18th INTERNATIONAL CONFERENCE ON HIV TREATMENT, PATHOGENESIS, AND PREVENTION RESEARCH

(INTEREST 2024)

CONFERENCE REPORT

Cotonou, Benin

14 – 17th May, 2024

CONTENTS

ABBREVIATIONS

ACLHIV: Adolescents and Children Living with HIV

AIDS: Acquired Immunodeficiency Syndrome

ART: Antiretroviral Therapy

bNAbs: broadly neutralizing antibodies

CM: Cryptococcal Meningitis

COVID-19: Coronavirus Disease 2019

CVD: Cardiovascular Disease

DPP: Dual Prevention Pill

DSD: Differentiated Service Delivery

DTG: Dolutegravir

ESA: East and Southern Africa

FASH: Focused Assessment with Sonography for HIV-associated tuberculosis

HPV: Human Papillomavirus

HR-HPV: High-Risk Human Papillomavirus

IHD: Ischemic Heart Disease

INTEREST: International Conference on HIV Treatment, Pathogenesis, and Prevention Research

KP: Key Populations

LAM: Lipoarabinomannan

LLV: Low-Level Viremia

LMICs: Low- and Middle-Income Countries

MSM: Men who have Sex with Men

NCDs: Non-Communicable Diseases

OVC: Orphans and Vulnerable Children

PEPFAR: President's Emergency Plan for AIDS Relief

PLWH: People Living with HIV

PMTCT: Prevention of Mother-to-Child Transmission

PrEP: Pre-Exposure Prophylaxis

RPV: Rilpivirine

SSA: Sub-Saharan Africa

STI: Sexually Transmitted Infection

TB: Tuberculosis

TDF: Tenofovir

UNAIDS: Joint United Nations Programme on HIV/AIDS

U=U: Undetectable Equals Untransmittable

VL: Viral Load

WCA: West and Central Africa

WHO: World Health Organization

INTRODUCTION

The 18th International Conference on HIV Treatment, Pathogenesis, and Prevention Research (INTEREST 2024), held at the Palais des Congrès de Cotonou in Benin from May 14-17, 2024, once again affirmed its position as the leading platform for advancing HIV research, care, and treatment in Africa. With over 860 delegates from 38 countries converging in Cotonou, the conference fostered a vibrant exchange of knowledge and collaboration, emphasizing the critical role of young African researchers in the fight against HIV. The conference was honoured by the presence of Dr. Benjamin Hounkpatin, the Minister of Health of Benin, who recognized INTEREST 2024 as a vital forum for disseminating cutting-edge research, nurturing a community of HIV experts, and empowering the next generation of researchers.
A comprehensive program of 16 sessions, a debate, industry symposia, mentorship opportunities, and skill-building workshops supported the presentation of 759 abstracts, selected from a pool of 1,237 submissions.

Led by a distinguished team of co-chairs – Professor Kwasi Torpey, Dr. Nyaradzo Mgodi, Dr. Cossi Angelo Attinsounon, and Dr. Valentine Kiki-Medegan – and supported by an international conference committee and session chairs, INTEREST 2024 curated a rich and diverse experience for attendees. This report encapsulates the key themes, insights, and recommendations that emerged from the conference's presentations and discussions, providing a valuable resource for researchers, clinicians, policymakers, and advocates engaged in the ongoing effort to combat HIV in Africa.

Conference materials can be accessed via the INTEREST 2024 online app (QR code available) and the INTEREST website.

1. INTEREST 2024: By the Numbers

INTEREST 2024 was attended by 770 in-person delegates from 38 countries.
A total of 1,237 abstracts were submitted of which 759 were accepted (8 oral, 30 mini-orals, and 236 posters, 485 in the abstract book). The number of submitted abstracts reflects a 40% increment from those submitted in 2023 (882) and a 120% increment from 2022 (562 abstracts).

Top 10 countries represented at INTEREST 2024

Country	Number of attendees
Benin	254
Nigeria	66
South Africa	44
Uganda	38
Malawi	32
Cameroon	23
Kenya	21
Zimbabwe	20
Zambia	16
United States	15

Top 10 countries that submitted abstracts to INTEREST 2024

Country	Number of abstracts submitted
Nigeria	182
Zimbabwe	127
Uganda	117
Kenya	114
South Africa	76
Malawi	68
Zambia	53
Mozambique	47
Tanzania	40
Ghana	33

2. The Road to 95-95-95: Progress in HIV Prevention and Treatment Scale-up in Sub-Saharan Africa

While the UNAIDS 95-95-95 targets for 2025 remain a guiding light for the global HIV response discussions, data presented at INTEREST 2024 painted a nuanced picture of the situation in Sub-Saharan Africa (SSA)[1]. Significant progress coexists with persistent challenges, underscoring the need for adaptable and targeted strategies. New HIV infections in East and Southern Africa (ESA) were at 500,000 in 2022, far exceeding the target of 180,000. Several countries, notably South

Sudan, are grappling with substantial setbacks in their HIV prevention efforts. Meanwhile, in West and Central Africa (WCA), rising new infections in Congo, Niger, Mauritania, and Equatorial Guinea underscore the urgency for intensified action [2]. Key populations (KPs), who account for a quarter of new infections in SSA, are facing escalating human rights challenges that hinder their access to prevention and treatment services. Additionally, the HIV response among children and adolescents lags significantly, with alarming rates of unsuppressed viral loads in both ESA and WCA, indicating a critical need for tailored interventions for these vulnerable groups. There is need to invest more in the response to paediatric HIV, ensure equitable access to services, and engage communities to address society and structural barriers [2]. Despite these challenges, SSA has made notable progress: 91% of people living with HIV (PLWH) know their status, 83% are on antiretroviral therapy (ART), and 77% have achieved viral suppression. However, this leaves a substantial gap: 860,000 PLWH unaware of their status, 1.7 million not on ART, and 2.1 million with unsuppressed viral loads [2].

INTEREST 2024 showcased promising strategies to address these challenges. One notable example is the WHO-recommended serial 3-test HIV testing algorithm [3]. A study presented at the conference demonstrated that this algorithm, which involves three sequential tests, significantly reduced the risk of misdiagnosis among 3.7 million individuals tested, while only marginally increasing the cost of testing by 3%[4]. This finding underscores the importance of adopting evidence-based approaches, like this algorithm, to improve the accuracy of HIV diagnoses and ensure that individuals receive the appropriate care and treatment

Benin's success story provides a model for progress in the region. The country has seen a drastic decline in new infections, from 4,000 in 2013 to approximately 1,100, and a significant drop in mortality, from 2,800 to less than 1,600 [5]. These achievements are attributed to the country's robust infrastructure, including 135 treatment centres and 8 dedicated molecular laboratories, as well as a 96% coverage of prevention of mother-to-child transmission (PMTCT) services. Furthermore, a survey conducted in Benin revealed that 98% of respondents were satisfied with the HIV services they received [6]. The country's National Council for the Fight against HIV/AIDS, Tuberculosis, Malaria, Sexually Transmitted Infections and Epidemics underwent reforms in 2019 to become a multisectoral team that incorporates hepatitis, sexually transmitted infections (STIs), tuberculosis (TB), and malaria, demonstrating a comprehensive approach to public health [7]. Benin has also achieved a 90% uptake of PrEP among KPs and has established integrated care centres for addiction, including the distribution of methadone [8].

3. Emerging and Re-emerging Diseases

While the HIV response has seen considerable advancements, INTEREST 2024 served as a stark reminder of the persistent threat posed by emerging and re-emerging diseases. The 3rd James Gita Hakim[9] Memorial Lectures highlighted the ongoing challenges of cholera, meningitis, Ebola, measles, yellow fever, rift valley fever, mPox, COVID-19, diphtheria, and anthrax. A particularly concerning trend is the surge in zoonotic disease outbreaks in Africa, which have increased from 33% of all public health events between 2001-2011 to a staggering 63% between 2013-2023 [10]. The ongoing climate crisis and changing ecosystems are identified as major risk factors fueling this rise, demanding urgent attention and mitigation strategies [11].

In addition to these threats, INTEREST 2024 drew attention to HIV-2, an endemic infection in West Africa that has been largely neglected by the research community and public health

programs [12]. Despite its lower transmission risk and slower disease progression compared to HIV-1, HIV-2 remains a significant health concern. The lack of specific testing algorithms and limited research on potential cures further marginalize individuals living with HIV-2.

Tackling the multifaceted challenge of emerging and re-emerging diseases in Africa requires addressing several critical barriers, including inequitable access to resources, limited research and development capacity, shortages of healthcare workers, eroding public trust, inadequate healthcare financing, and the disruptive impact of insecurity and warfare [11]. However, there is a silver lining. The infrastructure and investments mobilized during the COVID-19 pandemic present a unique opportunity to leverage existing resources and expertise to combat these new threats. As we navigate this evolving landscape, INTEREST 2024 urged us to reflect on a critical question: "What would we do differently if we had a public health event as the sentinel event that would turn out to be HIV/AIDS as we know it today?" [11]. This thought-provoking inquiry prompts us to re-evaluate our approaches, prioritize prevention, and ensure equitable access to care and treatment for all.

4. HIV and Comorbidities

The interconnectedness of HIV with other health conditions remains a pressing concern, as highlighted at INTEREST 2024. TB continues to be a leading cause of mortality among hospitalized PLWH in SSA, with a prevalence estimated at 43% in autopsies [13]. The case fatality rate among hospitalized TB/HIV co-infected individuals in Africa ranges from 22% to 35%, partly due to delays in diagnosis caused by the low accuracy of existing TB tests, including the Focused Assessment with Sonography for HIV-associated tuberculosis (FASH scan) presented at the conference [14–16]. Unanswered questions persist regarding optimal fluid management, anemia treatment, and adjunct therapies for hospitalized individuals with TB/HIV co-infection. However, the ongoing NewStrat trial, which is evaluating high-dose rifampicin with levofloxacin and adjunct corticosteroids, offers hope for reducing early mortality in this population [17]. Nonetheless, a notable study presented at INTEREST 2024 revealed that while a positive lipoarabinomannan test (a urine-based TB diagnostic) was associated with in-hospital mortality, the simple observation of a patient's "inability-to-walk" unaided proved to be a surprisingly effective predictor of in-hospital mortality, with a sensitivity of 79% [18]. This finding offers a potentially valuable and easily implementable risk stratification strategy for resource-limited settings, where sophisticated diagnostic tools may not be readily available.

Malaria, another devastating infectious disease, disproportionately affects Africa, accounting for 94% of global cases and 95% of deaths[19] . Climate change, limited coverage of prevention strategies, co-infections, new vectors like *Anopheles stephensi*, weak health systems, antimicrobial resistance, and malnutrition pose significant challenges to malaria elimination efforts. However, hope lies in emerging new treatments like OZ439, DSM265, and the OZ439/SDM265 combination, as well as WHO-approved and novel vaccines such as GMZ2 and PfSPZ, monoclonal antibodies, and genetic modification of vectors. Additionally, exploring the potential of herbal remedies as indigenous and acceptable alternatives for treatment and chemoprevention in Africa warrants further investigation. INTEREST 2024 emphasized the need for establishing a high-performing, interdisciplinary research infrastructure that actively engages communities to drive malaria elimination efforts forward [19].

Cervical cancer and human papillomavirus (HPV) infection also garnered significant attention at the conference. Despite approximately 20 million women living with HIV, only 20-40% are screened for cervical cancer, and less than 10% receive adequate treatment. Women with HIV face higher recurrence rates and lower rates of lesion regression compared to HIV-negative women, highlighting the importance of comprehensive screening and treatment programs tailored to their needs. HPV vaccination is a crucial tool for reducing the global burden of cervical cancer, with the WHO recommending two doses for girls aged 9-14 years, starting at 9 years old. People with HIV should also receive the HPV vaccine regardless of ART status or age [20]. However, challenges such as cost, stigma, low perceived risk, vaccine hesitancy, and misinformation hinder vaccine uptake and require targeted interventions to improve coverage. Several studies presented at INTEREST 2024 shed light on the burden of cervical cancer and HPV infection in Africa. A study from Burkina Faso among 458 female sex workers found that only 12.6% had ever been screened for cervical cancer, with women with HIV being more likely to be screened [21]. A systematic review of 38 studies involving 24,417 participants from Africa revealed a high prevalence of high-risk HPV (HR-HPV) (43.6%), which was significantly higher among women with HIV compared to HIV-negative women (49.8% vs. 21.2%) [22]. Another study from Kenya among 224 women living with HIV and HR-HPV infection found that 89.5% had persistent HPV infection at 12 months of follow-up, with older women and those on ART for 5 years or more being particularly at risk [23]. Notably, HPV genotype type 52, which is not typically targeted by current programs, was persistent in 30% of the study participants, highlighting the need for expanded HPV genotyping.

Finally, cardiometabolic disease was spotlighted as a significant comorbidity among PLWH. Cardiovascular disease (CVD) is a major concern, with up to 20% of hospitalized PWH experiencing HIV-associated CVD. Myocarditis, left ventricular dilatation, and systolic dysfunction are common manifestations, and HIV accounts for 5% of all heart failure cases [24]. This increased risk is attributed to various factors, including aging, delayed HIV diagnosis, disengagement from care, HIV proteins like Nef and Tat, and potential ART toxicity. Moreover, new ART regimens could also be contributory to CVD among PLWH. Dolutegravir (DTG)-based regimens were associated with higher odds of CVD while Efavirenz-based regimens were protective in a small study of 84 PWH from Cameroon presented at INTEREST 2024 [25]. Two other studies presented at INTEREST 2024 also highlighted the burden of renal dysfunction among PWH. A cross-sectional study of 500 young people with HIV (10-24 years) from Uganda found a prevalence of renal impairment ranging from 0-59%, depending on the equation used to define it, and 28% had proteinuria [26]. Another study from Zambia among 208 PWH revealed that 9% had renal impairment defined as a low glomerular filtration rate, with older age and dolutegravir-based regimens associated with increased risk [27].

INTEREST 2024 showcased the complexities of HIV and its interconnectedness with various comorbidities. These findings underscore the need for comprehensive and integrated care approaches that address both HIV and its associated conditions, ensuring optimal health outcomes for individuals living with HIV.

5. The Great Debate: *“PEPFAR and the Global Fund Should Expand Their Missions Now to Fund Screening, Prevention, and Treatment of Non-Communicable Diseases”*

Building upon the discussions around HIV comorbidities, a lively debate unfolded at INTEREST 2024, centered on whether PEPFAR and the Global Fund should expand their missions to fund screening, prevention, and treatment of non-communicable diseases (NCDs).

Proponents argued that the growing burden of NCDs, particularly among children, constitutes a new crisis in Africa [28,29]. They pointed to the existing infrastructure and expertise within HIV programs as a blueprint for integrating NCD care, emphasizing the lack of alternative funding sources and the disproportionate burden borne by PLWH in managing both HIV and NCDs.

Opponents countered that PEPFAR should maintain its laser focus on HIV, as specialization ensures efficiency and a shift in focus could jeopardize hard-won gains in the fight against HIV [30,31]. They stressed the responsibility of host countries to provide universal health coverage and argued for integrating NCD care into primary healthcare systems for sustainability. Additionally, they emphasized the root causes of NCDs, such as poverty, alcohol, smoking, climate change, and pollution, which fall outside PEPFAR's mandate.

Audience members engaged in a spirited discussion, highlighting the moral obligation of PEPFAR and HIV care programs to address NCDs, given that HIV interventions, such as ART, have contributed to the increased burden of NCDs. They argued for prioritizing the "need" rather than focusing solely on available funds. However, others raised ethical and logistical concerns about expanding PEPFAR's mandate to cater primarily to PLWH when NCDs affect the entire population.

Ultimately, the debate concluded with a victory for the opposition, with 58% of attendees voting against expanding PEPFAR and the Global Fund's missions to include NCDs. This outcome reflects a complex landscape of competing priorities, ethical considerations, and logistical challenges in addressing the growing burden of NCDs within the context of ongoing HIV programs.

6. HIV Prevention, prevention technologies, vaccines and cure

INTEREST 2024 delved into the evolving landscape of HIV prevention and cure, showcasing both promising advancements and persistent challenges. The conference highlighted a shift in prevention strategies over the past decade, moving from a focus on condom use to the highly efficacious daily oral pre-exposure prophylaxis (PrEP) pill [32]. However, despite 6.22 million individuals initiating oral PrEP, continuation rates remain low due to barriers like cost, stigma, and structural issues [33]. Promisingly, a study from Zimbabwe presented at the conference revealed that female sex workers expressed a strong willingness to access PrEP through community pharmacies. They viewed pharmacists as approachable and supportive [34]. Additionally, a large-scale trial in Kenya demonstrated the effectiveness of integrating PrEP delivery into public family planning clinics, leading to a substantial increase in PrEP eligibility screening and uptake [35].

Other current prevention strategies, such as achieving viral suppression among PLWH (U=U), voluntary male medical circumcision, microbicides, post-exposure prophylaxis, and syringe exchange programs, were also discussed. A study from Nigeria presented at INTEREST 2024 found that 95% of 461 female sex workers were willing to use microbicides, with factors like condom rupture and number of sexual partners associated with willingness [36]. The Dapivirine ring has demonstrated over 30% reduction in HIV risk, and ultra-long-acting cabotegravir is on the horizon [37]. A Ugandan study at the conference reported high acceptability and ease of use of the Dapivirine vaginal ring among pregnant women, although those with advanced pregnancies may require assistance[38].

While biomedical interventions like broadly neutralizing antibodies (bNAbs) and injectable HIV-1 capsid inhibitors like Lenacapavir show promise, their accessibility remains a challenge, particularly in Africa. Experts emphasized the importance of equitable access, advocating for trial participants, communities, and regions to be the first to benefit from these innovations [32]. “We will only see epidemic impact when prevention is scaled boldly” [32]. Unfortunately, projections suggest that access to long-acting injectables in Africa may not be feasible until the late 2030s [39]. This urgency was underscored by a study presented at INTEREST 2024, which found that 88% of 1,953 PLWH were eligible for long-acting injectable cabotegravir and rilpivirine [40], highlighting the immense unmet need for these interventions.

The conference also addressed the triple burden of sexually transmitted infections, unmet contraception needs, and high HIV incidence among women, advocating for combined contraception and HIV prevention methods [41]. Multipurpose prevention technologies, such as the dual prevention pill (DPP) containing oral tenofovir/emitricitabine for PrEP and oral contraceptives, are preferred by many women and adolescents, although adherence may pose a challenge [42]. The HTPN 104 trial aims to compare adherence to the DPP versus a two-pill regimen in 1,000 women and adolescents [43]. Additionally, various delivery technologies, including nano- and microparticle systems, injectable depots, transdermal patches, and electrospun microfibres, are under development. However, addressing structural barriers that disproportionately affect women in Africa is crucial for effective HIV prevention. The conference highlighted concerning developments, such as the Gambian parliament's reconsideration of laws against female genital mutilation and the disengagement of women living with HIV from support networks in Senegal [44]. To achieve significant progress in the HIV response, these underlying social and structural issues must be tackled.

Regarding HIV vaccines, INTEREST 2024 provided an update on the ongoing research. Despite decades of disappointing clinical trials, the focus has shifted to bNAbs as a potential long-acting alternative to ART for prevention and therapy [45]. While the Antibody Mediated Prevention (AMP) trials demonstrated the potential of bnAbs, high doses are currently required [46]. Modified bnAbs with higher affinity offer promise, and a shift from empirical to rational approaches is underway, focusing on identifying correlates of protection and training the immune system to elicit them through iterative steps. Various B-cell vaccine designs are being explored, along with T-cell mechanisms and delivery vectors like cytomegalovirus. Notably, the eODGT8 germline targeting immunogen, designed to elicit VRC01-class bNAbs, has shown promise in early-phase trials in East and South African countries [45]. Combining multiple immune responses and conducting more early-phase and experimental trials in Africa are crucial for future progress.

The pursuit of an HIV cure remains a pressing priority, as stopping ART typically results in viral rebound. The urgency for a cure stems from factors like reduced life expectancy, ART toxicity, limited access to prevention interventions, and the socioeconomic burden of stigma [47]. However, achieving a cure is challenging due to the virus's ability to establish lifelong persistence in viral reservoirs, with mathematical models indicating a slow decay rate that could take up to 70 years. The search for a cure continues with various strategies like "shock and kill," aiming to reactivate latent viruses for elimination, and "block and lock," suppressing viral expression. Gene therapy approaches, such as modifying CCR5 receptors, have also been explored. Immune-based therapies, combining bNAbs with other strategies, show promise. A pharmacokinetics study presented at INTEREST 2024 demonstrated the feasibility of combining bNAbs, achieving similar concentrations at 16 weeks of follow-up in both single and combination therapy [48]. Another study highlighted the need for combination bNAbs therapy to target different viral reservoirs, as sensitivity to bNAbs differed between cerebrospinal fluid and plasma [49]. Critically, African scientists and people with HIV must play a central role in cure research due to the continent's disproportionate burden of HIV, diverse viral subtypes, and unique considerations regarding acceptability, feasibility, and risks. However, less than 3% of cure research studies have involved African affiliations and patients, emphasizing the need for greater representation and inclusivity in this field [47].

Broadly speaking, Africa's scientific output lags behind, producing only 2% of the world's research [50]. With only 198 researchers per million people, the continent needs to prioritize cultivating a million new PhDs while addressing the ongoing brain drain. Financial constraints hinder clinical trial participation, with only 20-30% of global trials conducted in low- and middle-income countries (LMICs) and less than 10% in SSA. The lack of clinical trials on the continent severely hampers the translation of research findings into practical implementation and healthcare improvements [50].

7. HIV in children and Adolescents

INTEREST 2024 conference illuminated the complex landscape of paediatric and adolescent HIV, revealing both encouraging progress and persistent challenges in the ongoing battle against the epidemic. While significant strides have been made in preventing mother-to-child transmission (PMTCT), with coverage increasing from 48% in 2010 to 82% in 2022 and vertical transmission rates dropping from 23% to 11%, the region still falls short of the ambitious 5% target for breastfeeding countries [51]. Achieving the 2025 goal of virtually eliminating paediatric HIV appears increasingly elusive, highlighting the need for continued. Notably, disparities exist within the continent, with WCA lagging behind ESA in PMTCT coverage. This discrepancy reflects differing patterns of paediatric HIV infection, underscoring the importance of tailored regional approaches. In ESA, infections are more evenly distributed between perinatal, breastfeeding, and maternal ART discontinuation during pregnancy and breastfeeding, whereas in WCA, most children are infected due to their mothers not receiving ART during pregnancy. The alarming number of women testing positive for HIV only during delivery emphasizes the critical need for PrEP throughout pregnancy [52]. Healthcare workers must proactively assess the risk of HIV infection during prenatal care and promptly enroll eligible women in PrEP programs while providing comprehensive adherence support. Ensuring equitable access to PMTCT services, engaging communities and hard-to-reach populations, and prioritizing adolescent girls,

young women, and key populations are essential steps towards achieving the 2025 and 2030 targets [51].

Optimizing treatment for children and adolescents is also key. The inclusion of DTG in recommended regimens for children by the WHO is a significant step forward, as demonstrated by its superior performance compared to standard care in the ODDYSSEY A and B studies [53]. Research supports DTG for both first and second-line treatment, although children on second-line may require additional adherence counseling. A study presented at INTEREST 2024 revealed a high prevalence of resistance (>80%) in both circulating and achieved HIV virus strains among adolescents with low-level viremia [54]. This finding emphasizes the need for ongoing monitoring of adherence and drug resistance testing, particularly in this age group, to ensure the long-term efficacy of DTG-based regimens. While program data from Tanzania showcases significant improvement in viral load suppression among children aged 0-4 years since DTG adoption, the emergence of DTG resistance among children in Malawi, with a reported rate of 14%, raises concerns about the long-term effectiveness of this regimen and the need for vigilance in monitoring for resistance [55]. Moreover, studies from Eswatini and the TORPEDO study conducted in Benin, Nigeria, and Uganda, presented at INTEREST 2024, noted weight gain in children and adolescents after switching to DTG, highlighting the need for further investigation into the potential metabolic effects of this drug [56,57]. Despite these concerns, the TORPEDO study also revealed a 95% preference for paediatric DTG over lopinavir/ritonavir due to better taste and ease of administration.

Optimizing treatment for children and adolescents also involves adopting differentiated service delivery (DSD) models tailored to their specific needs. Many adolescents at the Baylor Uganda clinic preferred facility-based models over community-based ones, citing social benefits like dancing, gossiping, and escaping household chores [58]. DSD models enhance adherence and retention through peer and caregiver engagement, with OVC programs in Ethiopia demonstrating improved viral load suppression [59]. These models are essential for adolescents, who face unique challenges related to adherence, disclosure, reproductive health, stigma, and transitioning to adult care [58]. Peer-led services and community engagement are key components of successful DSD models, as they empower young people to take ownership of their health and well-being.
The importance of youth-led organizations in addressing the unique challenges faced by adolescents living with HIV was a key theme at INTEREST 2024 [60]. A study mapping these organizations across 12 countries found that most countries had only one dedicated youth organization despite 30 years of addressing the epidemic, underscoring the need for greater investment in youth leadership and empowerment. Challenges faced by youth-led organizations included stigmatization, undue influence from adults, and lack of consideration for youth perspectives, emphasizing the need for greater support and autonomy for these groups.

Digital platforms offer potential for engaging adolescents in HIV care, but their use must be carefully monitored to mitigate risks, as highlighted by a qualitative study presented at INTEREST 2024 [61]. The study found that while adolescents and young women prefer digital platforms that employ gamification, these platforms were used for seeking affluent partners and enabling concurrent relationships, requiring careful consideration in their implementation.

Finally, the success of Zvandiri, a peer psychosocial support program in Zimbabwe, underscored the value of peer support in improving mental health and clinical outcomes among young people living with HIV [62,63]. By providing a safe space for young people to connect, share

experiences, and receive support from their peers, Zvandiri has demonstrated significant reductions in symptoms of depression and anxiety, as well as a decreased risk of viral load failure or death. This program exemplifies the power of community-based interventions in addressing the holistic needs of young people living with HIV and improving their overall well-being.

8. HIV Care and Treatment

INTEREST 2024 delved into the multifaceted challenges and emerging solutions in HIV care and treatment, addressing both clinical and structural aspects that significantly impact patient outcomes. Cryptococcal meningitis (CM), a leading cause of death among PLWH, remains a major concern, with 70% of CM-related deaths occurring in Sub-Saharan Africa [64]. The AMBITION trial demonstrated the non-inferiority of single-dose liposomal amphotericin B (in combination with flucytosine and fluconazole) to a 7-day course of Amphotericin B, offering a potentially safer treatment option [65]. However, access to affordable cryptococcal antigen lateral flow assays, liposomal amphotericin B, and flucytosine remains a significant barrier in SSA. Additionally, the conference highlighted that 6% of PWH in the region are on second-line ART, underscoring the need for more effective strategies to prevent treatment failure and optimize first-line regimens [66]. While DTG combinations have become the preferred second-line option, vigilance in monitoring for integrase strand transfer inhibitors resistance is crucial. Standardized viral load monitoring and resistance testing are recommended over empirical treatment, particularly for paediatric patients. A study presented at INTEREST 2024 showed a 34% success rate of sequencing among PWH with low-level viremia (LLV), with 80% of those with LLV harboring resistant strains [67]. This highlights the feasibility of and need for performing drug resistance testing among people with LLV in low resource settings.

Stigma was highlighted as a pervasive issue, even within healthcare settings, where PLWH often experience gossip and discrimination. The complex intersection of stigmas related to gender, sexuality, and race contributes to depression, low self-efficacy, and social isolation, which in turn can exacerbate comorbidities and hinder treatment adherence [68]. Notably, studies show that women with high psychosocial risk have a higher risk of carotid plaques, indicating elevated cardiovascular disease risk[69,70]. To combat stigma, discriminatory laws must be repealed, and healthcare providers must prioritize patient safety and trauma-informed care. Professionals and integrated peers play a crucial role in guiding individuals through personal stigma, leveraging their lived experiences to foster support and understanding [68]. A qualitative study presented at INTEREST 2024 revealed how healthcare workers helped women navigate the emotional journey from denial and hopelessness upon receiving an HIV-positive diagnosis to acceptance, leading to increased self-assurance and improved treatment adherence [71].

Innovative approaches to care delivery were also showcased. A study from Malawi presented a special needs program for PLWH with debilitating conditions who could not access facility-based care [72]. This program, which involved home visits for sample collection, medication refills, and assessments, demonstrated high retention rates (92%) and improved viral load suppression (from 88% to 99%) at 12 months of follow-up. Furthermore, INTEREST 2024 highlighted the importance of considering the unique needs of women in HIV care. A study from Uganda revealed that women initiating concurrent Depo-Provera and TDF experienced a more significant decline in bone mineral density compared to those already on Depo-Provera, suggesting the need for safer contraceptive options for women living with HIV [73].

9. Key Populations

INTEREST 2024 amplified the voices of KPs, revealing persistent disparities in HIV prevention and care. Despite ongoing efforts, there has been minimal change in new infections outside sub-Saharan Africa, largely due to the failure of countries to prioritize the most vulnerable populations in their prevention strategies. In 2022, over half (55%) of the 1.3 million new HIV infections occurred among KPs and their partners, a concerning increase from 2010 (44%). KPs contribute to two-thirds of new infections, and fewer PLWH know their status in countries where same-sex relationships are criminalized. This stark reality underscores the urgent need for scientists and advocates to unite against discriminatory laws, such as those in Ghana and Uganda, that perpetuate stigma and hinder progress in HIV prevention[74]. Voices at INTEREST 2024 emphasized that addressing the epidemic requires not only effective interventions but also a fundamental shift in healthcare workers' attitudes and approaches to ensure equitable access to prevention and care for all [75].

Gay men in Africa, who represent 11% of new HIV infections, face significant barriers to accessing PrEP due to homophobic laws, HIV stigma, fear of being outed, internalized homophobia, lack of LGBTQ-friendly services, and discrimination from healthcare workers [76]. Despite these challenges, community-led initiatives like the 1st MSM PrEP access meeting in South Africa and the development of a roadmap for PrEP and U=U offer hope for change. Advocates emphasized the need for KPs to lead program design, increased funding for PrEP, and healthcare workers who utilize scientific data to advocate for access regardless of personal beliefs. Ultimately, eradicating HIV stigma and discrimination is paramount to creating a supportive environment where everyone can access vital prevention tools like PrEP.

While the early days of the HIV epidemic focused on "the 4 Hs" – hemophiliacs, homosexuals, Haitians, and heroin users – a significant number of new infections now occur among KPs outside these groups who are often hard to reach due to social stigma and discrimination [75]. Estimating the population size of KPs remains a challenge in SSA, with a capture-recapture study presented at INTEREST estimating 31,000-43,000 female sex workers in Rwanda, representing about 1.1% of women in Rwanda aged 15-49 years [77]. However, this figure likely underestimates the true number, as it does not account for those using web-based apps.

10. The Joep Lange and Charles Boucher Awards

INTEREST 2024 concluded with thoughtful reflections from the conference chairs, emphasizing the importance of translating knowledge into action and fostering inclusive, multilingual spaces for future gatherings.

The conference recognized outstanding contributions to the field through the Joep Lange and Charles Boucher Awards. James Kangethe from Kenya received the Joep Lange Award for his oral presentation on the complex interplay of HR-HPV with Human T-lymphotropic Virus-1 among women living with HIV [23]. Dorcas Maruapula from Botswana was honored with the Charles Boucher Award for her research on eligibility for long-acting cabotegravir/rilpivirine and archived drug resistance mutations among people living with HIV-1 subtype C in Botswana [40]. Additionally, Mafa Motlousi from South Africa received the PeerJ award for the best poster abstract presented at INTEREST 2024.

As we look forward to INTEREST 2025, scheduled to take place in Windhoek, Namibia, the lessons learned and connections forged at INTEREST 2024 will undoubtedly continue to inspire and drive innovation in HIV research, prevention, and care across Africa. The conference serves as a powerful reminder that through collaboration, knowledge sharing, and unwavering commitment, we can accelerate progress towards ending the HIV epidemic and achieving a healthier future for all.

REFERENCES

1. Joint United Nations Programme on HIV/, AIDS, UNAIDS. IN DANGER: UNAIDS Global AIDS Update 2022. Geneva, Switerzland; 2022.

2. Gahongayire B. The Road to 95-95-95: Progress in HIV Prevention and Treatment Scale-up in Sub-Saharan Africa. INTEREST 2024; 2024 May 14; Cotonou, Benin.

3. Fajardo E, Lastrucci C, Bah N, Mingiedi CM, Ba NS, Mosha F, et al. Country adoption of WHO 2019 guidance on HIV testing strategies and algorithms: a policy review across the WHO African region. BMJ Open. 2023 Dec 1;13(12):e071198.

4. Chirwa TC. Transition to 3-Test HIV Testing Algorithm Saves 529 Individuals From Potential Misdiagnosis: Lessons From Malawi's HIV Testing Program. INTEREST 2024; 2024 May 14; Cotonou, Benin.

5. Bachabi M. Current Status of HIV in Benin. INTEREST 2024; 2024 May 14; Cotonou, Benin.

6. Isdine TN. Community Perspective on HIV Progress in Benin. INTEREST 2024; 2024 May 14; Cotonou, Benin.

7. Kiki-Medegan V. Overview of the HIV Response and Management in Benin. Oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

8. Ahouada C. HIV Response Within the Key Populations in Benin: Lessons Learned, Challenges, and Perspectives. INTEREST 2024; 2024 May 15; Cotonou, Benin.

9. Green A. James Gita Hakim. The Lancet. 2021;397(10276):790.

10. Blumber L. Emerging and Re-emerging Diseases: Role of Surveillance. INTEREST 2023 conference: James Hakim Memorial Lectures; 2023 May 9.

11. Adetifa I. Interrupting the Unending Cycles of Emerging and Re-Emerging Diseases Outbreaks - A Possibility or Pipe Dream! 2024 May 14; Cotonou, Benin.

12. Ekouevi DK. HIV-2. INTEREST 2024; 2024 May 14; Cotonou, Benin.

13. Gupta RK, Lucas SB, Fielding KL, Lawn SD. Prevalence of tuberculosis in post-mortem studies of HIV-infected adults and children in resource-limited settings: a systematic review and meta-analysis. AIDS. 2015 Sep 24;29(15):1987.

14. Heller T. Sonographic Patterns of TB – The FASH scan. 2024 May 14; Cotonou, Benin.

15. Heller T, Wallrauch C, Goblirsch S, Brunetti E. Focused assessment with sonography for HIV-associated tuberculosis (FASH): a short protocol and a pictorial review. Crit Ultrasound J. 2012 Nov 21;4(1):21.

16. Meintjes G. HIV-Associated TB in hospitalised patients. 2024 May 14; Cotonou, Benin.

17. Namale PE, Boloko L, Vermeulen M, Haigh KA, Bagula F, Maseko A, et al. Testing novel strategies for patients hospitalised with HIV-associated disseminated tuberculosis (NewStrat-TB): protocol for a randomised controlled trial. Trials. 2024 May 8;25(1):311.

18. Malunda C. bility-To-Walk-Unaided - A Single WHO Danger Sign Predicts In-Hospital Mortality in People Living With HIV in a Low-Resource Setting. Oral Abstract presented at: INTEREST 2024; 2024 May 14; Cotonou, Benin.

19. Gaye O. Malaria Elimination in Africa: Challenges & Perspectives. 2024 May 14; Cotonou, Benin.

20. Mgodi NM. The Integration of HPV Vaccination within HIV Guidelines. INTEREST 2024; 2024 May 16; Cotonou, Benin.

21. Traore I. Uptake of Cervical Cancer Screening Services by Femal Sex Workers in Two Main Cities in Burkina Faso: A Cross Sectional Study. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

22. Gaelle L. Molecular Epidemiology of Human Papillomavirus Circulating in African Countries: Adequacies with HIV-Infection and Oncogenesis, Systematic Review and Meta-Analysis. Oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

23. Kangethe J. Dynamic Interplay of High-Risk Human Papillomavirus in Women Living with HIV: Persistence, Clearance, Incidence and Synergies with Human T-lymphotropic Virus-1 Infections. INTEREST 2024; 2024 May 15; Cotonou, Benin.

24. Ntusi N. HIV & Cardiometabolic Disorders. INTEREST 2024; 2024 May 16; Cotonou, Benin.

25. Mfeukeu L. Distribution et Determinants du Risque D'Evenements Cardiovasculaires Chez Les Personnes Vivant Avec Le Virus de L'Immuno-Deficience Humaine a L'Hopital Central de Yaounde. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 17; Cotonou, Benin.

26. Nasuuna E. Prevalence and Associated Factors of Chronic Kidney Disease in Young People Living With HIV in Uganda. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 17; Cotonou, Benin.

27. Mutalange M. Kidney Impairment in HIV: An Insight Into the Burden and Associated Factors Among Adults on Antiretroviral Therapy (ART) in Zambia. Mini-oral Abstract presented at; 2024 May 17.

28. Chirwa TC. Proposition: PEPFAR and the Global Fund Should Expand Their Missions Now to Fund Screening, Prevention, and Treatment of Non-Communicable Diseases. Debate presented at: INTEREST 2024; 2024 May 14; Cotonou, Benin.

29. Nomathemba C. Proposition: PEPFAR and the Global Fund Should Expand Their Missions Now to Fund Screening, Prevention, and Treatment of Non-Communicable Diseases. INTEREST 2024; 2024 May 14; Cotonou, Benin.

30. Ashiono E. Opposition: PEPFAR and the Global Fund Should Expand Their Missions Now to Fund Screening, Prevention, and Treatment of Non-Communicable Diseases. Debate presented at: INTEREST; 2024 May 14; Cotonou, Benin.

31. Ssentogo S. Opposition: PEPFAR and the Global Fund Should Expand Their Missions Now to Fund Screening, Prevention, and Treatment of Non-Communicable Diseases. Debate presented at: INTEREST 2024; 2024 May 14; Cotonou, Benin.

32. Bekker LG. New Prevention Technologies - From Research Findings to Access. INTEREST 2024; 2024 May 15; Cotonou, Benin.

33. Mgodi NM. The Power of PrEP – Towards 2030 Elimination Goals. INTEREST 2024; 2024 May 15; Cotonou, Benin.

34. Munhenzva S. Acceptability of Pharmacy-Based Pre-Exposure Prophylaxis (PrEP) Refills for People Who Sell Sex in Zimbabwe. Mini-oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

35. Matemo D. Integrating PrEP Delivery in Public Family Planning Clinics Increases PrEP Screening and Uptake: Results from a Large Stepped-wedge, Cluster-randomized Trial in Kenya. Mini-oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

36. Ekama S. 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. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

37. Baeten Jared M., Palanee-Phillips Thesla, Brown Elizabeth R., Schwartz Katie, Soto-Torres Lydia E., Govender Vaneshree, et al. Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women. New England Journal of Medicine. 2016;375(22):2121–32.

38. Nansimbe J. Exploring Pregnant Women's Experiences with Vaginal Ring Insertion during the Mtn-042/ Deliver Study at Mujhu Care Limited Kampala, Uganda. Mini-oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

39. Venter F. Treatment as Prevention – How Can We Improve the Third 95? INTEREST 2024; 2024 May 15; Cotonou, Benin.

40. Maruapula D. Eligibility for Long-Acting Cabotegravir/Rilpivirine and Archived Drug Resistance Mutations Among People Living with HIV-1 subtype C in Botswana. INTEREST 2024; 2024 May 14; Cotonou, Benin.

41. Mgodi NM. Combination Prevention and Contraception - State of the Science. INTEREST 2024; 2024 May 15; Cotonou, Benin.

42. Friedland BA, Thurman AR, Nuwagaba-Biribonwoha H, Malcolm RK. Editorial: Multipurpose prevention technologies for HIV, STIs and pregnancies. Front Reprod Health [Internet]. 2024 Feb 27 [cited 2024 May 27];6. Available from: https://www.frontiersin.org/articles/10.3389/frph.2024.1384153

43. The Future of Multipurpose Prevention Technologies | The HIV Prevention Trials Network [Internet]. [cited 2024 May 27]. Available from: https://www.hptn.org/news-and-events/featurestories/future_of_mpts

44. Hane F. HIV and Gender. INTEREST 2024; 2024 May 15; Cotonou, Benin.

45. Nduati E. HIV Vaccines (Passive, Active, mRNA) - Progress to Date. INTEREST 2024; 2024 May 15; Cotonou, Benin.

46. Corey Lawrence, Gilbert Peter B., Juraska Michal, Montefiori David C., Morris Lynn, Karuna Shelly T., et al. Two Randomized Trials of Neutralizing Antibodies to Prevent HIV-1 Acquisition. New England Journal of Medicine. 2021 Mar 17;384(11):1003–14.

47. Kyei GB. Progress Towards HIV Cure. INTEREST 2024; 2024 May 15; Cotonou, Benin.

48. Mutingwende TD. 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. Oral presentation presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

49. Mtanjana S. Evaluation of the Neutralization Sensitivity Between Plasma and Cerebrospinal Fluid (CSF) Derived HIV-1 Subtype C Clones. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

50. Gray GE. North and South Research Partnership. INTEREST 2024; 2024 May 16; Cotonou, Benin.

51. Kasirye I. Eliminating HIV in Children - Why is Africa Behind? INTEREST 2024; 2024 May 15; Cotonou, Benin.

52. Nlend AEN. Identifying Treatment Gaps and Opportunities. INTEREST 2024; 2024 May 16; Cotonou, Benin.

53. Turkova Anna, White Ellen, Mujuru Hilda A., Kekitiinwa Adeodata R., Kityo Cissy M., Violari Avy, et al. Dolutegravir as First- or Second-Line Treatment for HIV-1 Infection in Children. New England Journal of Medicine. 2021 Dec 29;385(27):2531–43.

54. Djeuda ABD. Comparaison du Profil de Résistance dans l'ARN Viral et l'ADN Proviral chez les Adolescents sous Traitement Antirétroviral avec Virémie Détectable au Cameroun. Oral Abstract presented at: INTEREST 2024; 2024 May 15; Cotonou, Benin.

55. Emerging Dolutegravir Resistance Among Children Being Investigated for Treatment Failure in Malawi [Internet]. [cited 2024 May 28]. Available from: https://www.natap.org/2024/CROI/croi_182.htm

56. Rathakrishnan D. Transitioning Children to Pediatric Dolutegravir (TORPEDO) Study: Endline Results in Benin, Nigeria, and Uganda. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

57. Thivalapill N, Simelane T, Mthethwa N, Dlamini S, Lukhele B, Okello V, et al. Transition to Dolutegravir Is Associated With an Increase in the Rate of Body Mass Index Change in a Cohort of Virally Suppressed Adolescents. Clin Infect Dis. 2021 Aug 2;73(3):e580–6.

58. Bakeera-Kitaka S. Differentiated Service Delivery among Adolescents and Young Adults. INTEREST 2024; 2024 May 16; Cotonou, Benin.

59. Mukaminega M. Treatment Optimization in Children Including Infants. INTEREST 2024; 2024 May 16; Cotonou, Benin.

60. Atangana PAF. Community and Youth Perspectives. INTEREST 2024; 2024 May 16; Cotonou, Benin.

61. Wallace M. Digital Dating: The 'Gamification' of Sexual Relationships in Adolescent Girls and Young Women (AGYW) in South Africa, and Implications for HIV Prevention. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

62. Willis N. Beyond Surviving to Thriving for All Adolescents Living with HIV. INTEREST 2024; 2024 May 16; Cotonou, Benin.

63. Health, happiness and hope - Zvandiri [Internet]. 2022 [cited 2024 May 28]. Available from: https://zvandiri.org/

64. Kouanfack C. Diagnosis and Management of Cryptococcal Meningitis. INTEREST 2024; 2024 May 16; Cotonou, Benin.

65. Jarvis Joseph N., Lawrence David S., Meya David B., Kagimu Enock, Kasibante John, Mpoza Edward, et al. Single-Dose Liposomal Amphotericin B Treatment for Cryptococcal Meningitis. New England Journal of Medicine. 2022 Mar 23;386(12):1109–20.

66. Eholié SP. Management of Second Line ART in Sub-Saharan Africa. INTEREST 2024; 2024 May 16; Cotonou, Benin.

67. Chenwi CA. 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 Camero. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

68. Apea V. HIV Stigma: Getting to 10%. INTEREST 2024; 2024 May 15; Cotonou, Benin.

69. Bergmann T, Sengupta S, Bhrushundi MP, Kulkarni H, Sengupta PP, Fergus I. HIV related stigma, perceived social support and risk of premature atherosclerosis in South Asians. Indian Heart Journal. 2018 Sep 1;70(5):630–6.

70. Levy ME, Anastos K, Levine SR, Plankey M, Castel AD, Molock S, et al. Depression and Psychosocial Stress Are Associated With Subclinical Carotid Atherosclerosis Among Women Living With HIV. J Am Heart Assoc. 2020 Jun 22;9(13):e016425.

71. Godovo V. 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). INTEREST 2024; 2024 May 15; Cotonou, Benin.

72. Nakari O. Reducing Barriers to HIV Care: Home Delivery of Antiretroviral Therapy for Clients With Special Needs, Lessons From Lighthouse Trust Clinic, Malawi. INTEREST 2024; 2024 May 15; Cotonou, Benin.

73. Matovu F. Impact of Concurrent Initiation of Depo-Provera and TDF-Containing ART on Bone Loss in Young Women in the BONE: CARE Study. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.

74. IAS statement: Upsurge in anti-gay laws across Africa threatens the HIV response [Internet]. [cited 2024 May 27]. Available from: http://www.iasociety.org/ias-statement/upsurge-anti-gay-laws-across-africa-threatens-hiv-response

75. Bekker LG. Overview of the Current State of HIV Prevention for Key and Vulnerable populations, Including New Prevention Options. INTERESt 2024; 2024 May 15; Cotonou, Benin.

76. Ighodaro M. Nothing for Us Without Us – Insights from The Community. INTEREST 2024; 2024 May 15; Cotonou, Benin.

77. Tuyishime E. Estimation of the Population Size of Street- And Venue-Based Female Sex Workers and Sexually Exploited Minors: Three-Source Capture-Recapture Method, Rwanda 202. Mini-oral Abstract presented at: INTEREST 2024; 2024 May 16; Cotonou, Benin.