistrusted by significant demographics and minorities, despite the fact that we observed reasonable awareness and trust in this study.

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## Sex Work, Drug Use, and HIV among Young Ghanaian Women in Fishing Communities: Intersectionality and Social Determinants

Adiibokah E<sup>1</sup>, Tagoe H<sup>1</sup>, Abdul Rahman Y<sup>1</sup>, Nagai H<sup>1</sup>

<sup>1</sup>JSI Research and Training Institute, Inc, Takoradi, Ghana

**Background:** Young women aged 15 -19 who engage in sex work and drug use in the fishing communities of the Western region, Ghana, face multiple and intersecting forms of vulnerability that increase their risk of HIV infection. Poverty, migration, violence, stigma, and lack of access to health and social services are some of the factors that shape their lives and health outcomes. This study explores the nexus between sex work and drug use, among young women aged 15 to 19 in the fishing communities of the Western region of Ghana.

**Materials and Methods:** We used a qualitative approach informed by the theories of intersectionality, and the social determinants of health to explore the nexus between sex work and drug use among young women in the fishing communities of Ghana. The study employed purposive sampling to select four fishing communities with a high prevalence of sex work and drug use among young women. Data were collected from 32 gatekeepers through focus



group discussions and from 13 young women through in-depth interviews. The data were analyzed using thematic content analysis with NVivo 12 software.

**Results:** The study found young women started sex work around the age of 13, influenced by peer pressure and poverty. Drug use was prevalent among these sex workers, with participants transitioning from cigarettes and alcohol to harder drugs like marijuana and opioids. Drug use often led to risky sexual behaviors and hindered their ability to negotiate safe sex practices, including condom use.

**Conclusions:** This abstract explores how sex work and drug use affect the vulnerability to HIV among young women in the fishing communities of Ghana. Using qualitative methods and the theories of intersectionality and the social determinants of health, the study finds that these women face multiple and intersecting forms of vulnerability, including poverty, migration, violence, stigma, and lack of access to health and social services. The study recommends targeted interventions for adolescent sex workers within an intersectoral approach involving the Ministry of Gender, Children, and Social Protection and the National AIDS response. The paper also suggests more research on this topic in different settings and contexts.

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## Use of Personification as a Projective Research Technique to Understand Emotional Associations with HIV Treatment Among PLHIV

Malone S<sup>1</sup>, Ishmael A<sup>2</sup>, Ullah F<sup>2</sup>, Fernandez M<sup>2</sup>, Rambally-Greener L<sup>1</sup>, Richman B<sup>3</sup>, West R<sup>2</sup>  
<sup>1</sup>PSI, Johannesburg, South Africa, <sup>2</sup>Ipsos, London, United Kingdom, <sup>3</sup>Prevention Access Campaign, New York, United States

**Background:** Research has found that negative emotional associations with HIV often extend to negative emotional associations with ART, negatively affecting motivation for initiation and

adherence. One strategy for improving adherence may be to shift emotional associations with ART.

**Materials and Methods:** We interviewed 62 PLHIV (Malawi n=25, South Africa n=21, and Zimbabwe n=16) on their experience of ART to identify positive emotional frames that could inform communications interventions. Participants were recruited through local PLHIV networks, using purposive sampling to capture a range of perspectives.

Demographic variables included age, gender, geography, and education. Journey-based variables included time since diagnosis, current treatment status, and experience of a treatment interruption. We also prioritised inclusion of pregnant women, transgender women, female sex workers, and men who have sex with men.

Moderators employed personification, a projective technique designed to elicit more meaningful responses than standard interview questions. Participants were asked to imagine ART as a person and then to describe their relationship.

**Results:** Some participants responded with powerful positive imagery—ART as a parent, partner, best friend, protector, defender, healer, etc., who wants good things for me and enables me to live my life and pursue my dreams.

I call [ART] the healer... She only wants good things for me, and she wants me to keep living life. She's proud of me.

He would be like a soldier that came to protect me. If I have a fight with HIV, he comes in to protect me. That's how I see him. He's my protector.

I call it "The Magnifier". It has truly magnified my life.

I would see [ART] as my shoulder to cry on that whenever I am 'going through'. My friend who is always there and that I can rely on.

[ART] is like my husband as he is always by my side. He is so kind and listens to me. He just delivers hope in my life, as I am this healthy today because of him.

**Conclusions:** Negative emotional associations with ART can hinder linkage and adherence. Communication should seek to reframe ART with



positive emotional associations, as one means of strengthening PLHIV motivation.

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## Factors Associated with Retention of Adolescent Girls and Young Women Enrolled in an HIV Prevention Program Residing in Different Geographical Locations: Lessons from Zimbabwe, 2023

Mudzengerere F<sup>1</sup>, Dhakwa D<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Bhatasara T<sup>2</sup>, Masoka T<sup>1</sup>, Nyamwanza B<sup>3</sup>, Yekeye R<sup>3</sup>, Mugariri E<sup>1</sup>, Madzima B<sup>3</sup>, Mutseta M<sup>4</sup>, Tafuma T<sup>1</sup>, Mafaune H<sup>1</sup>, Tachiwenyika E<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>3</sup>National AIDS Council, Zimbabwe., Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Zimbabwe has made significant progress towards achievement of HIV epidemic control, however adolescent girls, and young women (AGYW) remain disproportionately affected by HIV. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program to reduce HIV incidence among AGYW. Retention of AGYW within DREAMS is critical as it ensures adherence and referral completion for need-based secondary services. We assessed factors associated with retention of AGYW in DREAMS program's rural and urban areas.

**Materials and Methods:** An analytical, cross-sectional study was conducted to determine factors associated with retention of AGYW in HIV prevention interventions in rural and urban areas. Data were collected from AGYW enrolled in the DREAMS program for the period October 2022 to September 2023 and analysed using STATA version 16 generating frequencies, proportions, and measures of central tendency, spread and association. Binary logistic regression was conducted to compute Chi-square tests and odds ratios for the comparison. Study received ethics

approval from Medical Research Council of Zimbabwe (MRCZ/A/2933).

**Results:** Of the 2,143 AGYW aged 10-19 years assessed, 67.7% were aged 10-14 and 32.3% were aged 15-19 years, 74% were in-school, and 2.7% were married. A total of 1,480 AGYW resided in rural areas of which 91.2% (1,350/1,480) were retained; retention in urban areas was 83.9% (556/663). AGYW residing in rural areas were more likely to be retained than those in urban areas [AOR=1.85; 95% CI (1.40; 2.45)]. Married AGYW residing in urban areas were less likely to be retained in HIV prevention intervention than those in rural areas [COR =0.24 (95% CI =0.10: 0.61)]. Also, AGYW who attained secondary education or higher were less likely to be retained in HIV prevention intervention in urban areas than rural areas [COR=0.76; 95% CI (0.62;0.93)].

**Conclusions:** Overall, retention within DREAMS program was significantly higher in rural than urban areas with being married and attaining secondary level of education or higher being less likely to be retained. We recommend customised HIV prevention interventions for AGYW who are married, and those with secondary or higher levels of education in urban areas to match retention for their counterparts.

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## “What if I Become HIV Positive?”: Stigma, Relationship Concerns, and Coping Strategies Among Young People in Government-Mandated Service Corps in Nigeria— A Cross-Sectional Study

Ezenri G<sup>1,2</sup>, Onwuali U<sup>1</sup>, Onyehalu J<sup>1,2</sup>, Idabor C<sup>1,2</sup>, Nwachuya C<sup>1,2</sup>, Isah A<sup>1,2</sup>

<sup>1</sup>University Of Nigeria, Nigeria, <sup>2</sup>Person-Centred HIV Research Team, Nigeria

**Background:** The attainment of the 95:95:95 target in some countries has been hindered by the fear of ‘unknown’, especially perceived stigma and





discrimination from family, friends, and the public. This reduces the desire of people, especially young individuals, to know their HIV status. This study assessed the perceived stigma, relationship concerns, and coping strategies in the eventuality of an HIV positive status among young people in the government-mandated service corps in Nigeria.

**Materials and Methods:** A cross-sectional study was conducted in January 2024 among 4000 randomly sampled young people (aged <30 years) in the government-mandated service corps in Nigeria. Using a 23-item validated questionnaire, their level of disclosure, anticipated stigma, and relationship concerns in the eventuality of a positive status were assessed, as well as their coping strategies and its effectiveness. Appropriate descriptive and inferential analyses were conducted, with  $p < 0.05$  considered statistically significant. Ethical approval was obtained from the service corps.

**Results:** Out of the 3335 responses received (83.4% response rate), 2070 (62.1%) were aged 25–29 years, and 1840 (55.2%) identified as male. Concern about potential stigma from sexual partners in the eventuality of testing positive was expressed by 2185 (65.5%), and respondents 1610 (48.3%) were concerned about the possibility of the partners ending the relationship. More male participants, 1265 (68.75% of the 1840 males), thought that disclosing a positive HIV test would negatively impact their relationship as compared to their female counterparts, 920 (61.54% of the 1495 females) ( $p = 0.001$ ). The preferred coping strategy for 1725 (51.7%) participants was seeking professional counselling, although 1610 (48.2%) respondents were not aware of any local contacts that support individuals with a positive HIV test.

**Conclusions:** Most of the participants were concerned about the potential stigma from their partner, especially the fear of such partners ending their relationship if they became HIV positive. With the majority opting to seek professional assistance, it is recommended that targeted educational campaigns be designed towards the continuous enlightenment of young people on cohabitation with a person living with HIV.

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## Experiences of Stigma among Adolescent Girls and Young Women Receiving DREAMS Interventions in Urban and Rural Kenya

**Osindo J**<sup>1</sup>, **Kemigisha E**<sup>1</sup>, **Kamire V**<sup>2</sup>, **Omwaka F**<sup>1</sup>, **Wambiya F**<sup>1</sup>, **Baker V**<sup>3</sup>, **Gourlay A**<sup>3</sup>, **Wong F**<sup>4</sup>, **Maina S**<sup>1</sup>, **Otieno M**<sup>2</sup>, **Khagayi S**<sup>2</sup>, **Kwaro D**<sup>2</sup>, **Birdthistle I**<sup>3</sup>, **Floyd S**<sup>3</sup>, **Ziraba A**<sup>1</sup>

<sup>1</sup>African Population And Health Research Center, Nairobi, Kenya, <sup>2</sup>Centre for Global Health Research, Kenya Medical Research Institute, Kisumu, Kenya, <sup>3</sup>Faculty of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, Keppel Street, London, United Kingdom, <sup>4</sup>Independent researcher, Netherlands

**Background:** The Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe Lives (DREAMS) initiative provides a comprehensive package of interventions aimed at lowering the risks of HIV acquisition among adolescent girls and young women (AGYW) in Kenya. We sought qualitative evidence among AGYW receiving DREAMS interventions on their experiences with HIV risk reduction.

**Materials and Methods:** In 2022, we conducted 43 in-depth interviews for DREAMS evaluation in rural Gem and two informal settlements in Nairobi, Kenya, where DREAMS has been implemented since 2016. We conducted a hybrid inductive-deductive approach in the analysis.

**Results:** We found that the AGYW felt adolescent boys and young men (ABYM) had more freedom than AGYW when establishing social networks. AGYW were judged harshly, especially in cases of early or unwanted pregnancies where they were seen to be of immoral behavior and “do not know how to take care of themselves.” While seeking condoms, the community members felt that it was an ordinary occurrence for ABYM and were regarded as “real men” if they did so. On the contrary, negative attitudes were displayed toward AGYW seeking condoms who would be suspected of having “multiple sexual partners.” Fear of judgment made AGYW refrain from seeking condoms for their protection. If ABYM were alleged to be HIV positive, they would be encouraged to seek and adhere to treatment. Additionally, ABYM tended to be secretive and



would seldom create room for suspicion that they might be HIV positive, whereas girls were “carefree” and quickly expressed their problems, raising suspicion. AGYW faced stigma from the community where their peers distanced themselves and talked about them behind their backs, unlike the ABYM, who would “walk freely” without facing stigma. AGYW reported that in such cases, the community perceived them as carelessly engaging in sex, and they would also be teased by ABYM, which lowered their self-esteem.

**Conclusions:** Experiences of stigma faced by AGYW in the community hinder them from adequately taking measures to protect themselves from HIV risk. Persistent sensitization of community members on the importance of equal access to protective measures among ABYM and AGYW could help to reduce stigma and reduce HIV risk.

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## Making a Case for Social and Structural Investment to Improve Outcomes of Children Living with HIV in Baringo and Samburu Counties, Kenya

**Matu L**<sup>1</sup>

<sup>1</sup>Gold Star Kenya, Nairobi, Kenya, <sup>2</sup>USAID Tujenge Jamii, Nairobi, Kenya

**Background:** USAID Tujenge Jamii (UTJ) is implementing an integrated HIV program in Baringo, Laikipia, Nakuru and Samburu Counties serving 4535 children and adolescents aged below 19 years living with HIV (CLHIV) on ART. Of the CLHIV, 91% are virally suppressed. Despite this good viral load suppression, there are about 400 children who have persistent high viral load (HVL). The project team engaged with the children and their care givers to understand the reasons for not achieving viral load suppression to inform interventions. The main barriers leading to the persistent HVL were social (neglect, poor relationships with caregivers) and structural (poverty, food insecurity) in nature. The hypothesis postulated by the UTJ team was that addressing these barriers would improve outcomes (viral load suppression, adherence to treatment, good health) for these children.



**Materials and Methods:** UTJ identified partners providing social and structural support for vulnerable children in Baringo and Samburu counties. Meetings were held between the UTJ team, these social/structural support implementing partners and the families of children with high viral load and poor adherence to clinic appointments. Consent was received from the families to link their children with the services provided by the partners to help improve care for the children. 25 children were provided with food, a loving and caring environment, school fees and other basic needs by the partners and monitored for outcomes over a six months’ period between October 2022 and March 2023.

**Results:** At baseline in October 2022, only 42% and 25% children in Baringo had adherence to clinic appointments and viral load suppression respectively. This improved to 86% and 91% respectively by March 2023. In Samburu, at baseline, only 56% of the children had adherence to clinic appointments and viral load suppression. This improved to 100% and 89% respectively after the intervention in March 2023.

**Conclusions:** For countries to achieve the UNAIDS 3rd 95, there is need to address social and structural barriers identified at family level. Providing socio-structural interventions through meaningful partnerships improves outcomes for children living with HIV. Funders supporting HIV interventions for children should include resources to respond to social and structural needs.

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## Link Between Poverty and HIV Viral Load Non-suppression Among PLHIV

**Mukondwa R**<sup>1</sup>, Ayer A<sup>2</sup>, Takarinda K<sup>1</sup>, Makoni T<sup>3</sup>, Aviles-Guaman C<sup>2</sup>, West N<sup>2</sup>, Hudson M<sup>2</sup>, Webb K<sup>1</sup>, Shete P<sup>2</sup>

<sup>1</sup>Organization for Public Health Interventions & Development, Belgravia, Zimbabwe, <sup>2</sup>Center for Tuberculosis, University of California San Francisco, California, United States of America, <sup>3</sup>Zimbabwe National Network of People Living with HIV, Milton Park, Zimbabwe

**Background:** HIV disproportionately impacts the impoverished. Social protection interventions

(SPIs) including cash and food transfers may interrupt this cycle of poverty and disease. The objective of this study was to identify the relationship between poverty, social protection interventions and HIV viral load (VL) in 15 districts of Zimbabwe in a programmatic setting.

**Materials and Methods:** We conducted an exploratory, sequential mixed methods analysis. Quantitative analyses utilized retrospective cross-sectional data collected from January to July 2023 from client satisfaction surveys (CSS) among adults living with HIV (PLHIV) (> 18 years) on antiretroviral therapy (ART). We performed descriptive analyses and generalized estimated equations to evaluate relationships between multidimensional poverty, SPIs, and VL non-suppression (>=1000 copies/mL). Between August and September 2023, we conducted semi-structured in-depth interviews (IDIs) (n=25) with adults (>18 years) with a history of accessing SPIs. IDIs were analyzed using the framework method.

**Results:** Among 13,722 PLHIV in ART care completing the CSS, 8,971 (65.4%) were female. Median age of the respondents was 44 years (Interquartile range [IQR]: 36-52 years). Nearly half (n=6,095; 44.4%) of respondents were multidimensionally poor. An additional 3,471 (25.3%) were vulnerable to multidimensional poverty, 5,894 (43%) lacked food, yet only 2,515 (18%) had ever received SPIs. The majority (1,283 (51.3%)) of SPI recipients received educational assistance. Poverty was associated with HIV VL non-suppression [relative risk (RR)= 1.55; (95% confidence interval (CI): 1.13, 2.13]. SPI receipt was also associated with HIV VL non-suppression [RR=1.67; (95% CI: 1.07, 2.62)]. Qualitative findings showed that despite significant need, PLHIV in ART care had limited information about types of SPIs available and how to apply to the programs. Further, participants described their experiences of poverty, with SPI providing a fragile support system for access to food and basic needs.

**Conclusions:** SPI receipt is limited among PLHIV in Zimbabwe, despite frequently reported poverty and food insecurity. In this context, SPIs may serve as a surrogate for socioeconomic vulnerability and appear insufficient to alleviate its effects. There may be a mismatch in SPIs (educational assistance) with individual needs (food insecurity) among this population of PLHIV, signaling importance of concordance in SP interventions with vulnerabilities experienced.

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## Les Obstacles à la Mise en Place D'Un Dispositif de Prise en Charge Pluridisciplinaire Des Personnes Transgenres Victimes de VBG

Yao N<sup>1</sup>, Sadia A<sup>1</sup>, Kouame K<sup>1</sup>

<sup>1</sup>ENDA santé Côte d'Ivoire, Abidjan, Côte d'Ivoire

Une étude réalisée en 2020 à Abidjan a montré que les personnes transgenres (PTG) sont fortement exposées au VIH malgré les résultats encourageants enregistrés en Côte d'Ivoire. En effet, la prévalence du VIH chez les PTG est de 26 %, soit plus de 13 fois que celle de la population générale. La limitation aux services de santé, la stigmatisation et la discrimination sont en d'autres les facteurs qui expliquent cette prévalence. Pour y faire face, un programme VIH est mis en place avec un volet Droits Humains (DH). Malgré ce dispositif, l'on observe une sous-utilisation des services de droits par les PTG. Ce travail vise à présenter les obstacles et faire des recommandations.

Une étude portant sur la santé mentale auprès des PTG conduite par Enda santé avec l'appui financier d'Expertise France dans le cadre du projet de Réduction de la vulnérabilité sanitaire des PTG à Abidjan (REU TRANS) a permis de recueillir les avis de 251 PTG âgé d'au moins 18 ans à partir d'un échantillonnage de type Respondant Driven Sampling. Deux questionnaires, trois guides d'entretien et un test ont été utilisés.

Les obstacles sont d'ordre : (i) économique : le coût relativement élevé de l'accès aux soins spécialisés dans les structures de santé; (ii) le plan culturel, les religions, les us et coutumes produisent des représentations sociales négatives sur elles et provoquent le rejet et la stigmatisation qui engendrent parfois des agressions ; (iii) politique et judiciaire, l'existence d'un vide juridique sur la protection des droits des PTG.

- Adopter des lois garantissant les droits et devoirs des PTG et des soignants ;
- Instituer dans la couverture maladie universelle les actes de soins prenant en compte les spécificités des personnes transgenres ;



- Sensibiliser les populations pour la réduction de la stigmatisation, de la discrimination, du VIH et des droits humains ;
- Mutualiser les efforts dans la prise en charge, le suivi et la protection des personnes trans\* ;
- Aide à l'autonomisation financière des PTG\* par des activités génératrices de revenus ;

L'élimination du VIH à l'horizon 2030 nécessite l'intégration des aspects liés aux DH.

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## Facteurs Structurels et Sociaux Limitant l'Efficacité de la Prise en Charge des Enfants et des Adolescents vivant le VIH au Cameroun en 2023

Laborde-balen G<sup>1</sup>, Breton G<sup>2</sup>, Fako Hendji G<sup>3</sup>, Estevenin C<sup>2</sup>, Hadja H<sup>4</sup>, Ajeh A<sup>4</sup>, Essamba S<sup>4</sup>, Djomo A<sup>4</sup>

<sup>1</sup>TransVIHMI (Université de Montpellier, INSERM, IRD), Montpellier, France, <sup>2</sup>Solthis, Paris, France, <sup>3</sup>Care and Health Program, Yaounde, Cameroon, <sup>4</sup>Comité National de Lutte contre le sida, Yaounde, Cameroon

**Contexte :** Au Cameroun, environ 20 000 enfants et adolescents vivant avec le VIH (EAvVIH) sont suivis dans les formations sanitaires (FOSA). En 2023, une analyse situationnelle de la prise en charge pédiatrique a été menée à l'échelle nationale ainsi qu'une étude anthropologique. L'un des objectifs de l'étude anthropologique était d'identifier les facteurs freinant l'efficacité de la prise en charge des EAvVIH.

**Matériels et Méthodes :** L'étude a été menée de mars à juillet 2023. Quarante-deux entretiens semi-directifs, des observations et des focus groups ont eu lieu dans trois FOSA à Yaoundé et une à Bafia, ainsi qu'avec les autorités de santé, des responsables de programmes, des associations de PvVIH, dont des jeunes. Les entretiens ont fait l'objet d'une analyse thématique.

**Résultats :** Un ensemble de facteurs structurels et sociaux freinent l'efficacité de la prise en charge des EAvVIH.

– Les facteurs structurels : la distance géographique entre le domicile et les FOSA,

notamment en zone rurale ; le faible nombre et le turn-over de soignants ; le manque d'intégration des services de PTME et de prise en charge pédiatrique ; l'absence de dispositif de transition vers les consultations adultes ; des ruptures d'ARV pédiatriques et un accès limité à la mesure de charge virale ; un accompagnement psychosocial parfois limité. L'étude montre des disparités importantes entre FOSA, surtout en zone rurale. – Les facteurs sociaux concernent les difficultés d'observance et d'entrée dans la sexualité des adolescents, la condition d'orphelin, les faibles ressources économiques, et une stigmatisation sociale persistante.

**Conclusions :** L'étude montre un ensemble de difficultés persistantes qui freinent l'efficacité de la prise en charge des EAvVIH et la nécessité de renforcer l'appui aux FOSA rurales et aux programmes visant les adolescents en matière d'observance, santé sexuelle et transition vers les services VIH adultes en s'appuyant sur les associations de jeunes. L'appui aux familles à faibles revenus et la lutte contre la stigmatisation sociale sont des éléments essentiels à maintenir et renforcer dans les stratégies nationales de lutte contre le VIH.

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## Strengthening Public Health Facilities for Health Service Uptake for Key Populations in Zimbabwe

Gosho C<sup>1</sup>, Ndondo H<sup>1</sup>, Madzima B<sup>1</sup>, Yekeye R<sup>1</sup>, Ncube G<sup>2</sup>, Tenga U<sup>2</sup>, Sola T<sup>2</sup>, Taruberekera N<sup>3</sup>, Mutede B<sup>3</sup>, Mavudze J<sup>3</sup>

<sup>1</sup>National AIDS Council, Harare, Zimbabwe, <sup>2</sup>Ministry of Health and Child Care, Harare, Zimbabwe, <sup>3</sup>Population Solutions for Health, Harare, Zimbabwe

**Background:** Key populations often face stigma and discrimination accessing public health services. Many prefer to access HIV/SRHR services from private sector including clinics run by international non-governmental organizations. This model though part of differentiated service delivery is expensive and unsustainable due to the fleeting nature of donor funded programs. Strengthening public health sector to deliver



comprehensive, clinically competent and friendly KP focused HIV/ SRHR services is imperative.

**Description:** In 2019, Zimbabwe Ministry of Health and Child Care and National AIDS Council collaborated to establish a Key Populations Technical Support Committee leveraging funding support from the Key Populations Investment Fund. The TSC is decentralized to subnational to strengthen design, implementation and uptake of KP affirming HIV services for Female Sex Workers (FSWs), Men who have sex with Men (MSM) and Transgender people (TG). The KPIF supported provision of dedicated KP technical assistance in 10 illustrative public sector facilities, Harare, Bulawayo, Masvingo, Gweru and Mutare. In 2023 the integration scaled to 53 sites across 35 districts in Zimbabwe.

**Lessons Learnt:** Public sector KP disaggregated tools were developed to capture data using DHIS2. Facility readiness assessments conducted for the 52 sites and KP friendliness trainings for 150 public health care workers. Since scale up from 10 to 53 facilities, Key Populations reached with HIV services increased by 75% from 2669 to 8065. Through October 2022 to September 2023, across ages 0 to 50+ years 6,666 FSWs, 1,365 MSM, 34 Transgender were reached with HIV prevention messages. 2,803 FSWs and 805 MSM, tested for HIV of which 411 FSWs (14%), 95 MSM (11%) tested HIV positive. 335 (81%) FSWs newly initiated on ART, 88 (92%) MSM. 954 FSWs, 234 MSM, on PrEP. 990 FSWs, 169 MSM treated for STIs. Notably, 48% females and 53% males tested were aged 20-29 years. Statistics of Transgender reached were still insignificant to nuance statistical sense.

**Conclusions:** Public health facilities can effectively provide HIV prevention and treatment services for Key Populations if all staff are trained to be KP friendly as a sustainable approach. The next steps are to expand to other non-supported districts for universal coverage.

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## Addressing Stigma and Discrimination among People Living with HIV in Nigeria, What has Worked?: A Trend Analysis of Nigeria Stigma Index Surveys 2011 to 2021

**Aguolu R<sup>1</sup>, Agbo F<sup>1</sup>**

<sup>1</sup>National Agency for the Control Of AIDS, Abuja, Nigeria

**Background:** The primary objective of the Nigeria Stigma Index Survey is to document experiences of stigma and discrimination among PLHIV in Nigeria, identify strategies, and make recommendations on how to deal with HIV-related stigma in Nigeria. This paper aims to assess the changes in experiences of stigma and discrimination over time and understand the impact of the development and implementation of laws, policies, and resources channeled toward the elimination of stigma and discrimination in Nigeria.

**Materials and Methods:** We conducted a descriptive analysis of three rounds of Stigma Index Survey data (2011, 2014, and 2021) focusing on indicators covering access to health services and treatment services, felt stigma, abuse of rights, and interactions with health workers.

**Results:** There was a decline in the proportions of stigma and discrimination experienced by PLHIV across all six indicators from 2011 to 2021. However, one indicator (Tested without consent) experienced a rebound between 2014 and 2021 with 8.6% reported in 2014 and 14.1% reported in 2021. From 2011 to 2014 to 2021, there has been a steady decline in the proportion of respondents who reported feeling ashamed because of their HIV status, as well as for proportion of respondents who reported being denied access to healthcare services because of their HIV status. There was also a steady decline in the proportion of respondents who were forced to submit to an HIV test or a medical procedure.

**Conclusions:** Overall, these trends demonstrate that Nigeria has made significant improvements in addressing stigma and discrimination. However, one must not fail to acknowledge that the current levels of stigma and discrimination are still high



enough to impact negatively on the health outcome of PLHIV. PLHIVs are still faced with challenges, such as verbal abuse and HIV status disclosure to others without their consent which continue to occur in significant numbers. Concerted efforts should be made to ensure enforcement of and access to laws and policies that seek to protect the rights of PLHIV in Nigeria.

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## Put People First Through Solutions Journalism Reporting

**Malika B.**, Amollo S

<sup>1</sup>One More Percent, Kakamega, Kenya, <sup>2</sup>One More Percent, Nairobi City, Kenya

Stigma is the biggest hindrance against HIV testing, treatment, and engagement among the affected and infected people. This Stigma is caused by poor understanding of HIV/AIDs due to news reports that spread misinformation and Disinformation. This enables prejudicial attitudes and behavior against those affected and infected by HIV.

With 2030 being 6 years away, we must fight stigma in order to totally end AIDs and reduce new HIV infections by 90 percent

To break stigma, media stakeholders are legitimately expected to produce content that embraces empathy, community-actions, verifiable-data, and voices from people infected/affected by HIV/AIDs. (We call this solutions-journalism).

This abstract has an objective of how to share skills on documenting data, telling stories, writing reports and generating media content on HIV/AIDs related by putting empathy towards people infected/affected by HIV as the priority.

The target audience will therefore gain skills in the deliberate use of impactful stories like audio, visuals, and quotes from people infected/affected with HIV with a specified emphasis on embracing verifiable data like qualitative and quantitative findings.

The outcome of gaining the above skills by the target audience will be dismantling disinformation/misinformation around HIV/AIDs

leading to the containment of stigma against people affected/infected with HIV.

More importantly, another outcome of using solutions journalism reporting model is that it will be easier for funders and partners to point out proven community action HIV projects from grassroots movements that need to be supported or capacity built.

If our abstract is selected, we'll use an interactive oral presentation model with 5 phases as outlined below:

(1.) Slide Presentation of published articles, videos, songs, poems, and social media posts that promote narratives of misinformation and disinformation on HIV/AIDs.

(2.) Broadcasts recorded videos from People infected/affected by HIV and living in marginalized communities in rural and slum areas testifying about the stigma they faced from published content that spread misinformation and disinformation on HIV.

(3.) Slide presentation of solutions-based reporting on HIV/AIDs including videos, articles, and social media posts

(4.) Panel to give their input and recommendations

(5.) Q/A

(6.) End of our interactive oral presentation session.



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## “I’m Scared of the Nurses Telling Other People I Am a Transwoman”: Disclosure and Non-disclosure of Gender Identity Among Transwomen in Ghana’s Urban Slums– BSGH007

Dakpui H<sup>2,3</sup>, Agbemedu G<sup>2,3</sup>, Boyd D<sup>5</sup>, Islam K<sup>2,3</sup>, Zigah E<sup>2,3</sup>, Umar O<sup>2,3</sup>, Ahmed A<sup>2,3</sup>, Ababio M<sup>10</sup>, Charles N<sup>3</sup>, Torpey K<sup>9</sup>, Nelson L<sup>2,3,6,8</sup>, Abu-Ba'are G<sup>1,2,3,4,6,7,8</sup>, [Shamrock O](#)

<sup>1</sup>University of Rochester, Rochester, United States, <sup>2</sup>Behavioral, Sexual, and Global Health Lab, School of Nursing, University of Rochester, Rochester, United States, <sup>3</sup>Behavioral, Sexual, and Global Health Lab, Jama'a Action, West Legon, Accra, Ghana. School of Nursing, University of Rochester, Rochester, New York, USA, <sup>4</sup>Department of Public Health Sciences, University of Rochester, Rochester, New York, Rochester, United States, <sup>5</sup>College of Social Work, Ohio State University, Columbus, USA, Ohio, United States, <sup>6</sup>Center for Interdisciplinary Research on AIDS, School of Public Health, Yale University, Connecticut, United States, <sup>7</sup>School of Public Health, University of Ghana, Accra, Ghana, <sup>8</sup>School of Nursing, Yale, Connecticut, USA, <sup>9</sup>Department of Population, Family and Reproductive Health, School of Public Health, University of Ghana, Accra, Ghana, Accra, Ghana, <sup>10</sup>University of Nebraska-Lincoln, Nebraska, USA, Lincoln, United States

Transwomen encounter various challenges compared to the general population, particularly when seeking healthcare services. These challenges often lead to dilemmas regarding the disclosure of their gender identities as they weigh the potential for discrimination during visits to health facilities. This study investigates the experiences of transwomen living in urban slums communities in Ghana, and explores factors influencing their decisions to disclose or withhold their gender identities while seeking healthcare. We used a time-location sampling technique to recruit 20 transwomen living in urban slums in Ghana's Greater Accra Metropolitan Area, and conducted in-depth qualitative interviews to gather data. Our study revealed four reasons why transwomen concealed their gender identities when seeking healthcare: (a) Gossiping among health providers, (b) Rude and unwelcoming gestures from health workers, (c) Avoidance of probing questions from health workers, and (d) Delayed treatment and poor care services by health providers. The study also found two

reasons for transwomen to disclose their gender identity while seeking healthcare: (a) LGBTQ-friendly facilities as a reason for disclosure and (b) Intrusive questioning. These findings contribute to the experiences of transwomen living in deprived communities such as urban slums, contributing to the existing literature on challenges associated with the disclosure and non-disclosure of gender identity when accessing healthcare in these communities. Additionally, our results underscore the urgent need for reevaluating health policies and implementing targeted training and practices for healthcare professionals dealing with transwomen in Ghana.

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## HIV Status Disclosure Among People Living with HIV in Nigeria: Findings From the 2021 Stigma Index Survey 2.0

[Sylvester U](#)<sup>1</sup>, Andrew A<sup>1</sup>, Aguolu R<sup>1</sup>  
<sup>1</sup>National Agency for the Control of AIDS, Abuja, Nigeria

**Background:** In Nigeria, where stigma and discrimination against HIV/AIDS are still pervasive, HIV status disclosure is a complicated and diverse issue that has a substantial impact on the wellbeing of people living with HIV (PLHIV). It is important to document the experiences of the HIV status disclosure of PLHIVs in Nigeria.

**Materials and Methods:** We conducted a cross-sectional descriptive study in 2021, encompassing 17 states across the six (6) geo-political zones in Nigeria, and utilized both qualitative and quantitative data collection methods. Qualitative data were obtained through semi-structured focal group discussions (FGD) to capture the experiences of stigma. The quantitative aspect involved using the structured and standardized stigma index survey 2.0 tools to interview respondents.

**Results:** The study involved 1,240 participants with 802 (64.7%) being females while 438 (35.3%) were males. Out of the 997 (80.5%) participants who reported that they have disclosed their HIV status, 11.3% participants reported that their status was disclosed to other family members without their



consent. 8.1% participants reported that their status was disclosed to friends without their consent. 8% and 3% reported their status disclosed to their partners and employers without their consent respectively. Regarding their experiences on the disclosure of their HIV status to others close to them, 610 participants (49.2%) agreed that it had been a positive experience, 181 participants (14.6%) somewhat agreed with them and 364 participants (29.4%) disagreed that it had been a positive experience.

**Conclusions:** Issues such as disclosure of PLHIV status to others without their consent, continue to occur in significant number. The finding underscores the need for concerted effort in implementing laws and policies that seek to protect the rights of PLHIVs. The Ministry of Justice, Ministry of Labor and Productivity, the Nigerian Police force must all work together to ensure compliance with the provisions of existing laws protecting the rights of PLHIV. The Government should also enforce the domestication of the Anti-Stigma and Discrimination Act in all the states and create awareness.

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## La Formation des Acteurs du Parcours de Soins au Lieu de Prestation, Stratégie Efficace Pour la Réduction de la Stigmatisation

Yao N<sup>1</sup>, Savadogo M<sup>1</sup>, Djadja S<sup>1</sup>, Kouame K<sup>1</sup>

<sup>1</sup>ENDA santé Côte d'Ivoire, Abidjan, Côte d'Ivoire

Les interventions VIH en Côte d'Ivoire ont contribué à réduire l'infection (4,7% en 2005 à 1,82% en 2023). Cependant, les populations clés et PVVIH sont souvent victimes de stigmatisation et de discrimination de la part de certains prestataires de santé constituant une barrière dans le cadre des recours aux soins. Certes l'index stigma est en baisse mais reste élevée (40,4% en 2016 à 14,1% en 2021).

La situation demeure préoccupante en milieu de soins avec la persistance de la stigmatisation au sein des acteurs du parcours de soins avec pour corollaire la divulgation du statut VIH, le refus de

l'offre de services aux PVVIH et aux populations clés entraînant la baisse du taux de fréquentation des centres de santé par elles.

Le Programme National de Lutte contre le sida (PNLS) en collaboration avec ENDA santé ont initié une stratégie visant le renforcement des capacités de l'ensemble des acteurs du parcours de soins sur les Droits Humains (DH) en lien avec le VIH et la tuberculose.

Ce travail a pour objectif de montrer les résultats de cette stratégie.

Le PNLS a développé un manuel de formation sur les droits humains en lien avec le VIH/TB. Un pool de formateurs issus de la société civile et d'institutions étatiques a été formé à la dispensation des modules.

Chaque centre de santé, l'orientation a concerné tous les acteurs (prestataires, gardiens, jardiniers, etc.) intervenant sur le site. Animée par deux formateurs, elle se déroule sous forme théorique et pratique avec des évaluations de connaissances, des présentations, des exercices de simulation sur une journée.

- 59 centres de santé ont vu les acteurs renforcés ;

- 885 acteurs du parcours de santé des sites de prise en charge VIH/TB renforcés sur l'éthique médicale et les DH;

- Plus de 59% des acteurs n'ont jamais bénéficié d'une formation depuis leur affectation sur sites ;

- 82% n'ont jamais bénéficié d'une formation sur les DH;

- 77% n'ont jamais bénéficié d'une formation sur la TB, le VIH et la VBG.

L'orientation sur site permet contribuer à lever les obstacles à l'accès aux soins des populations hautement vulnérables.





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## Preferences and Treatment Outcomes of Differentiated Service Delivery Models for HIV Care: A Retrospective Cohort Study of Women Living with HIV in Southern Nigeria.

**Nwanja E**<sup>1</sup>, Onwah O<sup>1</sup>, Toyo O<sup>1</sup>, Unimuke M<sup>1</sup>, Akpan U<sup>1</sup>, Nwageneh C<sup>2</sup>, Omeh O<sup>3</sup>, Oyawola B<sup>4</sup>, Usha T<sup>4</sup>, Ogundehin D<sup>4</sup>, James E<sup>4</sup>, Obiora-Okafo C<sup>4</sup>, Idemudia A<sup>4</sup>, Nwadike C<sup>4</sup>, Kakanfo K<sup>4</sup>, Pius B<sup>4</sup>, Onimode B<sup>4</sup>, Asaolu O<sup>4</sup>, Bashorun A<sup>5</sup>, Gambo A<sup>6</sup>, Pius J<sup>4</sup>, Oyelaran O<sup>4</sup>, Goldstein R<sup>4</sup>, Onyedinachi O<sup>1</sup>, Adegboye A<sup>1</sup>, Eyo A<sup>1</sup>

<sup>1</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, Uyo, Nigeria, <sup>2</sup>Family Health International (FHI 360), Abuja, Nigeria, <sup>3</sup>Howard University Global Initiative Nigeria (HUGIN), Abuja, Nigeria, <sup>4</sup>Office of HIV/AIDS and TB, United States Agency for International Development (USAID), Abuja, Nigeria, <sup>5</sup>National AIDS, Sexually Transmitted Infections Control and Hepatitis Programme (NASCP), Federal Ministry of Health, Abuja, Nigeria, <sup>6</sup>National Agency for the Control of AIDS (NACA), Abuja, Nigeria

**Background:** Women living with HIV (WLHIV) have changing needs, and Differentiated Service Delivery (DSD) of antiretroviral therapy (ART) is a client-centred approach that is responsive to individual needs. This study described DSD model preferences and assessed treatment outcomes among (WLHIV) devolved to DSD in Southern Nigeria.

**Materials and Methods:** This retrospective cohort study utilised data from electronic medical records of WLHIV aged 15-49 years, devolved to DSD models in three 12-month cohorts (October 2019-September 2020 [C1], October 2020-September 2021 [C2] and October 2021-September 2022 [C3]) at 154 health facilities supported by PEPFAR/USAID in Akwa Ibom and Cross River States, Nigeria. Explanatory variables include age, sex, DSD type and date devolved. ART status and viral load (VL) results with dates were outcome variables. DSD was categorised as facility-based (FBM) or community-based (CBM) in line with National guidelines; ART status was “active” if alive and in care, otherwise “inactive”. DSD model preferences were described using proportions, while retention in treatment (proportion active) and viral suppression rates (proportion with VL <1000 copies/ml) were compared across DSD

models 12 months post-devolvement within each cohort, using Chi-square.

**Results:** Over the 3 years, 85,011 WLHIV were devolved; 87.6% (74,436/85,011) were aged ≥25 years, and 56.2% (47,797/85,011) were devolved to FBM. In C1, 84.7% (5,547/6,549) were in CBM, while the majority of those devolved in C2 (60.5% [42,539/70,353]) and C3 (52.5% [4,256/8,109]) were in FBM. Overall retention was 96.4% (81,982/85,011), and out of 78,431 WLHIV who had VL tests 99.3% (77,872/78,431) attained viral suppression. Retention was comparable across DSD respectively in C1 (FBM:99.1% vs CBM:98.6% [p=0.286]) and C3 (FBM:84.5% vs CBM:85.7% [p=0.143]) cohorts, but better in CBM compared to FBM (CBM:97.0% vs FBM:98.3% [p<0.001]) in C2. VL suppression rates were comparable across DSD models in C1 (FBM:99.7% vs CBM:99.3% [p=0.266]) and C3 (FBM:98.8% vs CBM:99.1% [p=0.290]), but higher in CBM compared to FBM (CBM:99.1% vs FBM:98.8% [p<0.001]) in C2.

**Conclusions:** DSD preferences for WLHIV in our setting moved from CBM to FBM between 2020 and 2022, with comparable treatment outcomes across models. Investigation of factors influencing DSD model preference among WLHIV is recommended, to support sustained optimal treatment outcomes.

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## Long-term Outcomes of Thermocoagulation Treatment for Precancerous Cervical Cancer Lesions in Women Living with HIV at Lighthouse Trust-Umodzi Family Centre ART Clinic in Blantyre, Malawi

Kumpolota T<sup>1</sup>, Huwa J<sup>1</sup>, Chione B<sup>1</sup>, Chioko J<sup>1</sup>, Rambiki E<sup>1</sup>, Kamamia C<sup>1,2</sup>, **Thawani A**<sup>1</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Center for Health, University of Washington, Seattle, United States of America

**Background:** Women living with HIV (WLHIV) have a 6-fold increased risk of developing cervical cancer. To address this risk, Lighthouse integrated



cervical cancer screening and treatment using Visual Inspection with acetic Acid (VIA) in all its Antiretroviral Therapy (ART) clinics. Thermocoagulation is primarily used for the treatment of precancerous lesions (< 75%) following positive results for VIA. Loop Electrosurgical Excision Procedure (LEEP) is not available at primary care level. This study assesses the effectiveness of cervical pre-cancer treatment at 12- and 24-months post-treatment for WLHIV who had thermocoagulation at Lighthouse Trust Umodzi Family Center ART clinic in Blantyre, Malawi.

**Materials and Methods:** We evaluated WLHIV who received cervical pre-cancer treatment services from October 2019 to September 2022. The women underwent cervical cancer screening and received their ART refills in the same consultation room. If women tested positive for VIA during screening, they underwent thermocoagulation on the same day and were re-screened every 12 months after the treatment. Those with large lesions or suspected cancer were referred for specialized care. Data was extracted from the cervical cancer register. Descriptive statistics were analyzed using Excel.

**Results:** About 104 WLHIV received thermocoagulation treatment, of which 80 (77%) returned for post-treatment cervical cancer screening after 12 months. Out of these, 74 (92.5%) tested negative for VIA, while 6 (7.5%) tested positive. Notably, the post-treatment positivity rate was higher compared to initial or follow-up screenings, where the positivity rate remained below 2 percent. Of the 6 who tested positive, 3 were confirmed to have early-stage cervical cancer and underwent surgery, 2 with large lesions were treated using LEEP, and 1 underwent thermocoagulation. All women who tested negative at the 12-month post-thermocoagulation screening maintained their VIA-negative status at the 24-month milestone.

**Conclusions:** The findings highlight the importance of follow-up within 12 months post-thermocoagulation to detect incomplete healing and prevent lesion progression to cervical cancer. While thermocoagulation shows promising outcomes for precancerous lesions, it is essential to ensure that all women who received treatment do come for post-treatment screening. Efforts should be made to explore alternative follow-up strategies, for women at high risk of not reporting for post-treatment screening.

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## Transforming Family Planning Access for Women Living with HIV: The One-Stop Shop Model

Temba A<sup>1</sup>, Maswi E<sup>1</sup>, Ngerangera D<sup>1</sup>, Ramadhani Mlange R<sup>1</sup>, Haraka F<sup>2</sup>, Van de Ven R<sup>2</sup>, Alons C<sup>3</sup>  
<sup>1</sup>EngenderHealth, Dar es Salaam, Tanzania, Tanzania, United Republic of, <sup>2</sup>Elizabeth Glaser Pediatric AIDS Foundation, Dar es Salaam, Tanzania, Tanzania, United Republic of, <sup>3</sup>Elizabeth Glaser Pediatric AIDS Foundation, Washington DC, USA, Elizabeth Glaser Pediatric AIDS Foundation, Washington DC, USA, USA

**Background:** Integration of family planning (FP) into HIV care is considered a high-impact practice, but integration into antiretroviral therapy (ART) services remains limited. Increasing access to effective contraception among women living with HIV (WLHIV) not only fulfills their reproductive rights but is also key towards elimination of mother-to-child transmission. The USAID Afya Yangu Northern project integrates FP services into 472 HIV care and treatment clinics in five regions in Tanzania. In 267 health facilities, a one-stop-shop model offers the full FP method mix within the HIV clinic. Within these five regions, 33% of women aged 15-49 in the general population use a modern method of FP (TDHS 2022). This study aimed to assess results of integrated delivery of FP methods within HIV clinics in providing access to FP for WLHIV.

**Materials and Methods:** A cross-sectional review of program data was conducted, using the national HIV care and treatment database to analyze the documentation of FP uptake among WLHIV aged 15-49 years, currently on ART by September 2023, across 472 supported facilities.

**Results:** Among the 81,231 WLHIV on ART, 34,793 (43%) currently use a modern FP method, 38,965 (48%) were documented as not using any FP method, and 7,129 (9%) had an unknown FP status. Among all FP users, 51% used condoms, 35% implants, 6% Depo-Provera injectables, 5% sterilization, 2% intra-uterine contraceptive device, and 1% oral contraception. The uptake of modern FP is higher within the 267 facilities offering the one-stop-shop model: 48% (30,129/60,306) compared to 25% (4,664/18,925) at the other 205 facilities. The uptake of long-acting and reversible contraception (LARC) at the



one-stop-shop sites was 42% (12,751/30,129) compared to 36% (1,673/4,664) at the other sites.

**Conclusions:** FP integration through the one-stop-shop model facilitated access to FP among WLHIV, with a higher percentage of WLHIV of reproductive age using FP compared to the general population. The offer of a method mix within HIV clinics increased the uptake of LARCs. While challenges exist in ensuring proper documentation, the study highlights the importance of integrated service delivery in providing FP access to WLHIV.

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## Health Related Quality of Life among Women Living with HIV on ART Follow-up in Public Hospitals, Central Ethiopia: Evidence from a Cross-Sectional Study

Tufa D<sup>1</sup>, Dejene H<sup>1</sup>, Geleta L<sup>1</sup>

<sup>1</sup>Salale University & Ministry of Health, Ethiopia, Addis Ababa, Ethiopia

**Background:** Evidence revealed that there is a statistically significant gender difference in Health-related quality of life (HRQoL) among People Living with HIV (PLHA). Consequently, women living with HIV have low scores in all HRQoL domains than men. Despite this fact, previous studies in Ethiopia focused on general HIV-positive people and paid less attention to HIV-positive women. Therefore, this study was intended to measure HRQoL and associated factors among women living with HIV on ART follow-up in public hospitals, central Ethiopia.

**Materials and Methods:** An institution-based cross-sectional study was conducted from February 01-April 30, 2022. Four hundred twenty-six women on ART were included using a systematic random sampling technique. Face-to-face interviews and medical record reviews were used to collect data. Both bivariable and multivariable linear regressions were computed to identify the factors associated with HRQoL. A p-value <0.05 was used to assert statistically

significant variables in multiple linear regression analysis.

**Results:** Overall, 44.7% [95% CI: 40.3, 49.5] of women have poor HRQoL. The prevalence of poor HRQoL for each domain was; Spirituality domain (56.8%), Environment domain (48.3%), Physical domain (47.6%), Psychological domain (46.1%), Level of independence domain (45.6%), Social relationship (43.2%). In multiple linear regression analysis, factors like depression ( $\beta = -0.35$ ), Post-Traumatic Stress Disorder (PTSD) ( $\beta = -0.16$ ), age ( $\beta = -0.07$ ), rural residence ( $\beta = -0.52$ ), and bedridden functional status ( $\beta = -1.02$ ) were inversely associated with HRQoL. Oppositely, good treatment adherence ( $\beta = 0.46$ ) was positively associated with overall HRQoL, keeping other factors constant.

**Conclusions:** This study reveals a high prevalence of poor HRQoL among women living with HIV. Therefore, as HRQoL domains are comprehensive indicators of living status, healthcare service providers should be dedicated to screening and supporting women living with HIV with poor HRQoL. Furthermore, interventions aimed at improving HRQoL in women living with HIV should incorporate/reinforce strategies for averting depressive and PTSD symptoms. Also, women living with HIV who are elderly, bedridden, and live in rural areas should be given special attention in clinical settings due to their potential poor HRQoL. Further research on similar population is also highly compulsory to reproduce the findings.



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## Relationship Between Secondary Services Referrals and Services Uptake to Facilitate Service Layering Among Adolescent Girls and Young Women 10-24 Years: A comparative Analysis in Four Provinces of Zimbabwe, 2023

Mugariri E<sup>1</sup>, Mudzengerere F<sup>1</sup>, Dhakwa D<sup>2</sup>, Yogo K<sup>2</sup>, Mudhokwani F<sup>2</sup>, Bharasara T<sup>3</sup>, Tapfuma T<sup>2</sup>, Tachiwenyika E<sup>1</sup>, Madzima B<sup>4</sup>, Yekeye R<sup>4</sup>, Nyamwanza B<sup>4</sup>, Mutseta M<sup>5</sup>, Masoka T<sup>1</sup>, Mafaune H<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions SIE, Harare, Zimbabwe,

<sup>2</sup>Zimbabwe Health Interventions Programs, Harare, Zimbabwe,

<sup>3</sup>USAID, Harare, Zimbabwe, <sup>4</sup>NAC, Harare, Zimbabwe, <sup>5</sup>MoHCC, Harare, Zimbabwe

**Background:** Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) program to reduce HIV incidence among adolescent girls and young women (AGYW) in 9 high HIV burden districts of Zimbabwe. Service layering is achieved through the referral of AGYW to clinical and other specialized service providers based on their vulnerabilities. The program recorded low (60%) sexual and reproductive health (SRH) service referral completion between October 2021 and September 2022. We assessed the relationship between service referrals and service uptake and availability within communities where DREAMS was implemented.

**Materials and Methods:** We conducted a descriptive cross-sectional study where routine program data for the period October 2022 to September 2023 were extracted from the DREAMS database. Relationship analysis was conducted using SPSS version 23 and MS Excel generating proportions and correlations between being referred for a secondary service and receiving the service. The assessment was covered by the Medical Research Council of Zimbabwe-approved non-research determination protocol (MRCZ/E/254).

**Results:** A total of 23, 348 AGYW were referred for secondary services between October 2022 and

September 2023 of which 4% were aged 10-14 years, 57% 15-19 years and 39% 20-24 years. About 93% (22,0930/23,348) received secondary services they were referred for. Uptake of services was 94% for the 10-14 years, 93% for the 15-19 years, and 94% for the 20-24 years. Availability of services for referred AGYW at referral organizations was 99% across all age groups. There was a strong positive correlation between being referred for services and receiving the services referred for ( $r=0.9998$ ),  $p<0.01$ .

**Conclusions:** Service layering through referrals is an effective strategy for ensuring the provision of comprehensive, need-based HIV prevention services to AGYW. We recommend continued convening of weekly referral technical working group meetings to ensure that AGYW receive and/or take up the services they require.

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## Retrospective Analysis of Cervical Cancer Screening Rates Among Women Living with HIV Enrolled in Differentiated Service Delivery Models in Nigeria

Ibitham O<sup>1</sup>, Nwangeneh C<sup>1</sup>, Elechi I<sup>2</sup>, Nwanja E<sup>3</sup>, Akpan U<sup>3</sup>, Unimuke M<sup>3</sup>, Onwah O<sup>3</sup>, Okolo C<sup>3</sup>, Toyo O<sup>3</sup>, Carpenter D<sup>4</sup>, Etheredge G<sup>4</sup>, Persaud N<sup>4</sup>, Oyawola B<sup>5</sup>, Ogundehin D<sup>5</sup>, James E<sup>5</sup>, Onyedini O<sup>3</sup>, Adegboye A<sup>3</sup>, Ogbodo V<sup>1</sup>, Eyo A<sup>3</sup>

<sup>1</sup>FHI 360, , Nigeria, <sup>2</sup>Achieving Health Nigeria Initiative, , Nigeria, <sup>3</sup>Excellence Community Education Welfare Scheme (ECEWS), Uyo, Nigeria, <sup>4</sup>FHI 360, Washington, DC, United States, <sup>5</sup>Office of HIV/AIDS and TB, United States Agency for International Development, , Nigeria

**Background:** Women living with HIV (WLHIV) have a higher risk of developing cervical cancer. To improve early detection and treatment, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the United States Agency for International Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) and Accelerating Control of HIV Epidemic (ACE 5) projects, integrated cervical cancer screening and treatment in HIV programs across the differentiated service delivery models (DSD) in



2020. This study assesses the uptake of cervical cancer (CC) screening among WLHIV enrolled on DSD models in Cross River State, Nigeria.

**Materials and Methods:** This is a retrospective cross-sectional analysis of the electronic medical records at 53 health facilities in Cross River State between April 2020 and March 2023. WLHIV ages 25–49 years were categorized by eligibility for CC screening. We abstracted their CC screening status, categorized as screened and not screened, and DSD status, categorized based on location of antiretroviral therapy (ART) refill pickup into facility-based (FBM) and community-based (CBM) DSD models. All women in DSD were offered screening. Those in FBM who accepted were screened during the same clinic visit at the health facility, and those in CBM who accepted were referred to the nearest health facility with the capacity to conduct CC screening. The proportion of women screened for CC was compared between the FBM and the CBM using chi-square with a significance level set at 0.05.

**Results:** A total of 16,441 WLHIV were eligible for CC screening, with a median age of 37+7.4; 60.0% (9,862) were enrolled on DSD (FBM = 56.3%, 5,548/9,862; CBM = 43.7%, 4,314/9,862). Overall, 41.4% (6,806/16,441) received CC screening, with a positivity rate of 0.7% (48/6,806). Of the 6,806 women screened for cervical cancer, 59.2% (4,026) were enrolled in a DSD model. The proportion of women screened was higher in the FBM at 57.3% (2,307/4,026) compared to the CBM at 42.7% (1,719/4,026) ( $p < 0.05$ ).

**Conclusions:** Though cervical cancer screening rates were suboptimal, WLHIV enrolled in FBM had better screening rates than those in CBM. Interventions that identify and address the reasons for the suboptimal screening rates in both models are recommended.

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## An Extra Mile to Medication: Addressing Gender Equality to Improve Treatment Outcomes of Gender-Based Violence Survivors at Lighthouse Tisungane Clinic in Zomba

Gagamsataye B<sup>1</sup>, Chaweza T<sup>1</sup>, Mali R<sup>1</sup>, Kamowatimwa G<sup>1</sup>, Huwa J<sup>1</sup>, Dziwe C<sup>1</sup>, Kiruthu-Kamamia C<sup>1,2</sup>

<sup>1</sup>Lighthouse Trust, Lilongwe, Malawi, <sup>2</sup>International Training and Education Centre for Health, University of Washington, Seattle, United States of America

**Background:** Malawi boasts high antiretroviral therapy (ART) coverage (97.7%) for people living with HIV (PLHIV), yet gender-based violence (GBV) remains prevalent, with 34% of women aged 15–49 reporting physical violence, 14% sexual violence, and 23% emotional violence in the past year. Research links GBV to poor ART adherence among women living with HIV. To address this, Lighthouse Tisungane ART clinic integrated GBV care into its operations to enhance treatment adherence, ART retention, and HIV viral load suppression. This study aimed to evaluate the impact of post-GBV psychosocial services on ART outcomes among women survivors referred for management at Lighthouse Tisungane clinic in Zomba, Malawi.

**Materials and Methods:** We conducted a retrospective review of medical records for GBV survivors referred for psychosocial counseling from January to December 2022. Data on age, and treatment outcomes (alive in care, transfers, deaths, viral load suppression) was extracted. Descriptive statistics and proportions were used for data analysis.

**Results:** A study examined 177GBV female survivors mean age 34 (IQR: 20–54) years, who reported gender-based violence. Emotional distress was the primary reason for referral 67% (n=118), followed by combined emotional and physical abuse 27% (n= 48), and lastly, sexual and emotional abuse 6% (n=11). The majority of perpetrators were parents 64% (n=114), with intimate partners coming second 25% (n=44) and others making up the remaining 11% (n=19). Before the interventions, 71% (n=126) displayed



poor drug adherence, while only 29% (n=51) maintained good adherence. Nearly two-thirds 63% (n=79) of survivors with poor adherence had high viral load ( $\geq 1000$  copies/uL) within six months of GBV incidence. Six months post interventions addressing the gender-based violence, 75% (n=59) with initially high viral load achieved re-suppression. 95% (n=168) of GBV survivors were retained in care, while a small number 5% (n=9) transferred, and no treatment stoppages or defaults occurred.

**Conclusions:** Our study found that interventions addressing the violence were successful in improving health outcomes. Despite high rates of initial medication non-adherence, interventions helped many women achieve viral load re-suppression and remain in care.

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## HIV Risk Perception and Behaviour Among Adolescent Girls and Young Women Enrolled in the Determined, Resilient, Empowered, AIDS Free, Mentored and Safe HIV Prevention Program in Selected Districts of Zimbabwe, 2023

Tachiwenyika E<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Nyamwanza B<sup>2</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Masoka T<sup>1</sup>, Muchedzi A<sup>1</sup>, Tafuma T<sup>1</sup>, Bhatasara T<sup>3</sup>, Mutseta M<sup>4</sup>, Mudzengerere F<sup>1</sup>  
<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** HIV remains a major public health problem among adolescent girls and young women (AGYW) in Zimbabwe. In 2020, HIV prevalence among AGYW aged 15-24 years was 5%, twice that of their male counterparts (2.4%). Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program to reduce HIV incidence

among AGYW. We assessed HIV risk perception and behavior among AGYW enrolled in the DREAMS program.

**Materials and Methods:** An analytic cross-sectional study was conducted where data were collected from randomly selected AGYW aged 9-19 years across 9 ZHI-supported DREAMS districts. Data were collected from AGYW using structured interviews within KOBO toolbox, and were analyzed using SPSS generating proportions, measures of central tendency and association. Study received ethics approval from Medical Research Council of Zimbabwe (MRCZ/A/2933).

**Results:** A total of 2,143 AGYW were interviewed of which 67.7% were aged 9-14, 73.6% were in school and 8.6% perceived themselves at risk of HIV. About 13.2% (282/2,143) AGYW were sexually active and of these, 76% had sex in past 6 months. About 58.4% of those who had sex used condoms, 46.3% knew HIV status of their partner, 49.1% had sex with non-marital partner, 8.4% had transactional sex and 3.3% had a sexually transmitted infection (STI). In-school AGYW were less likely to be sexually active [AOR=0.02, 95% CI (0.01; 0.04), p=0.00], whereas those who took alcohol [AOR=2.63, 95% CI (1.23; 5.63), p=0.01], had tested for HIV [AOR=8.84, 95% CI (5.96; 13.00), p=0.00] and experienced sexual and gender-based violence [AOR=4.64, 95% CI (1.95; 11.02) p=0.00] were more likely to be sexually active. Having tested for HIV [AOR=8.82, 95% CI (4.59-16.96), p=0.00], and knowing HIV status of sexual partner [AOR=7.42, 95% CI (4.14-13.32), p=0.00] were independently associated with condom use; those in school [AOR=0.05, 95% CI (0.02-0.150), p=0.00] and married [AOR=0.25, 95% CI (0.11-0.6), p=0.01] were less likely to use condoms.

**Conclusions:** A significant proportion of AGYW did not perceive themselves at risk of contracting HIV and engaged in risky sexual behavior. We recommend active tracking of AGYW to ensure completion of DREAMS package of services to reduce HIV incidence.



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## Impact of HIV Prevention Interventions on the Triple Burden of HIV, Teenage Pregnancy and Intimate Partner Violence among Adolescent Girls and Young Women in Uganda

Matovu J<sup>1,2</sup>, Bwanika J<sup>1</sup>, Ddamulira J<sup>1</sup>, Kasozi D<sup>1</sup>, Murungi I<sup>3</sup>, Katesi J<sup>3</sup>, Etukoit B<sup>3</sup>, Wanyenze R<sup>1</sup>  
<sup>1</sup>Makerere University School of Public Health, Kampala, Uganda, <sup>2</sup>Busitema University Faculty of Health Sciences, Mbale, Uganda, <sup>3</sup>The AIDS Support Organization, Kampala, Uganda

**Background:** Implementation of targeted socio-structural, educational and behavioral interventions can reduce the risk of HIV, teenage pregnancy and intimate partner violence (IPV) among adolescent girls and young women (AGYW). We assessed the effect of HIV prevention interventions on the triple burdens among AGYW aged 10-24 years.

**Materials and Methods:** We conducted serial cross-sectional analyses to assess the impact of AGYW interventions (skills-based training; enterprise development assistance, or educational subsidies; reinforced by social and behavior change communication messages) on HIV, teenage pregnancy, and IPV. We used data from eight intervention and six comparison districts, collected in July 2018 (n=8,236) and July 2023 (n=5,449). Blood samples were collected for HIV and syphilis testing. Exposure to the interventions was defined as participation in or receipt of at least one intervention. Impact was measured using a difference in difference approach to determine the net effect of the interventions. Data analysis was performed using STATA (version 16.0).

**Results:** Half of the AGYW were in school; 60-70% were aged 18-24 years. Between 2019 and 2023, intervention coverage increased from 31 to 60% of targeted sub-counties in the intervention districts; however, intervention exposure was moderate (48%, n=2,639). Exposure to the interventions improved teenage pregnancy and intimate partner violence (in the expected direction) but weighted HIV prevalence was higher among exposed (1.56%

[95%CI: 0.73, 3.34]) than unexposed AGYW (0.94% [95%CI: 0.49, 1.78]). Teenage pregnancy reduced from 16.5% to 10.9% in the intervention districts but increased from 11.9% to 13.1% in the comparison districts (net effect: -6.8%). Sexual IPV reduced from 6.2% to 3.7% in the intervention and 9.8% to 4.5% in the comparison districts (net effect: 2.8%) while physical IPV reduced from 14.9% to 4.0% in the intervention and 18.2% to 4.1% in the comparison districts (net effect: 3.2%). At district level, weighted HIV prevalence increased from 1.0% to 1.4% in the intervention and 1.1% to 1.3% in the non-intervention districts (net effect: 0.2%).

**Conclusions:** AGYW interventions had a small net effect on teenage pregnancy and intimate partner violence but did not impact on HIV prevalence, suggesting a need for increased exposure and coverage of interventions targeting AGYW in Uganda.

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## Drug and Substance Abuse Threaten Gains in HIV and Sexual and Reproductive Health Programming Among Adolescent Girls and Young Women (AGYW): Evidence from Zimbabwe

Munjoma M<sup>1</sup>, Choi H<sup>1</sup>, Mavudze J<sup>1</sup>, Kunaka N<sup>1</sup>, Dhodho M<sup>1</sup>, Nhando N<sup>1</sup>, Chatora K<sup>1</sup>, Moga T<sup>1</sup>, Mutede B<sup>1</sup>, Taruberekera N<sup>1</sup>, Leuschner S<sup>1</sup>  
<sup>1</sup>Population Solutions For Health, Harare, Zimbabwe

**Background:** Drug and substance abuse (DSA) continues to be on the increase in Africa and Zimbabwe is not spared from the scourge. In Zimbabwe, adult HIV prevalence among drug users is reportedly higher at about 20% compared to 13% in the general population. As HIV incidence remains disproportionately high among Adolescent Girls and Young Women (AGYW), UNICEF reported a drug abuse prevalence of 41% in this sub-population in 2023. Population Solutions for Health (PSH) in collaboration with the Swedish International Development Cooperation Agency (SIDA) conducted a study to assess the



effect of drug and substance abuse among AGYW on access to HIV and sexual and reproductive health services.

**Materials and Methods:** A mixed methods study was conducted in May 2023 in Bulawayo and Harare among AGYW aged 15-24 years. We interviewed 230 AGYW in the cross-sectional survey and 48 AGYW across 4 Focus Group Discussions (FGDs). Quantitative data were collected in KOBO and analyzed using STATA 17 and logistic regression modelling and difference between proportions were used for analyses. Qualitative data were collected from four focus group discussions (FGDs), tape recorded and thematically analyzed using De-DOSE.

**Results:** DSA prevalence was 34% (95% CI: 28 – 40) among AGYW with over 50% reporting abusing drugs at least once a week. AGYW abusing drugs were 4.9 times (95% CI: 2.3 -10.5 (odds ratios)) more likely to report an unmet need for HIV testing and sexual and reproductive health (family planning, STI and cancer screening) (SRH) services compared to AGYW not abusing drugs. Further, AGYW abusing drugs had higher STI prevalence (44.9% (95% CI: 32.9 – 57.4)) compared to just 4.2 % among non-users (95% CI: 0.9 – 11.9%). In the qualitative analyses, occurrences of risky sexual behaviors (condomless sex, orgies and sex while intoxicated) were reported mostly by drug users compared to non-users.

**Conclusions:** The study showed significantly higher risky behavior among AGYW abusing drugs including much higher risk of STI acquisition, coupled with high unmet need for HIV and SRH services. It is therefore imperative to strengthen programs that reduce DSA and improve access to health care services in this key sub-population.

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## Integration of Microfinancing in Psychosocial Support Groups to Sustain good patient Outcomes among Women Living with HIV at Busia County referral hospital, Busia County, Kenya.

Tebagalika F<sup>1</sup>, Zeph L<sup>1</sup>, Ashiono E<sup>1</sup>

<sup>1</sup>USAID Dumishaafya, Eldoret, Kenya

**Background:** Busia County Referral Hospital is a level 4 Health Care facility in Busia County with an HIV treatment cohort of 6,424 as of January 2023 with women accounting for 67%. Regarding the treatment outcomes and the high numbers of women within the cohort, the facilities experienced high numbers of unsuppressed viral loads with 66% of them being contributed to by women, and high interruptions in treatment with 63% of them being contributed by women. From client return surveys, 48% of the interruptions in treatment indicated the reason being the cost of travel and the fact that the women had to depend on their spouses for the cost expenses further increasing their vulnerability and poorer outcomes.

**Materials and Methods:** To increase financial stability among women, a Psychosocial Support Group (PSSG) comprising 37 women (30 widows, and 7 single mothers) was identified and consented to microfinancing integration in January 2023 through peer-to-peer mobilization and health talks. Training was done on micro-financing that integrated with other health services including health education on Positive Health Dignity and Prevention (PHDP) messaging, medication adherence, reproductive health services, and awareness creation. The microfinancing activities carried out in the group included table banking activities, Mary-go-round activities, making liquid soaps, borrowing, and loaning from monthly contributions with a return on interest. The group also invested in Agro-business including chicken farming and pig rearing. From the base capital that the group invested, 13% interest was cumulatively incurred, shared among the group members, and further investments were





made. The group continues to do rotational meetings and has developed a temporary policy on individual contributions, banking mechanisms, leadership, resources of finance, and resource generation systems.

**Results:** Out of the 37 members enrolled in the group, 100% constantly kept their clinic appointments with a 100% retention rate on HIV care and treatment and 100% viral load suppression as compared to 94.5% viral suppression rate before the start of microfinancing.

**Conclusions:** Through the microfinancing PSSG, the group was able to bridge the economic gap, benefit from peer-to-peer support, reduce their vulnerability, improve their livelihoods, and further access to care that improved their HIV outcomes.

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## Mapping Pre-exposure Prophylaxis (PrEP) Decisions Among Pregnant and Breastfeeding Women in Zimbabwe

**Gurure N**<sup>1</sup>, Stranix-Chibanda L<sup>1,3</sup>, Amico R<sup>2</sup>, Mungate L<sup>1</sup>, Sango A<sup>1</sup>, Musara P<sup>1</sup>, Mudzonga N<sup>1</sup>, Masango B<sup>1</sup>, Mcgoggle E<sup>2</sup>, Nematadzira T<sup>1</sup>, Mandima P<sup>1</sup>, Maonera S<sup>1</sup>, Munaiwa O<sup>1</sup>

<sup>1</sup>University of Zimbabwe Clinical Trials Research Site, CHITUNGWIZA, Zimbabwe, <sup>2</sup>University of Michigan, East Lansing, United States of America, <sup>3</sup>Harare Health Research Consortium, Harare, Zimbabwe

**Background:** PrEP is an effective HIV prevention strategy, increasingly offered to pregnant and breastfeeding women to mitigate risk during times of increased vulnerability. The Decision-Making about PrEP (DeM PrEP) project implemented journey mapping consultation groups with women who had been offered PrEP during pregnancy at an antenatal clinic (ANC) in Zimbabwe.

**Materials and Methods:** Four groups were conducted (2 for PrEP 'acceptors' and 2 for 'decliners'). Participants reflected on salient factors (description of experiences, people and

places involved, beliefs and feelings) in each phase of decision-making (aware, offer, contemplate, decide), and recorded these on individual worksheets. Worksheets were thematically coded. Transcripts of group discussions were reviewed for added context.

**Results:** Between June and July 2022, 32 women (16 'acceptors' and 16 'decliners'), average age 27, participated. Most women first became aware of PrEP at their ANC visit (Figure 1). Reactions to being offered PrEP differed between the groups- 'acceptors' described excitement while 'decliners' reported fear and anxiety. Across the groups, impact on infant, perceived need, and support from others appeared relevant. In both groups decision making approaches varied- some women decided right away while others contemplated their decision, needing input from others and additional information. Several women reflected on their partner (largely husband) influence- some reported reversing an initial acceptance of PrEP after discussing with their partner and some refused it entirely due to fear of partner's reactions. Partner influence was salient for 'acceptors' as well, but generally as a supportive factor.

**Conclusions:** Antenatal PrEP offer led to variable reactions and decision-making approaches. Early partner involvement may be helpful for some. Others valued involvement of family members, and some decided independently. Innovative ways to tailor PrEP education and access to women's preferences for how they make decisions and who they want engaged in those decisions are needed.

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## Prevalence of Violence Among Adolescent Girls Aged 10 to 14 Years Who Experienced Early Sexual Debut: Evidence From 4 Provinces of Zimbabwe, 2023

**Mugariri E**<sup>1</sup>, Mudzengere F<sup>1</sup>, Dhakwa D<sup>2</sup>, Yogo K<sup>2</sup>, Bhatasara T<sup>3</sup>, Tapfuma T<sup>2</sup>, Mafaune H<sup>1</sup>, Tachiwenyika E<sup>1</sup>, Mutseta M<sup>5</sup>, Yekeye R<sup>4</sup>, Madzima B<sup>4</sup>, Masoka T<sup>1</sup>, Nayamwanza B<sup>4</sup>, Mudhokwani F<sup>2</sup>

<sup>1</sup>Zimbabwe Health Interventions SIE, Harare, Zimbabwe, <sup>2</sup>Zimbabwe Health Interventions Programs, Harare, Zimbabwe,



<sup>3</sup>USAID, Harare, Zimbabwe, <sup>4</sup>NAC, Harare, Zimbabwe, <sup>5</sup>MoHCC, Harare, Zimbabwe

**Background:** Violence against women and children remains a public health challenge in Zimbabwe, and one of the drivers of new HIV infections. Zimbabwe Health Interventions (ZHI) is implementing the Determined, Resilient, Empowered, AIDS free, Mentored and Safe (DREAMS) program which seeks to reduce HIV incidence among adolescents' girls and young women (AGYW) in 9 high HIV burden districts of Zimbabwe. The DREAMS program assesses experiences of various types of violence at enrolment and during program implementation. About 0.6% (329/48,990) of adolescent girls (AG) aged 10-14 years reported having had sexual intercourse during DREAMS enrolment. We assessed prevalence of violence among 10-14-year-old AG who reported having had sex at program enrolment.

**Materials and Methods:** We conducted a descriptive cross-sectional study where routine program data for AG aged 10-14 years for the period October 2022 to September 2023 were extracted from the DREAMS DHIS II database. Prevalence analysis was conducted using SPSS version 23 and Ms Excel generating frequencies, proportions, and measures of association between early sexual debut and various forms of violence perpetrated against them. The assessment was covered by medical Research Council of Zimbabwe approved non-research determination protocol (MRCZ/E/254).

**Results:** A total of 48,990 AG aged 10-14 years were enrolled in the DREAMS program between October 2022 and September 2023. Out of these, 0.6% (329/48,990) reported having had sex in their life. About 33% (107/329) of those who had sex experienced some form of violence in their lives. AG aged 10-14 years who had ever had sex were more likely to have experienced some form of violence [COR=2.3, 95% CI (1.81-2.87),  $p < 0.05$ ] than those who did not. 33% (107) of the AG were not planning on using condoms in their next sexual encounter. About 18% (60/329) of the AG who had early sexual debut reported having had forced sex.

**Conclusions:** Prevalence of violence was high among adolescent girls aged 10-14 years who had early sexual debut, and there was a strong association between early sexual debut and experience of childhood violence. We recommend further analysis of program data, and implementation of violence prevention and

response interventions targeting AG, parents/guardians, and community members.

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## Risky Sexual Behaviors Associated with HIV Infections Among Adolescent Girls and Young Women in Rwanda, 2018/2019 Rwanda Phia Survey

Zephanie Z<sup>1</sup>, Iradukunda A<sup>2</sup>, Ikuzo B<sup>3</sup>

<sup>1</sup>ICAP AT COLUMBIA UNIVERSITY, Kigali, Rwanda, <sup>2</sup>James Lind Institute, Geneva, Switzerland, <sup>3</sup>Rwanda Biomedical Center, Kigali, Rwanda

Risky sexual behaviors (RSBs) are behaviors that can lead to unplanned pregnancies (UPs), and acquisition or transmission sexually transmitted infections (STIs) including HIV/AIDS and other STIs. These behaviors include sex before marriage, having multiple sex partners, sex without condom, using unreliable methods of birth control, etc. Moreover, 2018/2019 Rwanda PHIA revealed that HIV prevalence among adolescent girls and young women (AGYW) to be 2-3 times higher than males in the same age groups. Current study aimed to identify most common RSBs among AGYW aged 15 to 24 years old who participated in the 2018/2019 PHIA, factors associated with identified RSBs as well as RSBs predicting HIV infections in AGYW. We used STATA 15 to analyze data. Logistic regression was used to identify the strength of association for factors associated with outcome variables (RSBs and HIV infections). Of the 6,753 AGYW, 18.3% (n=1,236) had one or more RSBs including: Sex for gifts/favor/money (1.03%), anal sex (0.25%), multiple sexual partners in the last 12 months (4.02%), and sex without condom in last 12 months (9.4%) or without a reliable MC method (2.25%). Higher odd ratios of having one or more RSBs among the AGYW were observed among AGYW who were not pregnant by the time of the survey [aOR:13.98 with 8.62-22.65], ever given birth [1.84, 95%CI: 1.14-2.97], lower age of sexual debut [2.27, 95%CI: 1.3-3.96 for sexual debut at age below 15 and 1.36, 95% C.I: 1.04-1.77 for those who started sex at age between 15-17 years old as compared to those who started sex at age between 18-24 years old], and ever



married/cohabited with someone [1.76, 95% C.I.: 1.37-2.24]. Secondly, AGYW who had sex with 2 or more sexual partners were 3.9[95% C.I: 2.2-7.0] times more likely to live with HIV than those with one or zero sexual partners. Overall, current study reveals that about 1 in 5 AGYW present at least one RSB in Rwanda and AGYW living with HIV do sex with many sexual partners (increased risks to transmit HIV). Thus, the need to enhance current HIV prevention strategies among AGYW.

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## The Effectiveness of Pre-Exposure Prophylaxis (PrEP) Interventions for HIV/AIDS Prevention among Women in Sub-Saharan Africa: A Systematic Review and Meta-analysis

Dine R<sup>1</sup>, Asori M<sup>2</sup>, Effiong F<sup>3</sup>, Abate E<sup>4</sup>, Umulisa M<sup>1</sup>  
<sup>1</sup>Rinda Ubuzima, Kigali, Rwanda, <sup>2</sup>University of North Carolina, United States of America, <sup>3</sup>University of Calabar, Nigeria, <sup>4</sup>Addis Ababa University, Ethiopia

**Background:** Despite the considerable success of global interventions, HIV/AIDS continues to be a major global public health challenge for countries in Sub-Saharan Africa (SSA). The review aims to assess the effectiveness of PrEP interventions for the prevention of HIV/AIDS among women living in Sub-Saharan African Countries.

**Materials and Methods:** A systematic literature search was conducted in November, 2023 to identify studies relevant for this review. The search was executed on Pubmed, Web of Science, Africa Journal Online, and the Cochrane Library, and was limited to studies published in English between 2010 and 2023. Studies considered for inclusion were Randomized Controlled trials on the effectiveness of various PrEP interventions among women 18 years old and above in Sub-Saharan Africa. A meta-analysis package—metafor in Rstudio- pooled the risk ratios across studies. An inverse-variance restricted maximum likelihood estimation was used for effect size pooling. Due to high heterogeneity, a random effect model was used. Also, Egger's regression was used to detect

publication bias. No subgroup analysis was conducted.

**Results:** The initial search yielded 7500 articles, however, only 5 studies were included in the final analyses. There were 7,371 observations and 369 cases of HIV in the included studies. The overall mean adherence rate for PrEP interventions was 91.55% (min-max: 80-97%) whereas the rate of severe adverse events reported in included studies ranged from <1% to >7.4% among the exposed group. We found that compared to the control/placebo group, those who were exposed to any of the PrEP regimens had an overall reduced HIV risk rate of 48.59% (RR=0.5141, 95% CI: 0.3679-0.7185; p<0.001). However, there was a moderate level of heterogeneity in effectiveness across studies (I<sup>2</sup> = 57.7%, 95% CI: 0-84%; p = 0.0505; tau = 0.2905).

**Conclusions:** This review indicates that PrEP interventions are almost 50% effective in preventing HIV/AIDS. This suggests a moderate level of effectiveness but with notable variability. Although there is a lack of sufficient studies to investigate the reasons behind this variability thoroughly, it is suspected that differences in the ability to follow prescribed protocols may be a contributing factor.

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## Presence of Female Genital Schistosomiasis Amongst Women and Young Girls in S. Haematobium Infested Areas in Cameroon. Missed Gaps in Preventive Measures for HIV and an Integral Management of FGS and HIV

Christine Masong M<sup>1</sup>

<sup>1</sup>Université Catholique d'Afrique Centrale, Yaoundé, Cameroon

**Background:** Female Genital Schistosomiasis (FGS) is a form of schistosoma hematobium which scars and fragilizes the female cervix, opening her to such risks as HIV/AIDS and Cervical cancer. Research and management of FGS, is still



inexistent in the Cameroonian context, where girls and women suffer in silence without adequate channels for diagnosis and treatment put through by the State. In such endemic communities, considering the established relationship between HIV and FGS, this leaves out an opportunity for HIV/AIDS prevention, and an integral management of both diseases. We aim thus to establish a prevalence of FGS in our case study sites, and understand the lived experiences and the effects on their treatment seeking behavior which can be a loose spot for preventing HIV/AIDS.

**Materials and Methods:** Using mixed methods with a descriptive cross-sectional approach, amongst 304 women selected for UGS diagnosis in communities with an established high HIV prevalence, 67 girls older than 14 and non-virgins from this group were diagnosed visually for FGS through colposcopy. Close entourage in addition to these females, were probed through in-depth interviews to understand local perceptions around the symptoms of FGS and treatment seeking behaviors.

**Results:** 34 girls and women both of reproductive age and sexually active were positive for FGS (proportion: 58.6%; 95% CI: 45.8–70.4). Symptoms from FGS such as vaginal itches and post-coital bleeding were associated with a sexually transmitted infection, and women blamed for this. Treatment of FGS was not received, and women left fragile and at risk of contracting HIV/AIDS with this failure in management and control for FGS. Again, due to ignorance, women faced social stigma and exclusion for their symptoms, affecting their mental health and treatment seeking behavior, and leaving them open to risks of HIV/AIDS.

**Conclusions:** Evidence from our research on existence of FGS and local perceptions and behaviors, can be key steps towards drawing the attention of primary health care programs in making a firm step in policies and intervention plans to control FGS and prevent HIV/AIDS.

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## HIV Risk Perception, PrEP Eligibility, and Characteristics of Women Accessing Public Family Planning Clinics in Kenya

**Wandera C**<sup>1</sup>, Kinuthia J<sup>1,2</sup>, Matemo D<sup>1</sup>, Kemunto V<sup>1</sup>, Owaga D<sup>1</sup>, Cherotich I<sup>1</sup>, Oyombra T<sup>1</sup>, Mugwanya K<sup>2</sup>  
<sup>1</sup>*Kenyatta National Hospital, Nairobi, Kenya, <sup>2</sup>University of Washington, Seattle, USA*

**Background:** In Sub-Saharan Africa, family planning (FP) clinics are highly accessed by sexually active women and offer an opportunity to reach women who could benefit from PrEP. Understanding the profile of women accessing these clinics could permit efficient integration of HIV and FP services.

**Materials and Methods:** We administered structured questionnaires to women without HIV accessing twelve public FP clinics in Kisumu, Kenya. The questionnaires assessed women's demographics, HIV risk factors and PrEP eligibility, HIV risk perception, confidence in FP providers, knowledge of partner HIV status and current HIV prevention options. HIV risk and PrEP eligibility was determined based on epidemiological and behavior factors defined by the Kenya PrEP national guidelines. Descriptive statistics were used to summarize outcome distribution.

**Results:** Of 1200 women surveyed, 79% were married or cohabiting with median age of 27 (IQR 23–31) years with 38% <25 years. Overall, 62% (743/1200) did not know their partner HIV status, 23% (277/1200) reported multiple sex partners, 68% (771/1200) reported condomless sex with partner of unknown status or person living with HIV, and 76% (912/1200) had tested for HIV in the previous 12 months. Among women with factors associated with elevated HIV risk, 61% (546/891) rarely or never felt at risk for HIV, 90% (814/907) were not using any HIV prevention methods, including no method while 72% (616/724) were not satisfied with their current HIV prevention choices. A majority (>93%) reported FP clinics as an acceptable place to receive HIV prevention services and >69% reported they had full trust in FP providers to give correct information about HIV protection. Among PrEP eligible women with



information on PrEP, only 8% were using PrEP. Frequently reported reasons for not utilizing PrEP included need to consult partner/family (24%) or needed time to decide (38%) and concerns about side effects (20%), pill burden (20%), and stigma (17%).

**Conclusions:** Most women with elevated risk for HIV desired but were not using any prevention strategy. Integrating PrEP delivery in FP clinic has potential to reach diverse women who could benefit from PrEP but must be empowered to perceive risk and make informed choices about HIV prevention methods.

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## Help Seeking Behaviors for Gender Based Violence and Associated Factors Among Married Women Living With HIV Attending ART Clinic at Kabale Regional Referral Hospital, Southwestern Uganda

Akampunguza D<sup>1</sup>, Kumakech E<sup>2</sup>, Abaho D<sup>3</sup>, Mutesasira E<sup>3</sup>, Akatuhumuriza M<sup>3</sup>

<sup>1</sup>KIRUDDU NATIONAL REFERRAL HOSPITAL, KAMPALA, UGANDA, <sup>2</sup>LIIRA UNIVERSITY, LIIRA, UGANDA, <sup>3</sup>MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY, MBARARA, UGANDA

**Background:** Gender-Based Violence (GBV) is a global public health problem. Global prevalence is at 10-71% whereas that of sub-Saharan African is at 20%-71%. Married women living with HIV (MWLWH) are at a higher risk of GBV (61.3%) than their negative counterparts (58.1%). Seeking help for GBV is a critical prevention and mitigation measure. The various sources of help for GBV are under-utilized by MWLWH.

### Objectives:

- To determine the level of help-seeking behaviors for GBV among MWLWH
- To identify associated factors for help seeking for GBV among MWLWH

### Materials and Methods:

- A Quantitative, cross-sectional study design was conducted at ART Clinic of Kabale Regional Referral Hospital, Uganda on 424 MWLWH using consecutive sampling
- Interviewer administered questionnaire were used to collect data which was analysed using Statistical Package for Social Sciences (SPSS) version 20.0.

**Results:** Participants had a mean age of 39.5years. 53.3% MWLWH reported to have ever sought help. The most sought sources of help for GBV were police services, local government services, health providers, counseling and civil society. The enabling factor significantly associated with help seeking for GBV was being a woman aged 36-49years. Barriers significantly associated with help seeking for GBV among MWLWH included: having a separated/divorced, being married and living with a partner and unawareness about the available interventions.

### Discussion:

- 53.9% of help-seeking for GBV in our study concurs with 53.5% of counselling seeking for IPV by Adella et al.,2022.
- Informal employment was negatively associated with help seeking behaviors for GBV and this contradicts with previous studies done in Israel.
- Younger women were less likely to seek help for GBV and this contradicts the literature by Gormley et al.,2022.
- Women who were aware of sources of help were found to be more likely to seek help for GBV. This concurs with previous literature (Adella et al.,2022)

### Conclusions:

- The proportion of MWLWH who have ever sought help for GBV in this study was found just above 50%.
- Help seeking behaviors for GBV was associated with women's younger age, current marital status and awareness about the available sources of help.



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## Economic Strengthening Programs for Adolescent Girls and Young Women Enrolled in DREAMS in three Zambian Provinces

**Baumhart C<sup>1,2</sup>**, Mwango L<sup>3</sup>, Chipukuma J<sup>3</sup>, Olowski P<sup>4</sup>, Adebayo A<sup>4</sup>, Muleya C<sup>5</sup>, Claassen C<sup>1,2,4</sup>

<sup>1</sup>Center for International Health, Education and Biosecurity, University Of Maryland Baltimore, BALTIMORE, United States,

<sup>2</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, United States, <sup>3</sup>Ciheb Zambia, Lusaka, Zambia, <sup>4</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>5</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

Adolescent girls and young women (AGYW) in Zambia have an increased risk of acquiring HIV due to a complex interplay of gender inequalities, limited access to education and healthcare, and a higher likelihood of engaging in age-disparate relationships. These challenges are compounded by the significant economic burdens that further contribute to their susceptibility to transactional sex and exploitation. The Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) programs in Eastern, Western, and Southern provinces implemented the Empowerment and Livelihood for Adolescents (ELA) curriculum to provide advanced financial literacy education.

In September 2021, a market survey was conducted in the DREAMS districts to assess employability and business opportunities for AGYW. Following this, the DREAMS program initiated the integration of advanced financial literacy using the ELA model in October, and we trained 40 mentors, 3 coordinators, and 3 connectors to deliver ELA sessions. Upon completion of the DREAMS primary package, all AGYW aged 16 years and above were eligible and offered enrollment in ELA. Those who accepted and consented were enrolled in the comprehensive 13-week program designed to break the cycle of gender-based vulnerabilities and poverty by enhancing the AGYW's skills, knowledge, and economic opportunities. The curriculum empowers AGYW to choose career paths, establish businesses, and access vocational training, and utilizes coaching and street businesses to provide advanced financial literacy

education, including finding capital, assessing business viability factors, saving group formation, and book keeping.

Between October 2021 and September 2022 (FY22), 9,032 AGYW completed ELA, and the number increased the next year to 13,492 between October 2022 and September 2023 (FY23). The total number of AGYW participating in savings groups rose from 12,956 in FY22 to 13,450 in FY23. The total number of AGYW running income generating activities across both years was 2,388, with 353 (14.8%) receiving start-up support, 369 (15.5%) receiving vocational skills support, and 20 were employed after receiving vocations skills support.

ELA was effective at creating economic opportunities for AGYW in DREAMS. The intersectionality of economic hardships and HIV risks emphasizes the urgent need for comprehensive interventions, such as ELA, that address socio-economic determinants to empower AGYW in Zambia.

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## Female-Bodied Queer People: Populations Left Behind in Kenya's HIV Response

**Walters R<sup>1</sup>**, Mc'Oveh C<sup>2</sup>, Kidali M<sup>2</sup>, Ominde H<sup>2</sup>

<sup>1</sup>Positive Vibes Trust, Cape Town, South Africa, <sup>2</sup>PEMA Kenya, Mombasa, Kenya

Lesbian, bisexual women and transgender men in East Africa face barriers to HIV prevention and care: vulnerability to poverty and violence; stigma from conservative gender norms in patriarchal societies; low knowledge about HIV risk and prevention; epidemiological presumption of low risk that informs poor design of client-centred services and poor supply of prevention commodities; limited integration of comprehensive sexual and reproductive health services into HIV programming; and restrictive legislation.

In 2020, through the Advancing Holistic Healthcare for the LGBT Community in Mombasa ("Touch+"), PEMA Kenya worked with fifteen facilities in Likoni, Kisauni, Nyalii, Changamwe, Jomvu, and



Mvita to link 90% of HIV-positive LGBTIQ+ clients to care and treatment, and to achieve 90% reduction in reported violence towards LGBTIQ+ people by their partners and law enforcement. By 2022, 4334 LGBTIQ+ respondents presented for services; 351 (8%) and 4 (0,09%) were lesbian and bisexual women, and trans men, respectively.

Between 2021 and 2023, PEMA Kenya investigated the underrepresentation of female-bodied queer people in HIV services through focus groups using the Looking In, Looking Out methodology; dialogues with 671 healthcare workers; and, through the Setting The Levels methodology, monitoring three facilities offering Key Populations' services.

Findings indicate that:

46% of focus group participants had never visited public health facilities for HIV services, feeling unsafe to disclose their identities.

80% expressed fear owing to Sections 162 and 165 of Kenya's Penal Code.

78% of healthcare workers claimed insufficient understanding of sexual and reproductive health needs of queer women and transgender men; 81% did not know the difference between "LGBTIQ" people and "Key Populations".

Queer female-bodied persons were disproportionately less likely to find suitable services than were men who have sex with men. They were unattracted to facilities that offered HIV services without breast and cervical cancer services, or supportive responses for gender-based violence.

Queer women were ineligible for free HIV services to Key Populations unless they registered as sex workers on facility intake forms.

The end of AIDS in Africa cannot be realised while these populations remain invisibilised, restricted from equitable access to dignified healthcare by structural barriers, social stigma, and programmatic exclusion.

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## Factors Associated with High Uptake of Sexual Reproductive Health Rights Services Among Adolescent Girls and Young Women to Reduce Vulnerability to HIV: Lessons from DREAMS Program in Zimbabwe, 2023

Mudzengerere F<sup>1</sup>, Mafaune H<sup>1</sup>, Dhakwa D<sup>1</sup>, Yogo K<sup>1</sup>, Mudokwani F<sup>1</sup>, Nyamwanza B<sup>2</sup>, Madzima B<sup>2</sup>, Yekeye R<sup>2</sup>, Masoka T<sup>1</sup>, Muchedzi A<sup>1</sup>, Tafuma T<sup>1</sup>, Bhatasara T<sup>3</sup>, Mutseta M<sup>4</sup>, Tachiwenyika E<sup>1</sup>

<sup>1</sup>Zimbabwe Health Interventions, Harare, Zimbabwe, <sup>2</sup>National AIDS Council, Harare, Zimbabwe, <sup>3</sup>United States Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Ministry of Health and Child Care, Harare, Zimbabwe

**Background:** Eastern and southern Africa accounts for two-thirds of new HIV infections among 25-24-year-old adolescent girls and young women (AGYW). Among the key drivers of vulnerability to HIV are gender-based violence, low levels of education, and low uptake of sexual reproductive health and rights (SRHR). Zimbabwe among other African countries is implementing the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) programme to reduce HIV incidence among AGYW. The program refers and promote uptake of SRHR services among AGYW. Between October 2022 and September 2023, 91% (21,129/ 23,277) vulnerable AGYW referred for SRHR services accessed the services. We assessed factors associated with high uptake of SRHR services among AGYW referred through the DREAMS program.

**Materials and Methods:** We conducted a cross sectional study among AGYW aged 9-19 years enrolled in the DREAMS program from the 1st of October 2022 to the 30th of September 2023. Data were collected from randomly selected AGYW using structured questionnaires within Kobo Collect; study was conducted across all 9 Zimbabwe Health Interventions (ZHI)-supported high HIV burdened districts. Data were analysed using STATA generating descriptive statistics and measures of association. Study received ethics approval from Medical Research Council of Zimbabwe (MRCZ/A/2933).



**Results:** Of the 2,143 AGYW interviewed, 32.1% were aged 15-19 years, 3.8% were married, and 74% were in-school. About 92% (596/648) AGYW who were referred for SRHR accessed the services and of these, 76% (454/596) were in-school and 3.6% (22/596) were married. AGYW who were out of school were less likely to access SRHR services than those in-school [COR= 0.589; 95% CI (0.40; 0.87)]. Also, AGYW who were single and widowed were less likely to access SRHR services than those who were married [COR= 0.53; 95% CI (0.30; 0.93)].

**Conclusions:** SRHR service uptake was high among eligible AGYW, however those out of school and either single (never married) or widowed were less likely to receive SRHR services they were referred for. We recommend targeted interventions for out-of-school and single/widowed AGYW to match their counterparts.

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## Newly Diagnosed Pregnant Women Living with HIV and Factors Associated with Same-day Antiretroviral Treatment Initiation, 2019 to 2023: Findings from the National HIV Case Surveillance of Zimbabwe

Moyo B<sup>1</sup>, Lee F<sup>2</sup>, Andaifasi P<sup>1</sup>, Dzangare J<sup>1</sup>, Mhangara M<sup>3</sup>, Mutsigiri-Mrewanhema F<sup>4</sup>, Marimo N<sup>1</sup>, Muzamhindo M<sup>5</sup>, Muserere C<sup>4</sup>, Dinh T<sup>2</sup>

<sup>1</sup>Zimbabwe Technical Assistance, Training & Education Center for Health, Harare, Zimbabwe, <sup>2</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Atlanta, United States, <sup>3</sup>U.S. Agency for International Development, Harare, Zimbabwe, <sup>4</sup>Zimbabwe Technical Assistance, Training & Education Center for Health (ZimTTECH), Harare, Zimbabwe, <sup>5</sup>Division of Global HIV & TB (DGHT), U.S. Centers for Disease Control and Prevention, Harare, Zimbabwe

**Background:** Same-day antiretroviral treatment (ART) initiation (SDARTI) can rapidly suppress HIV viral load (VL) to reduce mother-to-child HIV transmission (MTCT) risk. We described characteristics and the factors associated with SDARTI of newly diagnosed (nDx) pregnant women living with HIV (PWLHIV) aged > 15 years from October 2019 to September 2023.

**Materials and Methods:** We extracted data from the national HIV case surveillance (NCS). Of the 7,860 PWLHIV aged > 15 years, 7,740 (98%) were diagnosed during the study period. We excluded 347 PWLHIV on ART or with a VL test before the reported diagnosis date. Binominal logistic regression models were used to estimate the adjusted odds ratio (aOR) and 95% confidence intervals (95% CI) of factors associated with SDARTI.

**Results:** We analyzed data from 7,393 nDx-PWLHIV from 44 districts throughout 10 provinces in Zimbabwe. Most nDX-PWLHIV were aged 15-24 years (48%), married/cohabitant (87%), and received secondary education (83%) at the time of diagnosis. Before HIV diagnosis, 56% of women had an HIV-negative test result. The majority (90%) of nDx- PWLHIV were initiated ART, and of these, 97% were SDARTI. The proportion of SDARTI increased from 61% in Quarter-4, 2019 to 92% in Quarter-2, 2021 and decreased through Quarter-3, 2023 to 80%. (Figure 1) SDARTI was associated with nDx-PWLHIV who had an HIV-negative test result before diagnosis (aOR 1.35; 95% CI 1.18–1.54), had no sign of tuberculosis at diagnosis (aOR 2.32; 95% CI 1.21–4.09), or had no tuberculosis screening result (aOR 9.64; 95% CI 8.29–11.23); age, marital status and education level were not associated with SDARTI.

**Conclusions:** Zimbabwe is moving towards MTCT elimination goal with 90% of PWLHIV receiving ART but only 87% getting SDARTI. Encouraging pregnant women to receive HIV testing often and early could increase SDARTI acceptance. Future studies on associations between tuberculosis with early ART initiation and MTCT might help improve the effectiveness of MTCT prevention.





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## Characteristics of Sexual Assault Survivors at Ogun State Sexual Assault Referral Centre; Implication for HIV Transmission

Gbadebo A<sup>1</sup>, Jayesimi E<sup>1</sup>, Orelaja O<sup>2</sup>

<sup>1</sup>Olabisi Onabanjo University Teaching Hospital, Sagamu., OOUTH, Sagamu., Nigeria, <sup>2</sup>Ogun State Ministry Of Women Affairs, Abeokuta, Nigeria

**Background:** Despite the high prevalence of sexual assault globally, survivors in the Sub-Saharan Africa rarely present for care, and when they do they come after the 72-hour window period for accessing post exposure prophylaxis (PEP) for HIV, hence increasing the risk of heterosexual transmission of HIV. This study aims to report the characteristics of sexual assault survivors that were managed at the Ogun State Sexual Assault Referral Centre (SARC); and implication for HIV transmission.

**Materials and Methods:** This is a retrospective study of survivors of sexual assault that presented at Ogun State SARC. Data was retrieved from facility case files and analyzed using SPSS Version 23.0. Informed consent and confidentiality were ensured.

**Results:** A total of 83 sexual assault survivors accessed the services at Ogun State SARC between October 2021 and November 2023. All survivors in the study were female, and were between the ages of 2 years and 54 years. The mean age was 18.8 ±11.3 years, and survivors were highest in the age group 11-20 years (53%). The most reported variant of sexual assault was defilement (64%). Sexual act was without protection in 72% of cases, and was committed by more than one perpetrator in 8.4% of cases. Only 56% survivor presented within 72 hours of assault and were able to access HIV PEP.

**Conclusions:** The majority of survivors of sexual assault in this study were adolescents and young female adults with most of them accessing care after the 72-hour window for commencement of PEP. As such, there is a need for increased awareness among this age groups about sexual assault and the activities of SARC in providing care

for survivors of such assault in order to minimize the risk of HIV transmission.

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## Transformative Benefits of Integrating Mental Health Services for AGYW Within the DREAMS Programming: An Integrated Service Delivery Model on the USAID CHEKUP II's Initiative in Kapiri Mposhi District, Central Zambia

Kasonde K<sup>1</sup>, Kaonga C<sup>1</sup>, Banda J<sup>1</sup>, Shitima P<sup>1</sup>

<sup>1</sup>John Snow Health, Lusaka, Zambia

**Background:** Adolescent girls and young women (AGYW) in Zambia face a lot of intersecting challenges, ranging from neglect, broken homes, orphanhood, teen pregnancy, poverty, alcohol and drug abuse, sexual gender-based violence, school dropouts, sex work, inconsistent condom use, which make them most vulnerable to HIV acquisition. According to UNAIDs (2021), approximately 9.1% of AGYW aged 15-24 are living with HIV in Zambia. By addressing AGYW challenges in silos, we risk failing to deal with underlying factors affecting their well-being. We aimed to ascertain the significance of an integrated service delivery model in the DREAMS Initiative.

**Materials and Methods:** Between October 2022 and September 2023, the USAID Controlling HIV Epidemic for Key and Underserved Populations (CHEKUP II) Activity implemented by JSH, carried out an integrated service delivery model incorporating mental health in DREAMS programming. Trained mentors and teen connectors screened AGYW aged 10-24 for anxiety using the Generalized Anxiety Disorder Tool(GAD-7), depression using the Patient's Health Questionnaire Tool (PHQ-9), suicide using the Suicide Safety Assessment, and alcohol and substance abuse using the Cut, Annoyed, Guilty and Eye (CAGE- Aid Questionnaire) at various service points. AGYW received one-on-one therapy, group sessions, Psychological First Aid,



and referred for further management at the government health facility, based on their scores and unique needs.

**Results:** A total of 1,789 AGYW were screened for mental health out of an annual target of 1,092, signifying an achievement of 164%. Of those screened, 178 enrolled in mental health group sessions, 27 received one-on-one therapy sessions, 1,611 received Psychological First Aid, and 2 were linked for further management at the government health facility. This approach simultaneously addressed the intersecting challenges AGYW went through, leading to more effective and personalized care.

**Conclusions:** When an AGYW is in good space mentally, they are more likely to benefit from other interventions provided for them. Integration of mental health and psychosocial support in DREAMS Programming is essential for promoting the holistic well-being of AGYW and enhancing the overall effectiveness of the initiative in preventing new HIV acquisitions, supporting AGYW as they navigate through adolescence, and providing them with comprehensive support for their diverse needs.

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## Sex and Safety: Examining HIV Risks amongst Adolescent Girls Who Are in Sexual Relationships with Older Men in Eswatini

**Themba M<sup>1</sup>**

<sup>1</sup>Young Heroes Organisation, Hhohho, Eswatini

**Background:** Sex is a normal pleasurable healthy part of life, however, it can also be a health risk. Studies conducted in several sub-Saharan African countries have revealed inter-generational sex is an important driver of HIV/AIDS among young women. Phila Unotse project implemented by Young Heroes Organization supports the government of Eswatini to prevent new HIV infections and reducing the HIV vulnerabilities among young children and adolescent girls (AGYWs).

**Objective:** To examine the HIV associated HIV risks of Phila Unotse enrolled adolescent girls who were in sexual relationships with older men at time of enrolment in the project.

**Materials and Methods:** Descriptive and regression analysis were performed on secondary routine data collected from January 2023 to September 2023 within ongoing implementation of Phila Unotse project. Trained Mentors identify AGYWs in their communities and provide enrolment consents where an HIV risk assessment is administered. 1437 AGYWs responded to the question on “being in sexual relationship with men 10 years older”. Variables included in the model were, Age of AGYW, sexual abuse experience, STI experience, unprotected sex exposure, drug abuse and relation with older men being the dependent variable.

**Results:** 169/1437 (12%) were in sexual relationship with older men. 15% of those had STI experience against 2% from those in other relationships. 15% of those had STI experience against 2% from those in other relationships, 77% had unprotected sex against 48% in other relationships and 41% experienced sexual abuse against 3% from other relationships. Results from regression analysis being in sexual relationship with older men was associated with increased chances of having unprotected sex (Odd ratio 0.046, 95% CI 0.014 to 0.059,  $p < 0,0050$ ). Variables like sexual abuse, age, STI experience were not significant at 95% interval.

**Conclusions:** AGYWs in intergenerational relationships face high risks of unprotected sex and sexual abuse than AGYWs in other relationships. There is urgent need for evidence based new HIV interventions targeting AGYWs and old men with HIV information and health rights.



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## The Gendered Limits to “E” in DREAMS: A Narrative Analysis of Beneficiaries’ Agency in Sexual Relationships Before, During, and Following DREAMS Participation

Stoebenau K<sup>1</sup>, Mwamba M<sup>2</sup>, Mwale M<sup>3</sup>, Maambo C<sup>3</sup>, Muchanga G<sup>3</sup>, Toussaint T<sup>1</sup>, Kashyap A<sup>1</sup>, Alvarez-Peralta M<sup>1</sup>, Bwalya C<sup>1</sup>, Baumhart C<sup>4,5</sup>, Muleya C<sup>6</sup>, Mwila A<sup>6</sup>, Claassen C<sup>3,4,5</sup>

<sup>1</sup>University of Maryland College Park, College Park, USA, <sup>2</sup>Ciheb Zambia, Lusaka, Zambia, <sup>3</sup>Maryland Global Initiatives Corporation Zambia, Lusaka, Zambia, <sup>4</sup>Center for International Health, Education, and Biosecurity, University of Maryland School of Medicine, Baltimore, USA, <sup>5</sup>Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA, <sup>6</sup>U.S. Centers for Disease Control and Prevention, Division of Global HIV and TB, Lusaka, Zambia

In countries across sub-Saharan Africa (SSA), adolescent girls and young women (AGYW) remain at disproportionate risk of HIV, including in Zambia. The combination HIV prevention program DREAMS—or Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe—aims to prevent HIV among AGYW in high HIV prevalence SSA contexts. The DREAMS theory of change suggests that through layered programming addressing the community, family, and the beneficiary, AGYW who choose to have sex will engage in protected, more equitable sexual relationships. Therefore, to understand the effectiveness of DREAMS, it is important to assess whether and how DREAMS programming influences AGYW’s sexual relationship dynamics.

We conducted a qualitative case-study evaluation of DREAMS in Zambia across three purposively selected sites (April–July 2023). We conducted semi-structured interviews (SSI), focus groups (FGDs) and community/program observations with AGYW beneficiaries (n=55) and non-beneficiaries (n=11) ages 16–21, and program implementers (n=51). The SSI with AGYW included a romantic life history calendar, asking participants to detail their romantic and sexual relationships over time. We used narrative analysis with Atlas.ti (v23) – summarizing and comparing the chronology and context of participants’ sexual relationships vis-à-vis the timing of DREAMS participation— to

compare accounts by beneficiary status and exposure to DREAMS.

Beneficiaries described improved understanding of the importance of HIV testing, condom use, and women’s rights. Specifically, AGYW described learning they had the right to decide when and under what conditions they had sex. However, beneficiaries’ descriptions of their sexual relationships demonstrate ongoing limitations to act on these lessons. AGYW’s narratives suggest some evidence of improved engagement in HIV testing with their partners following DREAMS participation; however, the narratives suggest little change in the gender power dynamics within their relationships, including on condom use, regardless of exposure-level to DREAMS, or in comparison to non-beneficiaries. AGYW’s matter-of-fact recounting of unequal sexual decision-making in their relationships demonstrates intrapersonal and interpersonal limits to empowerment messages within broader patriarchal contexts.

While DREAMS has provided important tools to AGYW beneficiaries, without addressing men and boys more directly, it may continue to fall short of the gender transformative change needed to substantially lower AGYW’s risk to HIV in ongoing gender-inequitable relationships.

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## La Femme Séropositive au VIH et le Mariage

Fougla D<sup>1</sup>, ARMEL P<sup>1</sup>, JACQUES Z<sup>1</sup>, DOGBEPONE S<sup>1</sup>, DIAMASSO S<sup>1</sup>, GLOLO P<sup>1</sup>

<sup>1</sup>Hopitalde Jour Adulte Chuss Bobo Dioulasso, Bobo Dioulasso, Burkina Faso

Le VIH/SIDA est longtemps connu comme une maladie liée au sexe de par son mode de transmission si bien que certaines personnes pensent qu’il est impossible pour la femme séropositive de se marier. C’est ainsi que l’hôpital du jour adulte du Centre Hospitalier Universitaire Souro SANOU (CHUSS) de Bobo-Dioulasso a initié une enquête auprès des femmes séropositives pour savoir l’impact du statut sérologique sur le mariage.



L'hôpital de jour, avec une file active d'environ 3000 personnes dont plus de 60% de femmes a initié une enquête auprès de 120 femmes de moins de 30 ans et célibataires qui a consisté à évaluer leur statut matrimonial après sept ans de suivi sous traitement antirétroviral de 2016 à 2023 et les raisons de l'acceptabilité de leur statut par leurs partenaires. Elles ont été réparties en trois groupes :

- Le Groupe 1 : les adolescentes nées séropositives (transmission verticale) ;
- Le Groupe 2 : les filles qui ont découvert leur sérologie dans leur jeune âge et sans être mariée ;
- Le Groupe 3 : les jeunes femmes séparées de leurs maris soient par décès du conjoint soit par un autre motif ;

A la fin de l'enquête, 70,22 % des 120 femmes étaient admises au mariage et réparties comme suit :

- Groupe 1 : 86,20% de mariages : Les raisons qui ont favorisé leur mariage étaient entre autres le partage honnête de leur statut, la bonne gestion de leur sexualité, leur niveau intellectuel élevé ;
- Groupe 2 : 56,46% de mariages : ce faible taux de mariage s'explique par la peur du refus après s'être dévoilée au prétendant ; la mauvaise gestion de la sexualité ;
- Groupe 3 : 68% de mariages qui s'expliquent par leur remariage avec des partenaires séropositifs et le refus de se remarier pour d'autres.

En conclusion, la séropositivité d'une femme n'est pas un frein au mariage. Des facteurs non liés au VIH peuvent influencer cela. Donc, nous avons recommandé aux jeunes femmes d'être plus responsables et honnêtes dans leurs relations.

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## Evaluating Interventions Promoting Mental Health and Well-Being of Pregnant Women Living with HIV/Aids in Sub-Saharan Africa: A Systematic Review

**Abdussalam B<sup>1</sup>**, Adewale R<sup>2</sup>, Alhassan Y<sup>1</sup>, Bello M<sup>1</sup>  
<sup>1</sup>Ahmadu Bello University, Zaria, Nigeria, <sup>2</sup>Near East University, Nicosia, Cyprus



**Background:** Pregnant women living with HIV/AIDS (PWLHA) face a unique psychological distress that extend beyond the complexities of pregnancy. Evidence from other regions suggest that targeted mental health interventions can improve mental health symptoms, adherence to PMTCT and quality of life. However, a little is known about the effectiveness of mental health interventions for PWLHA in Sub-Saharan Africa (SSA) despite having a larger proportion of women of reproductive age group living with HIV/AIDS. This systematic review aims to synthesize findings from mental health interventions trials for PWLHA in SSA to inform the delivery of mental health services in these settings and promote the mental health and well-being of these demographic.

**Materials and Methods:** Following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, a systematic search was conducted across PubMed, Science direct, Cochrane Library, PsycINFO and Africa Online Journal to identify peer-reviewed published papers of intervention trials addressing mental health problems among PWLHA in SSA. The search was not limited by the publication year. Search results were assessed against pre-established inclusion and exclusion criteria. Of the five databases search, 137 studies were identified with 2 studies meeting the inclusion criteria. Data from studies meeting criteria were extracted for synthesis.

**Results:** The two papers identified described 2 unique interventions. The studies were randomized control trials conducted in Tanzania and Malawi. The Tanzanian study employed Interactive Group Counselling led by nurse-midwife while the Malawian study used Enhanced Friendship Bench intervention which is delivered using task-shifting approach. The content of interventions and length of follow-up differs substantially between the two studies. Both studies reported improved mental health symptoms. Also, the Malawian study revealed that there was improved retention in HIV care and viral suppression.

**Conclusions:** This review demonstrates the need for methodologically sound studies of mental health interventions for PWLHA in SSA. Therefore, we call for increased partnerships and collaborations between policymakers, practitioners, researchers and communities affected by HIV/AIDS in order to design interventional studies promoting the mental

health and well-being of PWLHA in SSA. Also, promising interventions must be further developed and adapted to meet peculiarities of PWLHA.

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## Going Down: The Widening Gap for Queer Women Left Behind in Africa's HIV Response

**Walters R**<sup>1</sup>, Ntshuntsha Z<sup>1</sup>, Chard M<sup>2</sup>, Mothopeng T<sup>3</sup>, Tanhara F<sup>2</sup>, P'ochan T<sup>4</sup>, Nyandat L<sup>5</sup>, Wolman J<sup>6</sup>  
<sup>1</sup>Positive Vibes Trust, Cape Town, South Africa, <sup>2</sup>Rise Above Women's Organisation (RAWO), Harare, Zimbabwe, <sup>3</sup>The People's Matrix Association, Maseru, Lesotho, <sup>4</sup>Resilience Uganda, Gulu, Uganda, <sup>5</sup>Nyimine Empowerment Community Based Organisation (NYECBO), Bondo, Kenya, <sup>6</sup>Voice of Hope Foundation, Swakopmund, Namibia

54% of PLHIV are women. 79% of new infections in 10–19 year-olds in East/Southern Africa were female. (UNAIDS;2019, 2022). Responses necessarily prioritise young women, pregnant and breastfeeding women, and female sex workers through interventions tacitly premised on heteronormative assumptions while lesbian, bisexual and other queer women are ignored. Since 2021, Positive Vibes has supported LGBTIQ people, sex workers, women and young girls, and PLHIV in Botswana, Lesotho, Kenya, Namibia, Nigeria, Uganda, Zambia and Zimbabwe to monitor access and quality of health services. Qualitative analysis through "Setting The Levels" complements quantitative data around 11 proxy-indicators of satisfaction through ma'Box, an online client feedback platform. By January 2024, over 600 users in 60 facilities have participated in STL; 9600 users have contributed to ma'Box . In 2021 and 2022, partners analysed policy, programme and budget commitments in HIV Strategic Plans (NSP) and PEPFAR COP Guidance respectively.

**Lessons Learnt:** Queer women are invisible. Only 1 NSP refers to LBQ women. COP-22 Guidance makes 240 references to "MSM" , "AGYW" , "FSW" , and none to LBQ women. Decision-makers presumptively dismiss queer women as "epidemiologically insignificant" , despite their gendered social context of patriarchy and poverty.

In Maseru (2022) 30% of HIV+ respondents were queer women. In Mbarara, queer women consistently recorded disproportionately poor user experiences (50% 1-star rating) compared to heterosexual female sex workers (5-10% 1-star rating) at the same facilities (October 21 - March 22). Data from Swakopmund (2023) indicates 12% of sex workers are queer women. Queer women suffer violence well-established to increase vulnerability; have poor access to information or prevention commodities; are underreached with services promoted amongst heterosexual peers; face judgement and invasive questions from healthcare workers; are denied access to facilities based on attire and presentation; are interrogated when requesting PreP or family planning; lie about their identity to qualify for services available to other women.

Service uptake by LBQ women is poor because differentiated services are unavailable. Despite rhetorical commitments to equity, diversity, inclusion and person-centredness, gender inequality subsists in programming, policy and budgeting that make no substantive recognition of yet another group of women casually and callously left behind.

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## A Mixed Methods Study of Zimbabwean WLHIV Who Decline Cervical Cancer Screening: Informing the Transition to HPV Testing

**Manyanga P**<sup>1</sup>, Vasavada A<sup>2</sup>, O'Bryan G<sup>2</sup>, Petracca F<sup>2</sup>, Gondongwe L<sup>3</sup>, Malaba R<sup>4</sup>, Nyika P<sup>4</sup>, Makunike B<sup>1</sup>, Gonese G<sup>1</sup>, Wiktor S<sup>2</sup>, Thomson K<sup>2</sup>  
<sup>1</sup>Zimbabwe Technical Assistance, Training & Education Centre for Health (Zim-TTECH), Harare, Zimbabwe, <sup>2</sup>International Training and Education Center for Health (I-TECH), University of Washington, Seattle, United States, <sup>3</sup>Zimbabwe Ministry of Health and Child Care (MoHCC), Harare, Zimbabwe, <sup>4</sup>Division of Global HIV and TB (DGHT), U.S. Centers for Disease Control and Prevention (CDC), Harare, Zimbabwe., Harare, Zimbabwe

**Background:** Zimbabwe is transitioning from annual visual inspection with acetic acid and cervicography (VIAC) to more sensitive and less frequent human papillomavirus (HPV) testing every three years for cervical cancer screening of



women living with HIV (WLHIV). To inform counseling and screening procedures that accompany HPV testing, we assessed reasons WLHIV decline VIAC.

**Materials and Methods:** Between March and July 2023 29 WLHIV from three public sector HIV clinics completed both a questionnaire on reasons for declining VIAC and an in-depth interview (IDI) with a qualitative interviewer. Descriptive statistics were generated using R statistical software, version 2022.07.2. Verbatim IDI transcripts were coded in Dedoose by two analysts using inductive and deductive codes, a thematic analysis was used to identify common themes with supporting quotes.

**Results:** Median age of WLHIV declining VIAC was 37.5 years (IQR: 25.8-45.3). Nearly all (96.6%) were on antiretroviral therapy and the majority (72.4%) were aware of their HIV status for  $\geq 5$  years. Approximately half (53.6%) of respondents had never been screened for cervical cancer. The primary reason for declining VIAC was physical discomfort from a pelvic exam (51.7%). This was elaborated in IDIs as discomfort from screening process and from use of speculums that they had either experienced personally or heard about from peers. "I felt pain for days after screening...when they removed that metal object it felt like something was left stuck inside". Respondents described a low perceived risk of acquiring cervical cancer coupled with a belief that treatment was futile. "In the community, whenever we discuss [screening], it is always negative and we instill a lot of fear in each other; people discourage each other from getting screened. They say if it happens that you get sick later it's better to deal with it [cancer] when it occurs."

**Conclusions:** Pelvic exams will remain a part of the cervical cancer cascade to guide treatment among HPV-positive women. Refresher training for healthcare workers on sensitizing clients for pelvic exams and appropriate clinical technique is needed. Client-centered education must acknowledge prior screening and treatment experiences, addresses misperceptions, and fully explain the benefits of early detection

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## Comparison of Antenatal Care Services Attendance Between Mothers with and Without HIV Delivering at Four Major Hospitals in Kampala, Uganda

**Mumpe-Mwanja D<sup>1</sup>**, Namalinzi F<sup>1</sup>, Serunjogi R<sup>1</sup>, Kimbugwe D<sup>1</sup>, Nassuna G<sup>1</sup>, Namale-Matovu J<sup>1</sup>, Mwambi K<sup>2</sup>, Monalisa-Mayambala Namukanja P<sup>2</sup>, Qi Y<sup>3</sup>, Mai C<sup>3</sup>, Williams J<sup>3</sup>, Delaney A<sup>4</sup>, Musoke P<sup>1,5</sup>

<sup>1</sup>Makerere University - Johns Hopkins University Research Collaborationn, Kampala, Uganda, <sup>2</sup>US Centers for Disease Control and Prevention, Global Health Center, Division of Global HIV & TB, Kampala, Uganda, <sup>3</sup>National Center on Birth Defects and Developmental Disabilities, CDC, Atlanta, USA, <sup>4</sup>Division of Global HIV and TB, US Centers for Disease Control and Prevention (CDC), Atlanta, USA, <sup>5</sup>Department of Paediatrics and Child Health, School of Medicine, Makerere University College of Health Sciences, Kampala, Uganda

**Background:** Antenatal care (ANC) provides a critical entry point for HIV testing of pregnant women and subsequent provision of prevention of mother-to-child transmission services. We sought to examine ANC service attendance among pregnant women living with HIV (WLWH) and pregnant women living without HIV (WLWOH).

**Materials and Methods:** We analyzed data from a hospital-based birth defects surveillance system at four hospitals in Kampala, Uganda from August 2015–December 2022. ANC attendance, HIV status, age, parity (number of births >28 weeks of gestation a woman has had, categorized as primiparous =1, multiparous =2-4, grand multiparous =5+), and ART status for the WLWH were analyzed using STATA17. The difference in ANC attendance by HIV status was evaluated using the Mann-Whitney test. ANC attendance was categorized as attended or did not attend the recommended ANC visits, per the country's adoption of the World Health Organization (WHO) recommendations (>4 for Aug 2015 – 2020, >8 for 2021-2022). Factors with  $p < 0.2$  in the Chi-square test were included in multivariable logistic regression of attending recommended ANC.

**Results:** A total of 230,046 women were included: 17,899(7.8%) WLWH and 212,147(92.2%) WLWOH. Among WLWH, 5,452(30.5%) attended the recommended ANC visits versus 62,515(29.5%) WLWOH ( $p < 0.01$ ). Among WLWH, recommended



ANC attendance were associated with maternal age [<20yrs (AOR:0.67, 95%CI:0.57-0.80), 30-34yrs (AOR:0.88, 95%CI:0.80-0.96), 35+ (AOR:0.83, 95%CI:0.74-0.92) versus 25-29yrs]; parity [primiparous (AOR: 1.44, 95%CI:1.30-1.59), grand multiparous (AOR:0.90, 95%CI:0.82-0.99)] versus multiparous; ART use [Yes (AOR:2.28, 95%CI:1.87-2.76)] versus No. Among WLWOH, recommended ANC visits attendance were associated with maternal age [<20yrs (AOR: 0.59, 95%CI:0.56-0.61), 20-24yrs (AOR: 0.87, 95%CI:0.85-0.89), 30-34yrs (AOR: 0.97, 95%CI:0.94-0.99), 35+ (AOR: 0.94, 95%CI: 0.91-0.98) versus 25-29yrs] and parity [primiparous (AOR:1.35, 95%CI: 1.32-1.39), grand multiparous (AOR: AOR:0.80, 95%CI:0.77-0.83) versus multiparous].

**Conclusions:** Attendance of the recommended ANC visits is generally low (about 30% overall) among pregnant women regardless of HIV status. WLWH on ART, primiparous WLWH, and primiparous WLWOH were more likely to attend the WHO-recommended visits. Prioritizing strategies to improve ART care integration with ANC services would help to achieve the WHO-recommended ANC visits among WLWH. Improving ANC attendance among multiparous women, especially among grand multiparous women, may also be considered to improve overall ANC attendance.

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## Prevalence of HIV among Pregnant Traditional Birth Homes Attendees in Calabar, Nigeria

Fele S<sup>1,2,3</sup>

<sup>1</sup>Dami Diagnostic Laboratory, Calabar, Nigeria, <sup>2</sup>Prof. Lydia Abia-Bassey, Calabar, Nigeria, <sup>3</sup>Prof. A. A. Alaribe, Calabar, Nigeria

Sexually transmitted infections especially Human Immunodeficiency Virus (HIV), are associated with profound complications in pregnancy and its adverse outcomes. This study was set out to determine the prevalence of HIV among pregnant women attending traditional birth homes in Calabar (test subjects) as a measure of the level of health care obtainable in these facilities. Ethical approval and informed consent were obtained for

all participants and questionnaires were administered to assess their socio-economic and demographic characteristics. Samples of venous blood were collected from three hundred and seventy two (372) pregnant women attending traditional birth homes (test subjects) and from hundred (100) pregnant women attending antenatal clinics in Calabar (control subjects). The blood samples were subjected to HIV 1 and 2 screening using Determine and Unigold while Stat-Pak was used as tie breaker. Out of the 372 test subjects and 100 control subjects examined, the percentage of HIV infection found in the test group was (8.1%) and in the control group was (4.1%). The age of the subjects, trimester of pregnancy, marital status, parity, circumcision and occupation were all significantly associated ( $P < 0.05$ ) with infection occurrence and distribution while educational status was not linked with infection occurrence ( $P > 0.05$ ). The high prevalence of 8.1% in the test group which double that of the control group is worrisome as they may be an effective reservoir in the transmission of the infection. Sadly, these huge group of people patronizing these homes are not usually included in the numerous HIV surveys carried out in the country and due to poor economy do have a lot of patronage and could act as pool of infection. Therefore their inclusion in the national health plan of routine mandatory and early screenings of all pregnant women in these facilities cannot be overemphasized as this will help reduce the incidence of adverse maternal and perinatal outcomes associated with HIV infection.

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## Analysing Antenatal Care Uptake: Patterns, Disparities, and Interventions Among mothers2mothers Clients across Five African Countries (Ghana, Kenya, Lesotho, South Africa, Zambia) from 2021-2023

Moleko M<sup>1</sup>, Makhupula L<sup>1</sup>, Chirawu P<sup>1</sup>, Schmitz K<sup>1</sup>  
<sup>1</sup>mothers2mothers, Cape Town, South Africa



**Background:** Early uptake of Antenatal Care (ANC1) is crucial for maternal and child health, including the prevention, detection, and management of pregnancy-related complications. For HIV-positive women, it enables timely initiation of antiretroviral therapy to prevent vertical transmission of HIV and ensures vigilant health monitoring throughout pregnancy. mothers2mothers (m2m) uses strategies such as health education, psychosocial support at community gatherings and home visits, and facilitating referrals to promote early access to ANC1 services. The Peer Mentor model employs experienced women living with HIV to create a supportive environment for expectant mothers.

**Materials and Methods:** In a retrospective analysis, we examined routine program data related to ANC1 uptake among pregnant women in m2m's programs across five countries from January 2021 to December 2023. Our approach integrated comparative and descriptive analyses, focusing on patterns in ANC1 uptake. Key variables considered included gestational age at enrolment, HIV status, and prior engagement with community-based m2m Peers Mentor before the initial clinic visit. Additionally, we compared mean gestational age at ANC1 stratified by HIV status.

**Results:** 99,448 pregnant women attended their first ANC1 visit, with 5% newly identified as HIV positive, 17% known to be HIV positive, and 78% testing HIV negative. The average gestational age at ANC1 for all women was 18.93 weeks (CI 18.88-18.98), aligning with the recommended <20 weeks. Comparatively, HIV-negative women had a slightly lower average gestational age at ANC1 18.84 weeks (CI 18.78-18.89), than those with known HIV positive status 19.18 weeks (CI 19.06-19.30) and those testing HIV positive 19.54 weeks (CI 19.34-19.74). 19% had prior contact with community-based peers, averaging a gestational age of 19.68 weeks (CI 19.57-19.78), while 81% without prior contact averaged 18.75 weeks (CI 18.70-18.81).

**Conclusions:** Newly diagnosed HIV-positive women enrolled later compared to known positive and negative women, urging interventions to promote early diagnosis and timely care-seeking. While average gestational age remained within the recommended timeframe for all groups, known and newly diagnosed HIV-positive women enrolled later compared to HIV-negative women. Those seen by community-based Peers enrolled late compared to those enrolling voluntarily. Further research is needed on ANC1 timing factors

especially among newly women diagnosed HIV-positive.

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## Abnormal Cervical Cytology Amongst Women Living with HIV and without HIV in Cape Town, South Africa

Singh Y<sup>1</sup>, Andersen-Nissen E<sup>2</sup>, Orrell C<sup>1</sup>, Bekker L<sup>1</sup>

<sup>1</sup>Desmond Tutu HIV Centre, Institute of Infectious Diseases and Molecular Medicine and Department of Medicine, University of Cape Town, Cape Town, South Africa, <sup>2</sup>Cape Town HVTN Immunology Lab Hutchinson Cancer Research Institute of South Africa, Cape Town, South Africa

**Background:** Women living with HIV (WLHIV) are estimated to have a six-fold increased risk of developing cervical cancer. In South Africa, where HIV prevalence amongst women is highest, cervical cancer is the most detected cancer in WLHIV. Cervical cancer screening policy recommends pap smears at diagnosis, and every three years thereafter for WLHIV. However, uptake in the public sector remains low.

**Materials and Methods:** The CTAC (Cape Town Assay Controls) study prospectively enrolls healthy adults living with and without HIV. Participants provide specimens serving as controls to standardize laboratory assays for HIV vaccine trials. Pap smears are performed at screening and annually thereafter, and more regularly for abnormal cytology. Thirty-nine women enrolled in the CTAC cohort were included in this analysis. Data were stratified by age (18-29 years, and 30 and above) and HIV status. Fisher's exact test was used to determine association.

**Results:** Seventeen of the 39 women were WLHIV (44%); and the median age at enrolment was 37 years [(IQR) 27;45]. WLHIV were more likely to be 30 years or older [56%, (n=15/27) vs 17%, (n=2/12); p=0.024 in the younger group]. Of 126 total pap smears performed over 139 person-years of follow-up, 49 (39%) were abnormal. Atypical Squamous Cells of Undetermined Significance (ASCUS) were most commonly identified (37%, n=18/49), followed by Low-Grade Squamous Epithelial Lesion (LSIL) (10%,





n=5/49) and High-Grade Squamous Epithelial Lesion (HSIL) (6.1%, n=3/49). Forty-nine percent (n=19/39) of women had abnormal pap smears. WLHIV were not more likely to have abnormal cytology compared with women without HIV [47%, (n=8/17) vs. 50%, (n=11/22); p=0.855.] All WLHIV were virally suppressed on antiretrovirals throughout follow-up. Of all women with abnormal pap smears, 32% (n=6/19) [WLHIV, 50% (n=4/8) vs women without HIV, 18% (n=2/11); p=0.319] had more than one abnormal result over follow-up. Two women without HIV had HSIL, with ASCUS abnormality after colposcopy. One woman with HIV had HSIL with cytology being normal post-biopsy.

**Conclusions:** In this small cohort, a high occurrence of abnormal cervical cytology in both WLHIV and women without HIV was observed. A larger study screening for cervical cancer and pre-cancerous lesions is indicated.

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## Strengthening Multi-sectoral collaboration for Zero HIV infections amongst Infants born to HIV Positive mothers, 2nd anniversary of Nabitende sub-county, Iganga(U)

Mbaha C<sup>1</sup>, Omara D<sup>1</sup>, Arinaitwe M<sup>1</sup>, Kawuma S<sup>1</sup>, Semitala F<sup>1</sup>

<sup>1</sup>Makerere University Joint AIDS Program, Iganga, Uganda

### Background:

MoH Uganda in 2014 launched a 4 pronged approach to EMTCT as part of the accelerated global plan to eliminate new pediatric HIV infections and ending HIV/AIDS by 2030. Uganda having registered considerable progress towards reduction of vertical transmission among HIV exposed infants from 12.1% in 2015 to 6.8% in 2021, Nabitende sub-county of East central Region reported 29%(05/17) infant Positivity rate in 2021

through Bugono HC IV, Kasambika HC III, Itanda HC II, Nabitende HC II and Ituba HC II.

Through the HSD committee, we interviewed maternity in charges of Health facilities who reported poor ANC timing, community delivery by mothers and none adherence to ART as the major contributors to the increased HIV transmission rates amongst HIV exposed infants.

**Materials and Methods:** To reduce on the vertical transmission rate in the sub-county, root cause Analysis revealed an interrelation between pregnancy related self-stigma and knowledge gap among mothers on the risk of HIV transmission to the unborn babies if HIV infected.

We mobilized stakeholders that represented implementing partners, local health teams, Mothers, religious and local government leaders for consultation at the sub county headquarters to synergize efforts for the common good. VHTs, TBAs and community mentor mothers were trained to screen for HIV at community level, a communication platform was institutionalized on whatsapp to facilitate sharing of HIV related updates and testing commodities among HCWs in the sub county while Religious and local council leaders use leadership platforms to close knowledge gaps in HTS.

**Results:** Of the 48 HIV Positive mothers enrolled into PMTCT Program in 2022 at the sub- county through its facilities, 37.5%(18) tested positive in early pregnancy with a 0% seroconversion rate by 18 months. In 2023, 42 mothers have so far been enrolled of which 47.6%(20) were new ANC positives but none of them has born a positive 1st DNA PCR baby, this represents a considerable improvement from 17 mothers enrolled into PMTCT in 2021 with 29%(5) testing positive in late pregnancy.

**Conclusions:** Engaging multi-sectoral players to close the knowledge gaps in communities and address stigma on Pregnancy and HIV among women significantly contributes to EMTCT.

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