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Abstracts
Oral Presentations

1

Effect of the COVID-19 Pandemic Restrictions on Outcomes of HIV Care Among Adults in Kampala City, Uganda

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Background: Uganda enforced several restrictions to limit the spread of the COVID-19 pandemic between March 18, 2020, and June 4, 2020.These restrictions severely disrupted the delivery of health services and have the potential to reverse gains in the outcomes of HIV care but evidence from rigorous impact evaluation studies are limited. We evaluated the effect of the COVID-19 pandemic restrictions on outcomes of HIV care among people living with HIV (PLHIV) aged ≥15 years in Kampala, the capital city of Uganda.

Methods: We designed a non-randomized, quasi-experimental study using observational data retrieved from six large HIV clinics for the period Mar 1, 2018, to Feb 28, 2020. We used the data to construct two cohorts: a comparison cohort that consisted of PLHIV who had not experienced the COVID-19 pandemic restrictions and an exposed cohort that consisted of PLHIV who had experienced the restrictions. The primary outcomes were retention, viral load testing, viral load suppression, and all-cause mortality. We employed inverse probability of treatment weighting using propensity score (IPTW-PS) to achieve comparability between the two cohorts on selected covariates. We estimated the effect of the restriction on the outcomes using logistic regression analysis weighted by propensity scores, reported as odds ratio (OR) and 95% confidence interval (CI).

Results: We analysed data for 9, 952 participants, with 5,094 (51.2%) participants in the exposed group and the overall mean age was 32.7±8.8 years. Results showed that viral load testing (OR, 1.68; 95% CI, 1.59-1.78) and viral load suppression (OR, 1.34; 95% CI, 1.110-1.63) was more likely in the exposed group than the comparison group. Conversely, retention (OR, 0.76; 95% CI, 0.70-0.81) and mortality (OR, 0.75; 95% CI, 0.64-0.88) was less likely in the exposed group than the comparison group.

Conclusion: Among PLHIV in Kampala, Uganda, our study showed that viral load testing and suppression improved while retention and mortality reduced during the COVID-19 pandemic restrictions. These findings are attributable to new approaches to ART delivery and the scale up of existing ART delivery models.

2

Increasing TB/COVID-19 Case Detection Through Diagnostics Program Integration.

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Objectives: In this study, we sought to highlight the importance of Laboratory Diagnostics Program Integration in Health Emergencies.

Methods: 3,887 clients who were diagnosed presumptively with Pulmonary TB at ten (10) of our high-burdened TB facilities in Plateau State, North-Central Nigeria, participated in this study between the months of May to September 2021. Sputum samples were produced by all participants; and SARS-CoV-2 samples were also collected from 2,058 (53%) clients among the study population. The samples were processed and assayed using the TB-Xpert and the Xpert-SARS-CoV-2 cartridges on the Cepheid GeneXpert® Systems. The test results were made available same day, and data collected were analyzed using simple descriptive statistics.

Results: 2.6% of the study population (n=102) were positive for pulmonary TB after assay. Of the total participants in this study (n=3,887), 53% (n=2,058) were screened bi-directionally screened for TB and SARS-CoV-2 using the same Cepheid GeneXpert® System. 8.2% (n=168) tested positive for SARS-CoV-2 after the assay; while 0.1% (n=3) of the bi-directionally screened population has TB-SARS-CoV-2 co-infection. The Month-on-Month incidence of TB among the study population within the five-month review period was 0.6%, 1.0%, 2.8%, 5.9%, and 3.1% respectively. The Month-on-Month incidence of SARS-CoV-2 among the screened population (n-2,058) was 0%, 0%, 1.2%, 1.6%, and 12.1% respectively. There was a spike in SARS-CoV-2 infection in the months of August and September 2021 with a significant upsurge in TB and SARS-CoV-2 Case Detection within the period under review.

Conclusion: The need to integrating the SARS-CoV-2 Molecular Diagnostics methodologies into the existing National/PEPFAR/CDC supported HIV/AIDS and TB diagnostics platforms was necessitated by the slow global response to the COVID-19 Pandemic, especially in Low and Middle-Income Countries (LMICs). Upon integrating the methodologies for TB/SARS-CoV-2 diagnosis on the Cepheid GeneXpert® System, there was a significant increase in TB Case Detection from 0.6% to 5.9%. In addition, there was also a significant increase in SARS-CoV-2 Case Detection from 0% to 12.1% within the period under review. Thus, optimizing the capabilities of an existing diagnostic platform for diseases with similar pathophysiology could greatly enhance case detection in health emergencies.

Key Words: SARS-CoV-2, TB, GeneXpert, Diagnostics, LMICs

3

Low-Level of Archived Resistance to Integrase Inhibitors Among Third-Line Patients Under Dolutegravir-Based Regimens in Cameroon: Implications for Future Therapeutics

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Background: In order to ensure long-term efficacy of dolutegravir (DTG), we evaluated the genotypic resistance profile in viral reservoirs among third-line (3L) patients in Cameroon, according to prior exposure to raltegravir (RAL).

Materials and method: A prospective and analytical study was conducted from May to December 2021, in 3L patients from HIV treatment centres in Yaoundé and Douala. Plasma viral load was performed on Abbott m2000rt (detection threshold: <40copies/ml) and genotypic resistance test was performed on HIV-RNA and HIV-DNA using Sanger-sequencing in plasma and buffy coat samples, respectively. Mutations were interpreted using HIVdb.v9.1, and phylogenetic tree was constructed using MEGA.v7; all p-values<0.05 were considered statistically significant.

Results: Of the 12,093 patients followed, 97 were in 3L and only 53 were finally included in this study. Median [IQR] age of participants was 51 [40-55] years and the M/F sex-ratio was 4/5. Median [IQR] viremia at 3L initiation was 3,795 [220-169,322] copies/ml while CD4-count was 157 [84-285] cells/mm3. Overall median duration on ART was 192 [162-222] months. Regarding 3L, median [IQR] duration on integrase inhibitors (INI)-containing regimens was 18 [12-32] months, and 15.09% (8/53) had documented exposure to RAL. The most dispensed 3L regimen was TDF+3TC+DTG+DRV/r (33.96%; 18/53) followed by TDF+3TC+DTG (22.64%; 12/53). Only 5.66% (3/53) had viremia >1000copies/ml, with no major INI-resistance in both circulating-RNA and pro-viral DNA. Resistance testing in pro-viral DNA was successful for 14/18 participants and revealed only 1/14 (7.14%) archived INI-resistance (a patient from the RAL-arm, with HIV-RNA of <40 copies/ml). Major integrase-mutations observed in this patient were G140R and G163R; whereas only accessory mutations (L74I, T97A and E157Q) were found among two (02) RAL-unexposed 3L-patients. Four subtypes were identified, CRF02_AG (8/14), A1 (4/14), F2 (1/14) and G (1/14).

Conclusion: In the Cameroonian ART program, 3L patients on DTG-containing regimens are experiencing a good virological response, suggesting at the moment the use of tenofovir+lamivudine+dolutegravir (TLD) as a preferred 3L public health approach in resource-limited settings. However, there is caution in using TLD in 3L patients with prior exposure to RAL due to risks of archived INI-resistance.

4

Prevalence of Adverse Birth Outcomes and External Birth Defects Among Women Living With HIV in Malawi

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Background: Routine surveillance for birth outcomes is essential to monitor safety of antiretroviral therapy (ART) during pregnancy among women living with HIV (WLHIV). We examined the prevalence of adverse birth outcomes and major external birth defects (BDs) by maternal HIV and ART status in Malawi.

Methods: Adverse birth outcomes (prematurity, low birthweight) and BDs were recorded for all live and stillbirths delivered at four Malawian hospitals from January 2016 to July 2020 and July 2021 to November 2021. BDs were confirmed by experts at the Centers for Disease Control and Prevention. Maternal characteristics were collected from interviews and health records. Pooled prevalence and crude prevalence ratios (cPRs) were calculated using maximum likelihood estimates for adverse outcomes and BDs.

Results: Among 165,402 women with informative births, the median age was 24.0 years (IQR: 20.0-30.0) and 10.1% were HIV-positive. The prevalence of prematurity was significantly higher among ART naïve WLHIV (28.3%, 18.4%), WLHIV on ART (21.4%, 14.6%) and women with unknown HIV status (27.2%, 19.2%) than HIV-negative women (19.2% Pearson's chi-square p<0.001).Similarly, the prevalence of LBW was significantly higher among ART naïve WLHIV (18.4%), WLHIV on ART (14.6%), and women with unknown HIV status (19.2%) than HIV-negative women (11.9%, Pearson's chi-square p<0.001). The most prevalent BDs (excluding syndromes) were talipes equinovarus (21.4 per 10,000 births, 95% CI: 19.3, 23.8), neural tube defects (NTDs) (9.3, 95% CI: 7.8, 10.8), and hypospadias (8.2, 95% CI: 6.9, 9.7); higher prevalence of these conditions was observed among WLHIV on ART than HIV-negative women. There was a slightly higher likelihood of WLHIV on ART delivering a baby with an NTD than HIV-negative women (cPR: 1.85, 95% CI: 1.07, 2.62).

Conclusions: Higher prevalence of adverse birth outcomes and BDs was observed among HIV-positive women. Further analyses are needed to understand the impact of a COVID-related data collection pause between 2020 and 2021, and to explore risk factors of HIV and ART status by ART regimen and timing for adverse outcomes and BDs among WLHIV in Malawi.

5

Moving From Rhetoric to Reality: Lessons Learned From Integrating Oral PrEP and Family Planning Services in Public Health Facilities in Nairobi, Kenya

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Background: Recognizing that adolescent girls and young women (AGYW) in Kenya face both high HIV incidence and high risk of unintended pregnancies, the Kenyan government is committed to advancing the integration of HIV prevention services, including pre-exposure prophylaxis (PrEP), and family planning (FP) services for AGYW. The USAID/PEPFAR-supported CHOICE consortium partnered with the National AIDS and STI Control Programme (NASCOP) and Nairobi Metropolitan Services (NMS) to pilot integrated PrEP-FP services in three public health facilities in Kenya.

Method: The project aimed to increase uptake of PrEP among AGYW accessing contraceptive services through a quality improvement (QI) approach. The facilities piloted a referral-based model of PrEP-FP integration from April to October 2021. Activities were led by national, county, and/or subcounty health managers and included: training providers; introducing job aids, screening tools, and tools to measure facility-level PrEP-FP integration indicators; supportive supervision and coaching of providers; and regular QI meetings to review data and identify actions to improve performance.

Results: Over seven months of implementation, 4,014 (61%) of 6,624 FP clients at the participating facilities were screened for HIV risk. Of those screened, 179 were determined to be eligible for PrEP; 77 (43%) of those eligible initiated PrEP, the majority of whom were ages 15-24. Provider-related challenges included expectations for financial incentives to integrate services, inconsistent implementation of risk screening, inadequate completion of M&E tools, negative attitudes toward PrEP for AGYW, and turnover among trained providers. Client-related challenges included lack of client readiness for PrEP and reluctance to initiate PrEP without partner support. Government leadership in QI workshops, trainings, and supervision was critical to integration. We also recommend ongoing provider training to reinforce integration procedures and address negative attitudes, all-site QI and integration sensitization, digitizing M&E tools, and investing in demand generation for both AGYW and male partners.

Conclusions: Although the number of FP clients who initiated PrEP over seven months was low, the project illuminated critical challenges — and potential solutions — related to operationalizing service integration in high-volume public health facilities. NASCOP is applying the lessons from this pilot to inform the national scale-up plan for PrEP-FP integration in Kenya.

6

The Value of a Ring to Women in Kenya: A Willingness-To-Pay Study of the Dapivirine Vaginal Ring

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Background: The dapivirine vaginal ring (oral pre-exposure prophylaxis [PrEP] ring or the ring) is a long-acting HIV prevention product that is used by women for HIV prevention. In Kenya, the PrEP ring has not yet been approved and implemented. Therefore, this analysis focused on interviewing women to assess their potential interest in the new product when it becomes available in Kenya.

Methods: Willingness-to-pay interviews were conducted at 12 Kenyan health facilities with 539 women (including adolescent girls, women, and female sex workers) who were potential users of the ring. The objective of these interviews was to assess the strength of any expressed interest in ring use, as reflected by their willingness to pay for the product. Women were presented with payment cards, representing a range of amounts from which they would select to determine the most they would be willing to pay if they were to adopt the ring as an HIV prevention method.

Results: Of the women interviewed, 78% indicated some interest in using the PrEP ring. Among those potentially interested in using the ring, 83% indicated some willingness to pay for it. Single women and women with less education expressed more interest in using the ring than women who were married or more highly educated. In addition, women who were current oral PrEP users tended to have more interest in the ring compared to women who were not on oral PrEP. The amount that women were willing to pay per month ranged from as low as US$0.50 to as high as US$28, with a median of US$1.86. Willingness to pay tended to increase with ability to pay, as would be expected.

Conclusions: Approximately half of all women were willing to pay US$2 per month for the ring, while the other half were not. The demand for the PrEP ring may be higher among current oral PrEP users compared to non-users, which suggests that women who have initiated oral PrEP but are unable or unwilling to continue may be good candidates for ring use.

7

Adverse Pregnancy and Infant Outcomes in a Trial of an Intervention for PMTCT and Family Health in Southwestern Kenya.

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Background: Adverse pregnancy/infant outcomes occur frequently in southwestern Kenya, even though antenatal care (ANC) and skilled maternity services are available in most health facilities. Many women face socio-cultural and financial barriers, which negatively impact their access to ANC and delivery with skilled birth attendants. This study examines serious adverse events (SAEs) by HIV status in a prevention of mother-to-child (PMTCT) trial in Kenya.

Methods: The Jamii Bora Study targets couples (HIV-positive and HIV-negative pregnant women and their male partners) accessing ANC at 24 health facilities in southwestern Kenya. Couples are randomized into one of three study arms, namely couple-based home visits, HIV self-test kits for couples, and standard care.

Results: As of December 1, 2021, 812 women (544 HIV-positive and 268 HIV-negative) were enrolled in the study and 660 couples had been randomized. We recorded 52 SAEs, including 7 miscarriages, 16 stillbirths, 13 neonatal deaths, 8 infant deaths, 2 child deaths, 1 maternal death and 5 participant deaths after 42 days postpartum. Differences by HIV status (HIV+ vs. HIV-) were largest for neonatal death (12 vs. 1) and stillbirth (11 vs. 5). Although more HIV+ women experienced any SAE compared to HIV- women (39 vs. 13), the occurrence of any severe adverse outcome did not differ significantly by HIV status (7.2% vs. 4.9%, p=.204).

Conclusions: We identified a high burden of adverse pregnancy and infant outcomes in this population. Several patient-level factors may be related to these outcomes, including lack of regular ANC visits, non-adherence to recommendations of ANC providers, lack of funds for transportation, harmful traditional beliefs, and strenuous work during pregnancy. Facility-level factors contributing to this problem include understaffing, lack of systems for prompt referral of women/infants in emergency situations, inadequate tracing of women lost-to-follow up in ANC, and lack of psychosocial support services. Engagement of men in the process is crucial since much health-related decision-making is influenced by male partners. We recommend strengthening MCH services and developing programs focused on awareness of healthy MCH practices in the community and clinic aimed at reducing adverse pregnancy/infant outcomes, with special attention to risks faced by HIV+ pregnant women.

8

Incidence of Intimate Partner Violence and Associated Risk Factors Amongst Pregnant and Breastfeeding Women Living With HIV in Malawi

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Background: Intimate partner violence (IPV) is a significant global public health problem, and it is more common among women. Despite IPV having adverse consequences on the health of both mother and the baby during pregnancy, research examining the incidence of IPV among pregnant women and associated risk factors is scarce in our settings. Moreover, current findings may not apply to women living with HIV in a resource-limited setting endemic to HIV such as Malawi. We examined the incidence of IPV and its risk factors amongst pregnant and breastfeeding women living with HIV (PWLHIV) in Malawi.

Methods: This study utilized data from October 2018 to December 2021 collected for a multi-site randomized controlled trial examining alternative strategies to improve antiretroviral therapy adherence among PWLHIV in Malawi. Data on self-reported IPV were initially collected at study enrollment and thereafter at various follow-up periods (month 1, month 6, and month 12). IPV was assessed using the WHO Violence Against Women questionnaire consisting of 13 items in three broad categories of IPV (physical, emotional, and sexual). IPV prevalence (at baseline) was modeled using logistic regressions while IPV incidence (at follow-up) was modeled using generalized linear models. Among factors examined for association with IPV and therefore included in these models were previous IPV, depression, alcohol and substance use and the woman's age.

Results: Participant mean age was 27.4±6.5 years. 729 (91%) were in a stable relationship, 441 (55%) had only primary school education and 343 (43%) had previous history of IPV. The incidence of IPV was 12.3% (95%CI 9.4;15.4), 8.9% (95%CI 6.9;11.4), 9.6% (95%CI 7.2;12.7) at month 1, month 6 and month 12 respectively. Emotional IPV (7.3%) was the most common type of abuse compared to physical (4.9%) and sexual IPV (4.2%). Previous IPV, depression and alcohol abuse were associated incidence of IPV ($p<0.05$).

Conclusion: IPV is a significant public health problem among PWLHIV in our community. Incidence of IPV during pregnancy amongst PWLHIV was high, with emotional violence commonly experienced by many women. We propose offering interventions to prevent and/or detect IPV together with HIV services for PWLHIV as optimal care for these women.

INTEREST 2022

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Abstracts
Mini-Oral Presentations

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Depression and Anxiety in Couples Enrolled in a Trial of an Intervention for PMTCT and Family Health in Southwestern Kenya

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Background: Depression and anxiety symptoms are common in pregnancy and postpartum period thus impeding PMTCT efforts. Despite the high burden among women and their male partners in sub-Saharan Africa, there is limited access to mental health care, particularly in rural areas. The uptake of mental health services is low and stigma regarding mental illness is common.

Methods: The Jamii Bora Study is recruiting HIV-positive and HIV-negative pregnant women and their male partners from 24 health facilities in southwestern Kenya. Currently, 1472 individuals are enrolled, and 660 pregnant couples have been randomized into three study arms (Couple-Based Home Visits, HIV Self-testing, and Standard Care). Participants complete the Patient Health Questionnaire 8-item depression measure (score ≥10 major depression) and the Generalized Anxiety Disorder 7-item anxiety measure (score ≥10 moderate anxiety) at baseline, 3- and 12-months post-delivery.

Results: The study has thus far recorded 31 cases of major depression (26 females, 5 males, 19 HIV-positive females) and 13 cases of moderate anxiety (9 females, 4 males, 7 HIV-positive females) at baseline; 7 cases of major depression (6 females, 1 male, 4 HIV-positive females) and 5 cases of moderate anxiety (all females, 3 HIV-positive) at 3-months post-delivery; and 2 cases of major depression (1 female, 1 male, 1 HIV-positive female) and 1 case of moderate anxiety (female, HIV-positive) at 12-months post-delivery. At baseline, females were more likely to report experiencing major depression than males (p=.001), and HIV-positive participants were more likely to experience major depression than HIV-negative participants (p=.005), while significant associations were not observed at the post-delivery time points.

Conclusions: Despite high rates of mental health problems, many pregnant/postpartum women and male partners in this region are often not willing to seek mental health assistance, due to stigma regarding mental illness, lack of transportation, and lack of knowledge about mental health services. Facility-level impediments include inadequate referral mechanisms, lack of supportive supervision, lack of provider mental health service capacity, and inadequate staffing. The capacity of communities and healthcare providers across all cadres in the health system needs to be enhanced to improve diagnosis and treatment of depression and anxiety in low-resource rural settings.

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Collaboration With Traditional Birth Attendants in Akwa Ibom, Nigeria to Improve Access to HIV Testing Services Among Pregnant Women

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Background: The elimination of mother-to-child transmission (eMTCT) requires ensuring that greater than 95% of pregnant women access HIV testing services (HTS). However, HTS for pregnant women is only available where antenatal care (ANC) is provided by skilled health care workers. In Akwa Ibom, 76% of pregnant women do not receive ANC from a skilled health care worker. We describe how the USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Akwa Ibom State improved HTS coverage for pregnant women and early infant diagnosis (EID) via collaboration between health facilities and traditional birth attendants (TBAs).

Methods: The EpiC Project held advocacy meetings with representatives of TBAs in 21 Local Government Areas to explain importance of HTS and EID. Subsequently, TBAs shared their schedule for ANC registration days and the geo-coordinates of all functional TBAs were obtained using KoBocollect app and mapped using ArcGIS online. Community ART (CART) teams visited different TBAs on their registration days and offered HTS to pregnant women. Those who tested HIV positive were referred for ART and PMTCT services. The TBAs also informed the CART teams of delivery by any HIV-positive women for EID via phone calls.

Results: From June 2021 through November 2021, 840 TBAs were mapped and linked to 21 primary health centers in the 21 LGAs. Over three months, 42,672 pregnant women were tested for HIV, with 56% (24,056/42,672) tested through TBAs. Of those tested, 331 were HIV positive, with a case-finding rate of 0.2% among those tested through TBAs and 1.5% among those tested through facilities ($p<0.0001$). Of the 682 HIV exposed infants who had first EID samples collected, [TBA:11.7% (80); Facility: 88.3%(602)]; 88 tested positive [TBA=13.6% (12); Facility=86.4%(68)]. Linkage to ART for HIV-positive pregnant women and newly diagnosed infants was 100%.

Conclusions: Reaching pregnant women with HTS services is critical to eMTCT of HIV. Collaborating with TBAs provides a structured approach to addressing missed opportunities among pregnant women who access ANC through TBAs.

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Acceptability of Injectable Cabotegravir Versus Daily Oral TDF/FTC for PrEP: Lesson from HPTN 084

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HPTN 084, a multisite, double-blind, randomized Phase 3 trial, compared the safety and efficacy of a long-acting cabotegravir (CAB LA) injectable to daily oral TDF/FTC for prevention of HIV-1 in uninfected African women. Like a similar trial in MSM/TGW (HPTN 083), the trial was stopped early for demonstrating superiority of CAB LA over TDF/FTC in preventing HIV. The shortened timeline of these two trials has expedited the need to consider introduction strategies for different populations. We examine qualitative data from a four-country substudy nested within HPTN 084 to better understand acceptability of these two PrEP methods and considerations for CAB LA access among African women at risk of HIV.

Qualitative research teams in Malawi, South Africa, Uganda and Zimbabwe conducted repeated, in-depth interviews with 68 women to understand beliefs about and experiences with trial products across individual, partner, community and clinical trial contexts. The research teams followed a four-step process to read transcripts, develop a codebook and apply codes in NVivo to transcripts with intermittent interrater reliability checks. We developed memos describing Sexual History, Product-related Acceptability, Adherence, Pregnancy, PrEP Use, and Clinical Trial Experiences. We classified participants as: self-declared sex work, transactional sex, non-transactional partners, and monogamy; summarizing information in Excel matrices to explore differences across risk categories related to product acceptability and other themes.

Participants overwhelmingly preferred IM injections to daily pills. Regardless of risk category, women liked the injectable's privacy from husbands, boyfriends, sexual clients or just "nosey people". At least half of participants worried about forgetting to take pills, describing previous mishaps with oral contraception or challenges with study pills. Late night work, unexpected travel or heavy drinking impeded pill adherence for some women. Descriptions of pain - the most common injectable concern – were variable; other side effects were rarely mentioned. Women in high-risk categories were more likely to mention "effectiveness" as a reason to prefer the injection, to have disclosed about study participation, and to know where they might access PrEP beyond the trial.

Women's desire for privacy and ease of use outweighed other injectable concerns, resulting in a strong preference for CAB LA.

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"You Tell Him that 'Baby, I am Protecting Myself'": Women's Agency, Constraint, Stigma and the Potential for PrEP Use in Durban, South Africa

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Introduction: Daily oral pre-exposure prophylaxis (PrEP) offers effective HIV prevention. In South Africa, PrEP is publicly available, but use among young women remains low. This study explores women's willingness to consider using PrEP for HIV prevention in the context of HIV- and sexuality-related stigma and gendered relationship dynamics, in Durban, KwaZulu-Natal, South Africa.

Methods: As formative qualitative research prior to developing a gender-informed intervention, Masibambane, to introduce PrEP to young, urban, educated women, we conducted six focus group (FG) discussions with 46 women ages 18-25 years and individual interviews with eight FG participants. Women not using PrEP were recruited from clinic and community settings using a criterion-based snowball sampling technique. Qualitative data were coded and analyzed thematically, using a team-based consensus approach for final coding, analytical decisions, and data interpretation.

Results: Women clearly understood the benefits of PrEP, focusing on their right to protect themselves. Their thoughts about future PrEP use were challenged by social stigmas related to HIV and female sexuality, but motivated by a desire for health promotion and sexual empowerment. Women feared that daily PrEP pills would be confused with anti-retroviral treatment, creating HIV stigma, and that PrEP pills and related clinic visits would "out" them to their communities as sexually active. Women were realistic about potential reactions of male partners if the women opted to use PrEP, including disapproval, loss of trust, loss of the relationship, and violence. Some women advocated for covert use of PrEP whereas others argued for disclosure, proposing various approaches to presenting PrEP to their partners. Women repeatedly suggested that both partners use PrEP. They sought to avoid discussions about trust and partners' possible infidelities, and instead focused on preserving or building the relationship through PrEP use.

Conclusion: Women offered diverse narratives on agency and constraint in relation to choosing PrEP for HIV prevention. Women's pronounced concerns about HIV stigma, negative community perceptions of young women's sexual activity, and relationship challenges speak to the need for tailored interventions to bolster women's confidence, sense of empowerment, communication, and decision-making skills for successful adoption of PrEP.

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Human Resources for Health: The Impact of Case Management Teams on Continuity of Treatment Among People Living with HIV (PLHIV) in Plateau State, Nigeria

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Introduction: Health workforce is a key building block to optimizing health systems, however, inadequate human resources in healthcare settings remains a barrier to achieving quality service provision in emergent countries. The Case Management team (CMT) is a CDC initiative which involves strengthening human resources for health (HRH) in the HIV program aimed at improving the quality of service delivery. This article studies its impact on continuity of treatment among PLHIV in Plateau state.

Methods: The CMT program commenced in December 2020 and it involved assigning <1000 clients to a team of 5 staff with specific roles thus facilitating closer monitoring of clients. It also involved engagement of ad-hoc staff and training of the team. A comparative analysis of the number of clients current on treatment (TX_CURR) and the interruption in treatment (IIT) in June 2020 (before CMT initiation) versus June 2021 (after CMT initiation) in APIN supported ART clinics in Plateau State was done. The data was extracted from the facility database, analyzed on Microsoft excel and then presented in charts.

Results: Prior to the CMT program, the TX_CURR for the state stood at 38215, of which 3323 had IIT (8.7%). Following the commencement of the program, the TX_CURR for the state rose to 45202 by June 2021, of which 1440 had IIT (3.2%). As at December 2021, the IIT rate dropped to 1.8%. In addition, observational studies showed remarkable improvement in continuity of treatment as the retention officers make regular follow up calls to prevent new and existing clients from having treatment interruptions as well as ensuring all clients who return after treatment interruptions do not default again.

Conclusion and recommendation: Findings from this study showed that strengthening human resources for health is pivotal towards improving continuity in treatment among PLHIV. We recommend that the CMT approach be sustained.

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Dolutegravir-Based Regimen Ensures High Virological Success Despite Prior Exposure to Efavirenz-Based First-Line ART: A Comparative Study in Cameroon

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Background: In order to ensure optimal prescribing practices in the dolutegravir-era in Cameroon, we compared first-line virological response (VR) under tenofovir+lamivudine+dolutegravir (TLD) according to prior exposure to tenofovir+lamivudine+efavirenz (TLE).

Materials and methods: A comparative study was conducted over the period June-December 2021 among patients initiating ART with TLD (I-TLD) vs. those transitioning from TLE to TLD (T-TLD) in HIV treatment centres of Yaoundé and Douala, Cameroon. HIV viral load was performed on Abbott m2000rt or OPP-ERA platforms (detection thresholds, <40 and <390 copies/ml, respectively). For participants with viremia >390 copies/ml, genotyping was performed by Sanger-sequencing; mutations were interpreted using HIVdb.v9.1, and phylogenetic tree was constructed using MEGA.v7; all p-values <0.05 were considered statistically significant.

Results: Out of the 12.093 patients followed on both sites, 310 (mean age: 41±11 years; 52.26% female) complied with study-criteria and were included (171 I-TLD vs. 139 T-TLD). Median [IQR] duration on ART was 14 [12-17] months among I-TLDs vs. 28 [24.5-31] months among T-TLDs (consecutively 15 [11-19] months on TLE and 14 [9-15] months on TLD); 83.15% were at WHO clinical stages I and II. Overall, viral suppression rate (<1000 copies/ml) was 96.45% (299/310), without any statistical significance among the two groups (97.08% in I-TLDs vs. 95.68% in T-TLDs; p=0.55). VR was also similar in I-TLD vs. T-TLD respectively at all viremia thresholds: <390 copies/ml (94.15% vs. 94.42%), 390-999 copies/ml (2.92% vs. 1.44%), and >1000 copies/ml (2.92% vs. 4.32%). Age, gender, city of residence, duration on ART, and WHO clinical stage were not associated with VR (p>0.05). HIV-1 integrase-genotyping wasn't successful on HIV-RNA but rather on pro-viral DNA of 8/11 participants who failed therapy; no major mutations to integrase inhibitors was found; two subtypes were identified, CRF02_AG (7/8) and F2 (1/8).

Conclusion: The rate of viral suppression is optimal under first line with TLD, after approximately 14 months, even with prior exposure to TLE. This evidence confirms the effectiveness of a transition from TLE to TLD in similar African settings, supported by the strong pharmacological potency and genetic barrier of dolutegravir toward the global elimination of AIDS by 2030.

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Factors Associated With Viral Load Suppression Among PLHIV On Treatment Across 36 Comprehensive ART Sites in Lagos State, Nigeria.

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Background: Globally, HIV remains one of the most significant public health challenges with over 38 million individuals infected, and Nigeria is the second highest contributor to the global epidemic. Despite the recent reduction in HIV prevalence, AIDS-related mortality, and increased access to antiretroviral drugs, Nigeria is still behind in attainment of the UNAIDS targets, especially the 3rd 95, with 78% viral load suppression among People Living with HIV as at end of 2020.

Materials & Methods: This study was a retrospective analysis of program data from 36 ART sites in Lagos State, Nigeria. An excel-based abstraction tool was used to include 36,096 clients that were active on ART and eligible for viral load testing as at end of December, 2021. Subsequent analyses were done using SPSS v20 on 33,626 (93%) who had valid viral load results. Chi-square and logistic regression were used to determine associated factors of suppression.

Results: The age of the participants was 42±12.50 years with majority (69.8%) being females. 67.1% of the participants were between 25-49 years old, 52.0% have been on ART for 5 years or more, 85% were on greater than 3 months multi-month-dispensing (MMD) while 93% were on DTG-based ART regimen. 1% of the participants have had documentation suggestive of tuberculosis while 5.2% were virally unsuppressed (HIV RNA ≥1000copies/ml). The Chi-square analysis identified sex, age, number of years on ART, MMD, ART regimen, ART facility type and TB suggestive status as significant at $p<0.05$, while logistic regression further revealed that being male and having TB suggestive status predisposes participants to being virally unsuppressed. More so, being 25-49years and 50+ years old, on DTG-based regimen, being on ART for more than 1year as well as being on greater than 3months dispensing and accessing treatment at a tertiary facility are protective factors against being virally unsuppressed.

Conclusions: This study suggests that being a male client and having signs of or/and confirmed TB are predisposing factors to being virally unsuppressed, while being 25years old and above, on greater than 3months dispensing of DTG-based regimen and a client of tertiary health facility promotes viral suppression.

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Assessing the Impact of COVID-19 on HIV Virological Suppression in the Public Health Sector in South Africa

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Background: In December 2019, the first reports of a novel coronavirus infection originated from the city of Wuhan, China. The World Health Organization named the new disease COVID-19 and, subsequent to global spread, classified it as a pandemic in March 2020. Many countries, including South Africa, introduced social distancing and lockdown rules to limit transmission. South Africa has experienced four waves of infection with rises in the number of diagnosed cases. A local study has reported reductions in average weekly HIV viral load (VL) testing due to these lockdown levels.
Aim: This study aims to assess the impact of COVID-19 on HIV viral load (VL) testing and suppression.

Methods: Specimen-level VL data was extracted from the corporate data warehouse for the period January 2019 to December 2021. We assessed the national percentage of samples with a VL <50 (virological suppression), 50-999 (low-level viremia) and ≥1000 (viraemia) copies/ml by month, age category and gender. Data for 2019 (pre-COVID-19) was compared to the 2020 and 2021 calendar years (lockdown imposed for COVID-19 waves). The national number of COVID-19 cases was reported to indicate the wave-periods as follows: one- June to August 2020; two- December 2020 to January 2021; three- June to August 2021 and four- December 2021.

Results: Data is reported for 17,460,264 samples. Overall, a VL of <50, 50-999 and ≥1000 copies/ml was reported for 70.1%, 17.0% and 12.8% of samples respectively for the 2020 to 2021 period. In comparison, for 2019 there were 67.6%, 17.7% and 14.6% of samples with a VL < 50, 50-999 and ≥1000 copies/ml respectively. The percentage of samples with virological suppression was 70.3% and 70.0% for 2020 and 2021 respectively. For the 2020 and 2021 calendar years, the monthly virological suppression ranged from 64.6% (December 2021) to 72.7% (October 2020). Similarly, low-level viraemia varied from 14.0% (January 2020) to 21.7% (December 2021).

Conclusion: Our findings indicate that Covid-19 has not had a substantial impact on the percentage of samples with virological suppression when compared with 2019. However, the predominant effect has been a reduction in VL testing targets.

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Do Integrase Strand Transfer Inhibitors Increase the Risk of Developing Diabetes Mellitus Type 2 Among Adult People Living With Human Immunodeficiency Virus as Compared to Other Antiretroviral Therapy? A Systematic Review and Meta-Analysis

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Background: the development of diabetes mellitus(DM) in patients on HIV integrase strand transfer inhibitors (INSTI) is raising global concerns. This is critical because these drugs are now used as first line therapy in most settings. The objective of the study is to systematically investigate if there is excess risk of developing DM among people living with HIV that are treated with this drug class as compared to those who are treated with other antiretroviral therapy. (ART)

Methods: a search from Pubmed, clinicaltrials.gov, Latin America and Caribbean health science literature, cochrane, and google scholar to retrieve case control studies and cohorts was done. The search was performed for studies from January 2007 to January 2021. Data were extracted from studies and pooled as risk ratio (RR) with a 95% confidence intervals (CI), using stata 14. The protocol was registered in PROSPERO ID CRD42021230282.

Results: ten studies were included in this review resulting in a total of 62400 study participants. There was no significant difference in incidence of DM between participants receiving INSTI vs other drugs in general. (RR 0.9795% CI 0.92- 1.03, participants = 50958, studies = 4, I2 = 86.8%, chi squared = 22.67). We did not find statistically significant difference in the incidence of DM among people treated with INSTI as compared to protease inhibitors (PI). (RR 0.97, 95% CI 0.92 - 1.03, participants = 49840, studies = 3, I2 = 89.3%, chi-square = 18.65). However there was significant difference in the incidence of DM associated with treatment of INSTI and non nucleotide reverse transcriptase inhibitors (NNRTI) groups. Incidence of DM were lower in INSTI as compared to NNRTI. (RR 0.80, 95% CI 0.69 - 0.91, participants = 42346, studies =2, I2 = 0.00%, chi-squared = 0.18).

Conclusion: incidence of DM in INSTI are comparable to other ART drugs when combined. They are also comparable to PIS, but have a lower incident DM development when compared to NNRTIs.

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High Transmitted Drug Resistance in Brazil: Unprecedented Levels of Insti Resistance

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Background: As of September 2021, 775.805 individuals were on antiretroviral therapy (ART) in Brazil. Until January 2017, according to local guidelines, the only Integrase Strand Transfer Inhibitor (INSTI) available in Brazil was Raltegravir, which was mainly used for salvage therapy when resistance to protease inhibitors (PIs) was detected. In January 2017, dolutegravir was introduced for first-line treatment. We conducted a national survey to evaluate the prevalence of transmitted drug resistance (TDR) mutations in treatment-naïve patients initiating ART.

Methods: The HIV Threshold Survey methodology (HIV-THS, WHO) was utilized. From September 2020 to August 2021, subjects were selected from seven highly populated cities representative of all Brazilian macro-regions: Belem (North region), Salvador (Northeast region), Brasilia (Central region), Rio de Janeiro and Santos (Southeast region), and Itajai and Porto Alegre (South region). Dried Blood Spots (DBS) were collected on SS903 collection cards and transported by regular mail at room temperature to a single central laboratory for genotyping of the reverse transcriptase, protease, and integrase regions of the pol gene by Sanger sequencing.

Results: Of 216 individuals analyzed, 49 (22.68%) harbored TDR mutations. The mean CD4+T-cell count was 396 cells/µL, and the mean viral load was 285,491 copies/mL. The regional TDR prevalence was 20.93% in the Northeast, 37.31% in the Southeast, 17.39% in the Central region, 27.65% in the North, and 7.69% in the South. Overall, TDR prevalence was 6.29% for nucleoside reverse transcriptase inhibitors (NRTIs), 21.08% for non-nucleoside reverse transcriptase inhibitors (NNRTIs), 0.70% for PIs, and 6.48% for INSTI. TDR to two and three antiretroviral classes was 2.31% and 0.46%, respectively. The prevalence of Non-B subtypes was 30.56%, being 18.52% of C, 5.09% of F, and 6.94% of recombinants.

Discussion: We identified variable TDR prevalence, ranging from intermediate to more frequently high levels. Previous use of Raltegravir in salvage therapy may have contributed to this unprecedented level of INSTI TDR.

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Does Differentiated Service Delivery for HIV Treatment Change Healthcare Providers Workload? Provider Views From Malawi, South Africa, and Zambia

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Background: Differentiated service delivery (DSD) models aim to make delivery of HIV treatment more efficient, reduce the burden on healthcare providers, decongest clinics and improve quality of care and/or increase clinic capacity. Although many countries are implementing DSD models, there is limited evidence on how they affect providers' workloads.

Methods: We surveyed providers (April-November 2021) at 43 public facilities in Malawi (12), South Africa (19), and Zambia (12). A convenience sample of ≤10 clinical (doctors, nurses etc.) and non-clinical (lay counsellors, data capturer etc.) providers per facility who had a direct or indirect involvement in DSD implementation were invited to participate. Quantitative and qualitative questions examined changes in providers' work schedules and workloads associated with the advent of DSD models.

Results: 444 providers were interviewed (n=142 Malawi, n=182 South Africa, n=120 Zambia). Most providers reported that DSD models freed up their time (74% Malawi, 71% South Africa, 93% Zambia) and made their jobs easier (90% Malawi, 73% South Africa, 98% Zambia). Freed-up time may have stemmed from seeing fewer patients/day (75% Malawi, 73% South Africa, 98% Zambia), and most respondents stated that DSD models led to changes in how their clinic was managed (80% Malawi, 67% South Africa, 90% Zambia). This change in management may have manifested in multiple ways: about a third reported spending more time with each patient, 11% reported working shorter hours; and 11% said that DSD models led to more time for administrative duties. Qualitatively, providers described fewer patients seen daily due to DSD models, reducing their workloads and allowing more time for each patient for administrative tasks and for personal affairs due to shorter hours, resulting in lower stress overall.

Conclusions: A diverse sample of southern African providers reported that DSD introduction freed up time, made their jobs easier, and led to changes in patient and clinic management.

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Shifting From 3-Multimonth Prescribing (3MMP) to 6-Multimonth Prescribing (6MMP) Was Associated With Non-inferior Outcomes for Adults on Antiretroviral Therapy in Rwanda

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Background: In 2016, WHO endorsed multi-month prescription (MMP) of antiretroviral therapy (ART) to reduce drug refill frequency for clients established on ART and increase efficiency at both client and health facility (HF)level. Rwanda started the 3-MMP initiative in 2017 and moved to 6-MMP in July 2020. People Living with HIV(PLHIV) who meet eligibility criteria (age >18, on ART for >12 months with at least 2 consecutive viral load tests [VLT]<200 copies/mL) can opt into the 6-MMP model, which includes twice-yearly clinic visits and VLT, and provision of 6-months of ART at each visit. We reviewed charts of clients who transitioned from 3-MMP to 6-MMP to compare the outcomes of the two models.

Materials & Methods: We reviewed charts of all PLHIV receiving at least one year of 3-MMP followed by one year of 6-MMP at a convenience sample of 22 HFs in Kigali, Rwanda, abstracting data on VLT results, VL Target NOT Detected[TND: VL=0], undetectable VL[uVL: VL<20] and VL Suppression[VLS: VL<200 copies/ml] and retention rate defined as reporting in time (<1week) for ART pickups and VLT. We used paired t-testing to compare VLT and retention for clients' last 12 months on 3MMP vs their first 12 months on 6MMP. VL absolute values were log-transformed and analyzed as either mean or median log VL.

Results: 10,129 PLHIV were enrolled at study HFs. There was no significant difference in the mean-log VL values (1.32 vs 1.33) during 3-MMP vs 6-MMP(p=0.998). 28.7% of PLHIV had VL TND during 6-MMP (95%CI: 27.8-29.5) compared to 22.7% during 3-MMP (95%CI: 21.9-23.5) p<0.001. The proportion of PLHIV with VLS during the 6-MMP period was very high 99.4% (95%CI: 99.2-99.6) but slightly lower than observed during the 3-MMP period 99.8% (95%CI: 99.7-99.9), (p<0.001). Retention improved with exposure time, 67% at 6-months and 74% after 12-months of ART exposure. Stratification showed no significant difference by sex and age group.

Conclusions: Transitioning PLHIV established on ART from 3-MMP to 6-MMP did not majorly affect VL outcome measures. Retention improved with establishment on ART for both periods. HIV programs should consider offering the option of 6-MMP one year after initiating ART.

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Risk Factors for Frailty in a Geriatric Cohort on Long Term Antiretroviral Treatment in Uganda

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Background: Antiretroviral treatment (ART) scale-up has led to a generation aging with HIV in sub-Saharan Africa (SSA). Frailty, an age-related syndrome heightened by HIV infection, is marked by diminished physiologic reserve and vulnerability to stress, and is predictive of adverse clinical outcomes. We determined the prevalence and risk factors of frailty in a geriatric cohort in Kampala, Uganda.

Methods: We determined frailty prevalence and predictors in an aging cohort (≥60 years) enrolled between December 2020 and December 2021. Frailty was defined by criteria proposed by Fried and colleagues: 1) unintentional weight loss, 2) exhaustion, 3) weakness 4) slow walking, and 5) low physical activity. We performed logistic regression controlling for: gender, age, BMI, pre-ART and current CD4 count, WHO stage, years on ART, co-morbidities (NCDs), household income, depression, and cognitive status.

Results: Of 500 participants, 51.2 % were male, median age was 64 (IQR:62-68) years, and median time on ART was 15 (IQR:10-17) years. Twenty-eight (5.6%) were underweight, and 154 (31.2%) had an income lower than 1 USD/day. CD4 count at the ART start and at the time of enrolment were 159 cells (IQR:74-235) µL and 645 (IQR:450-805) µL, respectively. Two had a viral load >1,000 copies/ml, 127(25.4%) >1 NCD, 72.8% some degree of cognitive impairment, and 10.2% depression. Forty-five (9%) were frail, 229(45.8%) pre-frail, and 226(45.2%) robust. CD4 count and WHO stage were similar across the three groups.
Men (AOR 0.30, CI: 0.11-0.77, p-value: 0.012), those with normal BMI (AOR 0.06, CI:0.01-0.3, p-value: 0.03), and those overweight (AOR 0.08, CI 0.01-0.48, p-value: 0.005) were less likely to be frail. Participants who were below the poverty line (AOR 2.60, CI: 1.13-6.01, p-value: 0.025), cognitively impaired (AOR 5.70, CI:1.49-21.71, p-value 0.011) and depressed (AOR 20.68, CI:6.46-66.37 p-value: 0.000) were more likely to be frail.

Conclusion: Despite the exceptional rates of viral suppression and robust CD4 count recovery, more than half of the patients with HIV infection were frail or pre-frail in our cohort, highlighting the clinical relevance of this condition. The assessment of frailty may pave the way for interventions for preventive/multidisciplinary interventions in nutrition, mental health, and lifestyle.

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Accelerating HIV Epidemic Control in Benue State, Nigeria, 2019-2021: The APIN Program Experience

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Introduction: Benue state has the second highest HIV prevalence of 4.9% in Nigeria. In 2018, about 35,623 people living with HIV (PLHIV) were yet to commence antiretroviral treatment (ART) in the state and they accounted for ART coverage gap of 11% in the country. To close this HIV treatment gap and fast track epidemic control, we implemented the Benue ART surge (BAS) intervention to increase PLHIV access to quality comprehensive HIV services. The aim of this study was to describe the BAS strategic approaches and demonstrate progress in expanding ART access for PLHIV in Benue State, Nigeria.

Methods: We implemented BAS in 252 health facilities from May 2019 to September 2021. The BAS was a flexible model of Incident Command System and the State Surge Consortium. BAS strategic approaches prioritized stakeholders engagement, small area estimation, tiered facility management, targeted community-based HIV testing, comprehensive HIV services for key populations, enhanced program management, and viral load optimization. Data were collected and reported using an excel-based dashboard and electronic medical record. We described the trend of HIV case identification, ART initiation, viral load suppression rate, and rate of interruption in treatment during the BAS period.

Results: Out of 893,462 clients reached and tested for HIV during BAS implementation, 15% (n=60,297) were diagnosed with HIV and 99.8% (n=60,236) were initiated on ART. HIV case identification per month increased by 467% from 650 at baseline to a peak of 3,685 in August 2020, and then declined by 35% to 2,380 in September 2021. All new HIV infected patients (100%) were linked to ART. Viral load testing coverage and viral load suppression rate increased from 30% (43,185/126,004) and 84% (n=36,165/43,185) at baseline to 95% (n=193, 890/204,095) and 96% (185,785/193,890) respectively.

Conclusion: Implementation of the BAS improved access to comprehensive HIV services in Benue State. The increase in HIV case identification and ART initiation significantly reduced HIV treatment gap in the state. To fast track the attainment of UNAIDS 95-95-95 goals, lessons learnt from the BAS should be adapted and scale up in the national HIV programme in Nigeria.

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Community Antiretroviral Therapy Dispensation in Cameroon Associated With Superior Client Outcomes: A National Evaluation

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Background: The USAID- and PEPFAR-funded Meeting Targets and Maintaining Epidemic Control(EpiC) project and the Government of Cameroon developed and evaluated a model in which some health facilities providing antiretroviral therapy offered clients the option to receive antiretroviral (ARV) drug refills at community-based organizations(CBOs).

Methods: A mixed-methods evaluation was conducted from October to December 2020 in 10 regions of Cameroon to determine the CBO model's impact on client retention and viral suppression.
Retention was compared cross-sectionally at 3, 6, 12, and 24 months between clients receiving ARV refills at 50 CBOs (n=2633, 2549, 2425, 2063 respectively) and clients receiving refills at 38 health facilities offering the CBO option/model (offering facility) (n=2017, 1916, 1805, 1606 respectively).
Additionally, retention at 3, 6, 12, and 24 months was compared between a cohort of clients receiving ARV refills at a subset of 3 health facilities offering the CBO model (offering facility) (n=126) and 3 health facilities that did not (non-offering facility) (n=114).
Lastly, viral suppression was compared each year from 2016-2020 cross-sectionally between clients receiving ARV refills at CBOs (n=91, 217, 550, 664, 964 respectively) and at offering health facilities (n=31, 130, 342, 347, 543 respectively). Program data from August 2014 to October 2020 was used for descriptive and inferential analysis.

Results: Clients receiving ARV refills at CBOs had higher retention than those at offering health facilities at 3(94% vs. 90%, p-value<0.000), 6 (91% vs. 86.1%, p-value<0.000), 12 (86.6% vs. 81.1%, p-value<0.000), and 24 (86.1% vs. 72.2%, p-value<0.079) months. Clients receiving ARV refills at offering facilities had higher retention than at non-offering facilities, but significantly only at 3(100% vs. 93.1%, p-value=0.0013) and 24 months (90.5% vs.79.0%, p-value=0.0127). Similarly, viral suppression was higher among clients receiving ARV refills at CBOs than at offering health facilities each year, but significantly only in 2018 (98.6 vs. 92.4%, p-value<0.00) and 2020 (95.1% vs. 92.3%, p-value=0.02).

Conclusions: Dispensation of ARV through CBOs was associated with higher retention and viral suppression. The model has potential to improve clinical outcomes for clients who receive ARV refills at CBOs and those who continue to receive refills at health facilities offering the CBO option/model.

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Directly Observed Therapy (DOT) for ART in Children to Attain Viral Suppression

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Background: Viral load suppression in children with HIV has remained consistently low compared to adult populations due to challenges with ART formulations and suboptimal adherence. Various interventions to improve adherence have been tried including participation in support groups, adherence counselling by a health worker or lay health worker and medication reminders. We implemented a Directly Observed Therapy (DOT) strategy to support ARV drug adherence among children with unsuppressed viral loads.

Methods: To implement the DOT strategy, we designed standard operating procedures, developed an orientation package, data collection tools, and oriented community volunteers and health care workers on the strategy. Sensitisation was done to caregivers whose children had unsuppressed Viral Load over 1,000 c/m. Trained community volunteers were paired with patients on treatment with unsuppressed Viral Load over 1,000 c/m. Home visits to observe drug administration and offer adherence support were done 3 times a week and documented. Enhanced adherence counselling was offered home as part of routine standard of care for clients with unsuppressed viral load. Due to COVID 19, social distancing was observed during the orientations.

Results and Discussion: We implemented the DOT strategy at 57 public sector clinics in Chongwe, Kaoma and Senanga districts in Zambia between June and September 2020. 281 children with unsuppressed VL of over 1,000 c/m were identified and approached for the intervention. Of these, 280 (99%) were enrolled. 165 (59%) children completed enhanced adherence counselling (EAC) and repeated the viral load. Of these, 156 (95%) were virally suppressed and 9 (5%) still had unsuppressed viral load. The rest of the 115 children had not yet completed EAC during the period under review. The community volunteers delivered the drug refills to the client's home. Caregivers reported that they preferred a community volunteer to come to their home and observe their children take the drugs during the COVID -19 pandemic.

Conclusion: This community volunteer-delivered DOT strategy for HIV infected children with unsuppressed VL provides an opportunity for them to access quality enhanced adherence counselling in their homes. Implementation of this strategy at scale may help improve viral suppression in children living with HIV in Zambia.

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Leaving No One Behind: The Impact of Kindergarten ART Clinic on HIV Treatment Outcomes Among Children Enrolled in Kindergarten HIV Program at Lighthouse HIV Care Facilities.

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Introduction: Children living with HIV (CLHIV) continue to have poor viral load suppression (VL) rates especially the under 5. To address the gap, Lighthouse Trust implemented a kindergarten ART clinic in its HIV care facilities to improve retention, viral load suppression and mortality among CLHIV aged 0-5 years. Hence, the aim of study was to assess the impact of kindergarten clinic on retention, viral load suppression and mortality among children enrolled in kindergarten HIV program.

Methods: This was cross-sectional study of CLHIV aged 0-5 enrolled in kindergarten program in four Lighthouse trust HIV care facilities from January 2021 to December 2021. The facilities include Umodzi Family Center (UFC), Tisungane Clinic, Martin Preuss Center (MPC) and Rainbow clinic. The kindergarten clinic was conducted on Saturdays every month. The children and caregivers received client centered treatment adherence, psychosocial and nutritional counselling including ART refills . The caregivers also shared their experiences, ideas and best practices to promote treatment adherence. We calculated baseline cohort VL suppression rate using data from Electronic Medical Record system. After 1 year, we measured overall suppression rate, retention rate and mortality rate and analysis included all CLHIV regardless of ART regimen.

Findings: A total of 433 CLHIV aged 0-5 were enrolled, 142 at UFC with baseline VL-37%, 51 at Tisungane with baseline VL -30%, 99 at Rainbow with baseline VL -23% and 138 at MPC with baseline VL-47%. After 1 year, overall VL suppression rate increased from 23% to 91% at Rainbow, 37% to 81% at UFC, 30% to 76% at Tisungane and 47% to 62% at MPC. The retention rate was 81% at Rainbow (81/99), 98% (139/142) at UFC, 92% (47/51) and 99% (137/138) at MPC. There were 3 deaths at UFC but no death in other facilities.

Conclusion: Kindergarten ART clinic as a family centered differentiated care model for CLHIV has the potential to improve VL suppression and other important HIV treatment outcomes. Knowing the challenges faced by CLHIV to achieve optimal viral load suppression, scaling up this initiative in high volume HIV care facilities would accelerate progress towards attaining UNAIDS targets among CLHIV.

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Supporting Self-Management in Adolescents to Be Resilient and Thrive: An Intervention Development Study

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Introduction: Adolescents living with HIV (ALWH) face various challenges and have suboptimal treatment outcomes compared to adults. There are no known interventions focused on improving the self-management skills of ALWH in South Africa. Self-management is defined as the tasks individuals living with a chronic illness undertake to improve their health and well-being. Self-management interventions focus on self-empowerment in order to improve abilities and behaviours needed to control a chronic condition, and is key for older ALWH as they transition to adult care. The aim of this study was to develop a self-management intervention (S-SMART) for ALWH aged 15 to 19 using intervention mapping (IM).

Methods: We developed a logic model for change based on factors influencing self-management amongst ALWH. Preliminary programme outcomes, objectives, methods and practical strategies to implement the intervention were identified, based on previous qualitative and quantitative research, a systematic review and theory. This resulted in the development of a 12-week programme consisting of individual activities completed in a workbook or smartphone application, five peer-group sessions and three individual coaching sessions. We determined the content validity by consulting with nine local and international experts and explored the views of 18 key stakeholders (11 ALWH and seven healthcare workers) through four focus groups in the Cape Metropole of the Western Cape, South Africa.

Results: The content validity indexes for the intervention components were between 0.8 and 1.0. Experts and key stakeholders agreed on the need for and importance of the intervention, emphasising the focus on ALWH's well-being as an outcome and intervention objectives and content beyond HIV. The practical strategies appeared acceptable and feasible, but individual coaching may require additional human resource support. Several parameters for effective implementation were identified.

Conclusion: Progress in health outcomes among ALWH is lagging. Interventions and programmes that are showing promising results in supporting ALWH should be placed at the forefront of development. Following further refinement, this intervention might be a solution to ALWH in South Africa and the African context, which may support and guide them and healthcare workers in reaching treatment targets and ensuring a resilient and thriving population of ALWH.

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Une Entrée Difficile Dans la Sexualité Pour Les Adolescentes Séropositives Au Sénégal, Entre Normes Sociales ETVIH

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Objectifs: La sexualité hors mariage reste socialement réprouvée au Sénégal, en 2022. L'interruption de grossesse est pénalisée, aussi des avortements clandestins et des infanticides sont régulièrement évoqués dans les médias. L'entrée dans la sexualité des adolescentes, notamment celles vivant avec le VIH est donc un défi. A Dakar des initiatives émergent, pour accompagner ces jeunes, grâce à des applications numériques. En milieu rural, elles sont plus rares. Une étude menée en 2020, a exploré le vécu et la gestion de la sexualité des adolescentes VIH+ vivant hors de Dakar.

Méthode: L'étude anthropologie « Echec thérapeutique chez les enfants et adolescents vivant avec au Sénégal, hors Dakar [ETEA-VIH, ANRS 12421],» a été menée en 2020 dans 14 hôpitaux et centres de santé. Des entretiens semi-directifs ont concerné 85 enfants/adolescents VIH+, 92 parents/tuteurs et 47 acteurs de santé. L'entrée dans la sexualité des adolescentes a fait l'objet d'une analyse spécifique.

Résultat: Généralement, les parents feignent d'ignorer la vie sexuelle de leurs enfants. Les mères redoutent la survenue d'une grossesse hors mariage, car la responsabilité de l'éducation sexuelle leur incombe et la « faute » leur serait attribuée.
Malgré les programmes de santé sexuelle et reproductive (SSR), la plupart des soignants sont réticents à parler de sexualité et à proposer une contraception aux adolescentes. D'autre part, dans les familles, le secret entoure l'infection à VIH, qui reste stigmatisante. Le risque de dévoilement de la maladie est une préoccupation majeure.
Des espaces d'informations sont organisés dans quelques hôpitaux régionaux, par des associations formées à la SSR. Ils sont plus rares dans les centres de santé. Les applications numériques et les forums d'échanges sont peu accessibles en milieu rural faute de smartphones et d'accès à internet.
La survenue d'une grossesse non désirée peut conduire à une exclusion familiale et à un risque de transmission du VIH à l'enfant, par manque d'accompagnement médical et social.

Conclusion: En milieu rural, les adolescentes VIH+ sont confrontées au silence qui entoure la sexualité et le VIH. Une approche individualisée et l'accès confidentiel à une contraception doivent être privilégiés pour les accompagner, avec l'appui des associations.

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Risks and Vulnerabilities Among Adolescent Girls and Young Women Accessing HIV Prevention Services at DREAMS Centers in Zambia

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Background: Many adolescent girls and young women (AGYW) in Zambia experience low socio-economic conditions, disproportions and socially created gender roles that pose health risks and increase vulnerability to HIV infection. We present risk and vulnerabilities among AGYW enrolled into the Determined Resilient Empowered AIDS Free Mentored and Safe (DREAMS) program through the CIRKUITS and ZCHECK projects in Zambia.

Methods: The CIRKUITS/ ZCHECK DREAMS program identified risks and vulnerabilities among AGYW as a component of eligibility screening for DREAMS. A structured risk assessment form assessed sexual reproductive health, gender-based violence (GBV), orphan hood. The data were analyzed according to age bands of 10-14 years, 15-19 and 20-24 years. To evaluate risks and vulnerabilities, we analyzed age disaggregated data for 12 months (October 2020 to September 2021) across the six DREAMS centers in Southern and Western Provinces. We performed descriptive statistics and estimated risk and vulnerabilities, using Chi square tests to compare vulnerabilities by age and strata.

Results: In the 12-month period, 29,246 AGYW were screened for vulnerabilities: 9,506 (32.5%) were 10-14 years, 16,083 (55.0%) 15-19 years and 3,657 (12.5%) 20-24 years. In all the age bands less than 5% were mothers/pregnant, with 0.3% among the 10-14 years. As early as 10-14 years, 5% were sexually active and 1% reported transactional sex, which increased across age groups. GBV was highest at 18% in the 10-14 years and decreased across the older age groups. The distribution of all vulnerabilities differed significantly by age group, p<0.001)

Conclusion: AGYW in Zambia experience multiple overlapping sexual and social vulnerabilities, including early sexual debut, early pregnancy, GBV, orphan hood, and transactional sex. Structured sexual reproductive health and HIV preventive services such as DREAMS for adolescents and young women are required to reduce HIV risk and avert new infections.

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Effectiveness of Innovative Index Testing Strategies: The Case of a CSO in Western Region of Ghana

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Background: To attain epidemic control, it is crucial to adapt innovative and effective methods of testing such as social network and index testing to complement traditional testing strategies. This abstract presents evidence of an emerging index testing strategy which was implemented in the Western Region (WR) of Ghana.

Description: Under the USAID Strengthening the Care Continuum Project (Care Continuum) implemented by JSI Research & Training Institute, Inc., Maritime Life Precious Foundation (MLPF) introduced Viral Load Index Testing and ART Defaulter index testing as one of its testing activities in the period of October 2019 to June 2021. Index testing is a testing strategy where people living with HIV are encouraged to voluntarily refer their sexual partners, drug injecting partners and biological children under the age of 19 for HIV testing. These approaches involve the use of viral load results of PLHIV clients as well as defaulters of ART as base criteria for offering index testing to these PLHIV across MLPF implementing sites. Clients with high viral load as well as clients who have defaulted their HIV medication for over one year are prioritized, counselled and offered index testing as it is believed that clients with high viral load pose high risk to their partners without the necessary protection.

Lessons Learned: In the period from October 2019 to June 2021, a total number of 140 viral load results were analyzed of which 84 were virally suppressed. 56 had very high viral load results and were offered index testing. The project also supported 102 clients who defaulted for more than one year to be brought back on treatment and offered them index testing. A total of 334 contacts were elicited from 158 index clients with 315 receiving HIV testing. Of those who tested 121 received HIV positive results representing 38.4% positive yield.

Conclusions/Next Steps: Offering index testing to patients with high viral load and those who interrupted treatment yielded 38.4% within the period which indicates that high yielding approaches should be adopted and implemented as part of HTS strategies to help realize the UNAIDS goal of eliminating HIV by 2030.

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Traditional Healer-Delivered Support Improves Re-Linkage to Care and Art Adherence Among Defaulted PLWH in Rural Uganda

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Retention in HIV care is essential for epidemic control, yet half of people living with HIV (PLWH) in sub-Saharan Africa default from care within two years. In Uganda and across sub-Saharan Africa, traditional healers (TH) are ubiquitous, informal providers who often serve as the first line of health care. African TH have successfully increased uptake of HIV testing among their clients. We hypothesized that TH could also support re-linkage to HIV care and ART adherence among rural Ugandan PLWH.

We adapted a layperson HIV support program from South Africa using the ADAPT-ITT framework, then conducted a prospective cohort study to determine if TH-delivered support improved re-linkage to HIV care. Eligible TH practiced in Mbarara Township. Adult PLWH with suboptimal ART adherence (CASE adherence index score <10), receiving care from a participating TH, and residing in Mbarara Township were eligible. Outcomes were assessed at the level of the individual PLWH. Primary outcome was re-linkage to HIV care within 14 days. Secondary outcomes were re-initiation of ART, ART adherence, and retention in care. This study was approved by pertinent ethics committees.

In September 2021, 12 TH received two days of instruction on facilitating linkage to clinical care, and provision of ART adherence support. 20 PLWH who were ART naïve or with suboptimal adherence were enrolled. 42% of TH and 55% of PLWH participants were female. At baseline, median CASE adherence score was 3; only 5% of PLWH used ART via 4-day recall. From October-January 2021, TH delivered regular non-clinical support, weekly for four weeks, then monthly. All 20 PLWH (100%) successfully re-linked to care and initiated ART within 14 days of enrollment. After 120 days, ART adherence improved nearly 20-fold (95% adherence via 4-day recall). All PLWH were retained in HIV care. Qualitative data found PLWH appreciated TH support, and TH were enthusiastic to assist clients with HIV care.

TH could successfully facilitate re-linkage to HIV care, and support ART adherence and retention in care for PLWH in the short term. Further studies are needed to explore long term impact and effectiveness of this program via randomized controlled trial.

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Behavioral Economic Incentives to Support HIV Treatment Adherence (BEST): one-year results of a randomized controlled trial in Uganda

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Background: A growing number of people who have been on ART for several years experience treatment fatigue contributing to incomplete treatment adherence, a major cause of HIV disease progression and death. This study tests whether small incentives are effective at improving adherence and increasing the likelihood of viral suppression, and compares two ways of implementing incentives: one linked to daily behaviors (medication adherence) and one linked to clinic indicators (timely clinic visits and viral suppression) as a less costly approach to incentivization.

Methods: We enrolled 330 clients at Mildmay Hospital who had been on ART for at least two years and showed recent signs of adherence problems. Participants were randomized into three groups: participants in the first intervention group (MEMS-linked incentives; n=111) were eligible for prize drawings based on electronically measured adherence; those in the second group (EHR-linked incentives; n=109) were eligible based on timely clinic visits and showing viral suppression after 12 months and after 24 months. The control group (n=109) received the usual standard of care. Small prize drawings occur at every clinic visit (every 2-3 months) and large prize drawings occur once per year. Prizes consist of small in-kind gifts worth roughly $1.50 (small prizes) and $10 (large prizes).

Results: The intervention significantly improved adherence for participants with baseline adherence of less than the 25th percentile (a pre-specified subgroup) in the first year of the study by 9.3 percentage points when pooling incentive arms (95% CI 0.01, 0.18; p=0.12): 8.5 percentage point increase in the EHR-linked arm (95% CI -0.02, 0.19; p=0.12) and 9.8 percentage point increase in the MEMS-linked arm (95% CI -0.01, 0.20; p=0.06). However, this improvement for those with low baseline adherence dissipated after the first 12 months and was insignificant in the second year of the study, potentially due to interruptions to the intervention due to COVID-19. We found no effects on viral suppression.

Conclusions: Small in-kind incentives based on insights from behavioral economics improved ART adherence for clients with low adherence but these dissipated over time, potentially due to COVID-19 interruptions to the intervention.

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Retention and Access to Viral Load of Key Populations Living With HIV (KPLHIV) : Cases of MSM Followed by the NGO SOUTOURA/EpiC in Mali.

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Contexte: In Mali, USAID and PEPFAR support the EpiC project to provide HIV prevention and treatment services to key populations. Retaining MSM in the continuum of HIV services is a major concern for the programs. SOUTOURA, with technical assistance from FHI360, is implementing peer navigation and case management approaches to improve ART adherence and support viral load suppression..

Description: SOUTOURA provides the continuum of care for MSM through three community clinics. Community clinic staff trained in peer navigation and case management approaches provide support to KPLHIV through therapeutic education sessions, adherence assistance and self-support groups with a special focus on unstable clients. Standard operating procedures for monitoring ART adherence, retention, viral load testing, and achieving and maintaining suppression have been implemented. Aggregate retention and viral load data (table1) come from reports generated by KOLOCHI (DHIS2 e-tracker) disaggregated by population type and by age from October 2020 to September 2021

Leçons apprises: During this period, the community clinics followed 400 MSM on ART, of which 33% (131/400) were young MSM (under 25 years) and 67% (269/400) were older MSM (25 years and older). The retention rate was 90% (360/400). The retention rate was slightly higher among young MSM at 95% than among MSM over 25 at 87%. 38% (137/400) of MSM were found eligible for viral load testing, of which 84% (115/137) were tested for viral load. 77% (89/115) of MSM received their viral load result, of which 76 (85%) had a suppressed viral load result. The suppression rate was slightly higher in older MSM 98% than in younger MSM 75%.

Conclusion/Prochaines étapes: Although the implementation of a structured peer navigation and case management approach has improved retention rates, viral load suppression rates remain very low among young MSM. MSM programs need to better integrate the generational differences between younger and older MSM into their interventions in order to better tailor service delivery to the needs of different groups:

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Impact of COVID-19 Public Health Measures on ART Use Among Ugandans Living With HIV in Sero-Different Couples

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Background: Approximately 30% of new HIV infections in sub-Saharan Africa occur among heterosexual HIV serodifferent couples. Effective antiretroviral therapy (ART) eliminates HIV transmission risk and is a priority intervention. We describe how the onset of COVID-19, which yielded restrictions to public transportation and strict curfews, impacted ART initiation and HIV viral load among people living with HIV in Uganda.

Methods: In a stepped-wedge cluster-randomized trial of an integrated PrEP and ART intervention for HIV-serodifferent couples at 12 ART clinics in Kampala/Wakiso, Uganda (ongoing at the outset of the Covid 19 pandemic), we compared ART initiation and viral suppression among participants enrolled during different time points defined by the initial COVID-19 lockdown. Period-1 included participants who enrolled and had a 6-month viral load assessment before the first COVID-19 lockdown in Uganda on 18-March-2020. Period-2 includes participants enrolled before 18-March-2020 with viral load measured thereafter (straddling pre-COVID and COVID times). Period-3 includes participants enrolled with viral load quantified after 18-March-2020 (entirely during COVID-19). ART and viral load data, available through standard of care, were abstracted from clinic records.

Results: We enrolled 1,381 partners living with HIV, including 896 (64.9%) in Period-1, 260 (18.8%) in Period-2, and 225 (16.3%) in Period-3. Almost all participants (1371, 99.3%) initiated ART within 90 days of enrollment and more than half (59.2%) had CD4 >350 cells/mm3at enrollment. Among those enrolled in Period-1, 88.8% were virally suppressed within 6-months of ART initiation, among those enrolled in period-2, 80.5% were suppressed, and among those in period-3, 88.2% were suppressed. In a generalized estimating equation model with adjustment for clustering by clinic, the small number of clusters, and the intervention phase, no pairwise comparisons of viral suppression across periods were statistically significant. The median time from ART initiation to VL assessment was greatest in period-2: Period-1 median time=128 days (IQR 95-173), Period-2 median time=175.5 (IQR 146-206.5), Period-3 median time=130.5 (IQR 97.8-168.3).

Conclusions: Despite COVID-19 lockdown measures, people living with HIV initiated ART and achieved viral suppression. Any potential challenges faced during the initial restricted conditions of lockdown waned and levels of ART initiation and viral suppression rebounded.

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Ok to Not Be Ok in HIV Care: Lessons and Outcomes of Integration of Mental Health Screening, Referrals and Support in Routine HIV Care in Zimbabwe

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Background: People living with HIV are two times more likely to experience common mental disorders. Annual mental health (MH) screening is recommended for all recipients of HIV care in Zimbabwe. In practice, however, integration of mental health in HIV care has not been implemented with fidelity. Our objective was to strengthen mental health screening, referral and treatment in routine HIV care.

Materials and Methods: We implemented a learning phase MH/HIV integration program to screen recipients of HIV care using the Patient Health Questionnaire-2 (PHQ-2) in Chitungwiza District, Zimbabwe. PLHIV screening positive were referred to Friendship Bench for Shona Symptom Questionnaire-14 (SSQ-14) administration and evidence-based problem solving therapy (PST). Screening outcomes were documented as to inform construction of a 'mental health cascade' and standardization of implementation models in routine HIV programs at scale.

Findings: Among 14,933 recipients of HIV care at 5 participating high-volume facilities from March-May 2021, 11,983 (80%) were screened using the PHQ-2; the majority (94%;11,320/11,983) screened by nurses at the facility while attending appointments or collecting antiretroviral medication. PHQ-2 screen positive yield was 4% overall (425/11,983); appointment/treatment defaulters screened in the community had a 25% PHQ-2 screen positive yield (164/663). The majority of those received and screened by Friendship Bench had a clinically significant SSQ-14 score (84%;355/423); 14.9%(53/355) with 'red flag issues' (suicidal ideation and/or hallucinations). Follow-up sessions with clients showed a decrease in SSQ-14 scores among 73% after just one session of PST with Friendship Bench.

Conclusions: We demonstrate feasibility of integration of mental health screening and referrals to community-based mental health interventions in routine HIV care. Collaboration between HIV (OPHID) and Mental Health (Friendship Bench) partners enabled co-creation of a MH screening referral and treatment cascade in routine care, identifying 355 recipients of HIV care with clinically significant common mental disorders in just three months at five health facilities.. The program model and tools have been standardized and will be taken to scale at 44 high volume facilities, serving over 150,000 PLHIV. Future implementation research is required to extend the MH/HIV cascade to include individual-level impact of integration on both HIV and mental health outcomes.

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Factors Associated With Low Tuberculosis Case Notification and Treatment Success at Health Facilities of Zambia: A Cross- Sectional Study

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Introduction: Early detection and successful treatment of people with Tuberculosis (TB)prevents millions of deaths globally. Yet, gaps persist in the detection and treatment of TB. Zambia's weak health system only exacerbates matters with the country having one of the highest TB burdens in the world. Furthermore, 58 per cent of the identified patients in Zambia are co-infected with HIV making it a double public health burden.

Methods: The study used secondary health facility data from the 2019 Health Facility Listing Survey and 2017 and 2018 Health Management Information System data sets. A cross-sectional design was used to analyze data from 81health facilities from 9 provinces of Zambia. Data was managed using STATA version 14. Linear regression analysis was used to analyze factors associated with low TB case notification and treatment success while quantile regression and principal component analysis were used to determine the effect size of these associations.

Results: Low TB case notification was positively associated with personnel(P-value 0.00, CI =0.120.62), negatively associated with rural clinic (p-value 0.00, CI= -2.91, 0.84),negatively associated with 3rd level hospital(p-value 0.05, -5.12, 0.15) and negatively associated with having no TB clinic(p-value 0.01, CI= -1.57,-2.48) while low Treatment Success was positively associated with personnel(p-value 0.02, CI= 0.06, 0.65)and population(p-value 0.00, CI=0.13, 0.58) but negatively associated with rural clinic(p-value 0.00, CI= -3.07,-1.55) and having no TB clinic(p-value 0.00, CI=-2.10,-0.03).While results from quantile regression showed that for facilities at the 25th percentile of case notification or treatment success, having an addition staff was associated with 3 times year increase in notification or treatment success than facilities at all other quartiles. Similarly, results from simple regression using principal component analysis showed that those facilities that had equipment at the 3rd quarter were 2 and 3 times higher to notify TB and treat it compared to those facilities that had equipment at the lower quarters.

Conclusion: Low TB case notification and treatment success remains a challenge in health facilities of Zambia. Using systems thinking approach is thus cardinal in understanding and tackling health systems barriers affecting TB control programs.

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Factors Shaping Access to TB Testing Among Adolescents Living With Human Immunodeficiency Virus in the Eastern Cape, South Africa

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Background: South Africa has among the largest populations of adolescents living with HIV (ALHIV) in the world, who are at greater risk of TB-related morbidity and mortality. Research on TB has largely overlooked ALHIV, resulting in knowledge and service provision gaps. This paper provides insights into access to TB testing among ALHIV.

Methods: This 3 wave longitudinal study, in the Eastern Cape, n=933 ALHIV (10-19 years old) were included in the analysis (90% of baseline sample, retained at second and third interview). The selection of social factors was informed by a literature review and filtered using the Ecological Model and the People Centered Model of TB Care. Multivariate analysis models, using R statistical software, and a stepwise approach identified significant factors across wave 2 and wave 3.

Results: 55.1% of ALHIV were female, 24% lived rurally, 78.13% vertically acquired HIV, 58.3% (wave 2) and 37.6% (wave 3) reported having a TB symptom in the past year, 32.9% (wave 2) and 36.3%(wave 3) had a TB symptom and did not have a TB test. Being older (OR 1.43, CI 1.06-1.92, p 0.02), female (OR 1.34, CI 1.02-1.75, p 0.03), in a relationship at both time points (OR 1.79, CI 1.23-2.62, p 0.002), and having had a viral load test in the past year at both time points (OR 1.50, CI 1.11-2.02, p 0.008) were associated with higher odds of TB testing. Having TB symptoms (wave 2: OR 1.69, CI 1.27-2.26, p<0.001, wave 3: OR 1.67, CI 1.26-2.22, p<0.001) was strongly associated with testing for TB at each time point, suggesting screening processes can be improved in facilities where ALHIV receive care. Factors linked to housing, TB exposure risk and mobile phone access were associated with improved TB testing on cross-sectional analysis.

Conclusions: Where ALHIV live (living rurally, cost to get the clinic more than R10, informal housing and experiencing community violence), who they are (age, sex) and their emotional and nutritional support (being in a relationship, food security) have shown to strongly influence TB testing. These findings can guide targeted interventions and social protection measures to address TB testing among ALHIV.

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Immunological Phases of Sepsis in a Ugandan Cohort With Significant HIV Co-infection

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Background: Monocyte HLA-DR expression and cytokine levels have been used to categorize immunological phases of sepsis. A monocyte HLA-DR > 15,000 is considered immune-competent, 5,000 to 15,000 moderate immune suppression and < 5,000 is immune paralysis. Validation of these monocyte HLA-DR numbers was done in HIV-free populations. However, in Uganda, HIV-positive patients represent a significant proportion of patients with sepsis.

Material and Methods: A prospective observational study with two populations was carried out at a National Referral Hospital in Uganda. Forty participants with sepsis and 10 health care workers (sepsis-free participants) were recruited into the study. Whole blood was used to determine monocyte HLA-DR counts by flow cytometry and stored plasma was used to determine cytokine levels using LuminexTM assays. Furthermore, the participants with sepsis were followed up for 28 days and their mortality was correlated with their immunological phases. Ethical approval and administrative clearance were obtained from the relevant regulatory authorities. Student t-test and Kaplan Meier survival analysis were used in the analysis of data and a $p<0.05$ was considered to be statistically significant.

Results: Sixty percent (24/40) of the participants with sepsis were male and 40% (16/40) had HIV co-infection. Their median (IQR) duration of illness was 7 days (4-14 days) and fifty-three percent (21/40) were already on antibiotics by the time of hospital presentation. Only 25% (10/40) had positive microbial cultures. There was equal sex distribution among sepsis-free participants and they had a significantly higher monocyte HLA-DR count ($p=0.0132$) compared to the participants with sepsis. Paradoxically, participants with sepsis who were HIV-positive had a significantly higher monocyte HLA-DR count compared to their HIV-negative counterparts ($p=0.0306$). As per monocyte HLA-DR criteria, only five (12.5%) participants (none of whom was HIV-positive) with sepsis had moderate immune suppression and there was no difference in survival between this group and the rest (log-rank 1.530, $p=0.2161$). Additionally, participants with moderate immune suppression had significantly higher IL-1ra concentrations ($p=0.0477$).

Conclusion: Categorization of the immunological phases of sepsis using monocyte HLA-DR counts needs to be revalidated to include cut-offs for HIV-positive patients.

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High Prevalence of the Atypical Hepatitis B Virus Serology Profile: HBsAg Positive/anti-HBc Negative in HBV and HIV Co-infected People in Botswana

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Background: Hepatitis B virus (HBV) causes 820,000 deaths annually and HBV clinical outcomes may be worsened by co-infections such as human immunodeficiency virus (HIV). Gauging HBV burden may be limited by some testing algorithms that underestimate the burden of the disease. The aim of this study was to determine the prevalence of an atypical HBV serology profile characterized by HBV surface antigen (HBsAg) positive results and HBV core antibody (anti-HBc) negative results.

Methods: Plasma samples from people with HIV who participated in the random 20% household survey of the Botswana Combination Prevention Project (2013-2018) in 30 geographically dispersed villages were used. Samples were screened for HBsAg and anti-HBc. HBsAg positive (HBsAg+) samples were further screened for HBV core immunoglobulin M antibody (anti-HBc IgM) and for active infection by HBV e antigen (HBeAg). Wilcoxon rank-sum test was used for comparison of continuous variables while Chi-squared test was used for categorical data.

Results: A total of 221 HBsAg+ participants samples were screened for anti-HBc, 61.5% of them being female. Twenty-seven, 12.2% [95% CI: 8.5 – 17.2] participants tested positive for HBsAg but negative for anti-HBc (HBsAg+/anti-HBc–) while 194 participants tested positive for HBsAg and anti-HBc (HBsAg+/anti-HBc+). HBsAg+/anti-HBc- participants were significantly younger (p=0.012), than participants who were HBsAg+/anti-HBc+. Among 21 participants with this phenotype, all but 1 were chronic cases (IgM-) while among 15 HBsAg+/anti-HBc- participants only one tested positive for HBeAg. There was no statistically significant difference between the two groups of participants in nadir CD4+ T-cell categories, HIV viral load, antiretroviral therapy (ART) status and ART regimen.

Conclusions: The prevalence of HBsAg+/anti-HBc– phenotype among HBV/HIV coinfected participants in this cohort was 12.2% and the majority of the participants were younger, female and chronic HBV carriers. HBV testing algorithms that consider only anti-HBc+ samples for HBsAg testing may need to be revised as they underestimate HBV burden. The mechanism behind this atypical phenotype may not be due to immune suppression as individuals presenting with this phenotype were no more immune compromised than the normal phenotype. Further studies are warranted to investigate the cause of these atypical serological HBV presentation.

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Archived HIV-1 Drug Resistance Is Driven By NNRTI-Mutations and Associated With Viral Replication Among Adolescents in Cameroon

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Background: With the success of antiretroviral therapy (ART), children born with HIV are growing toward adolescence. However, frequent non-adherence in adolescents living with HIV (ALHIV) leads to viral replication (viremic infection). Of relevance, a viremic infection might prone archived drug resistance mutations (ADRMs), known as predictors of ART failure. Our objective was to compare the patterns of ADRMs in viremic versus non-viremic ALHIV.

Materials and Methods: A comparative study was conducted amongst ALHIV (10-19 years) receiving ART at the Chantal BIYA International Reference Centre (CIRCB) in Yaoundé-Cameroon, from October-November 2021. WHO-clinical stage was assessed; plasma viral load (PVL) was measured and the participants were classified as viremic and non-viremic; HIV-1 genotyping was performed on buffy coat (HIV-1 DNA) and interpreted using HIVdb.v9.0.1. Patterns of HIV-1 ADRMs were compared between the viremic and non-viremic participants.

Results: A total of 25 ALHIV were enrolled (median age 18 years); girls were most represented (64%, 16/25) of the study population; all were at WHO-clinical stage-1 and on ART for 11 [8-14] years since their diagnosis with a mean PVL of 1.39±1.69 Log10 HIV-1 RNA cp/mL); 68%(17/25) were non-viremic (<40 cp/mL) while 32%(8/25) were viremic (≥40 cp/mL). Overall rate of ADRMs was 64%(16/25); 44%(11/25) of ALHIV harbored NRTI+NNRTI resistance. Following PVL stratification, ADRMs were found in 87.5%(7/8) viremic vs. 52.9%(9/17) non-viremic ALHIV, (OR: 1.65[95%IC: 0.45-6.04], p=0.09); NNRTI ADRMs were found in 87.5%(7/8) viremic vs. 41.2% (7/17) non viremic ALHIV (p=0.04), while NRTI+NNRTI resistance was found in 62.5% (5/8) viremic vs. 35.3% (6/17) non-viremic ALHIV (OR: 1.77[95%IC:0.41-7.5], p=0.20). Twenty-two ALHIV were infected with CRF02_AG (88%), 2 F2 (8%) and 1 G (4%) subtypes. No significant effect of subtype on the presence of ADRMs was found (ADRMs in CRF02_AG ALHIV: 13/22 [59.1%]; ADRMs in non-CRF02_AG ALHIV: 3/3 [100%], p=0.28).

Conclusion: The majority of ALHIV receiving ART remains non-viremic, suggesting a good treatment response. However, among viremic populations there is a high burden of ADRMs, driven essentially by resistance to NNRTI. Thus, our findings underscore the use of NNRTI-sparing regimens would contribute in mitigating viral replication and ADRMs, thereby favoring a long-term success of ART in this difficult-to-treat-population.

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Effectiveness of Option B+ in Preventing Mother-To-Child Transmission of HIV Through Qualitative Detection of Viral Nucleic Acid in Infants.

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Background: As part of its plan to eliminate mother-to-child HIV transmission, Cameroon has adopted since 2014, the WHO HIV Prevention of mother-to-child transmission program, call Option B+ which consists of

systematically placing HIV-positive pregnant and/or nursing women on triple ARV therapy and providing antiretroviral prophylaxis for their infants. Our aim was to assess the effectiveness of Option B+ and identify main risk factor associated with mother to child HIV transmission (MTCT). The assumption was that Option B+ would lead to the elimination of mother-to-child transmission of HIV in Cameroon.

Methods: A cross-sectional study was conducted from March to December 2020 in three regions of Cameroon. The study population consisted of HIV-positive mothers and their infants of ages less than 18 months exposed to HIV at birth. Real-time PCR tests were performed on the DBS of exposed infants to assess the rates of early and late HIV transmission. Statistical analyses using Epi-info7 helped identify factors associated with residual MTCT. Relative risk reduction analysis was used to measure the impact of Option B+ on exposed infants.

Results: 429 mother-infant pairs were included. The early and late transmission rates were 2.33% and 1.45% respectively. The transmission rate to infants under breastfeeding was 2.42%. Late maternal initiation of ART [OR=7.13(1.69-30.06); (P=0.02)] and mixed breastfeeding [OR=3.26(0.92-11.54); (P=0.05)] were the main risk factors associated with vertical transmission of HIV during the first virological test. Maternal non-compliance with ARV was associated with late MTCT [OR=135.00(4.50-4041.14); P=0.03]. Early initiation of nevirapine in infants was a protective factor [(OR=0.19 (0.05-0.78); (P=0.04)]. The rate of MTCT among mothers under option B+ was 2.61% and 12.50% among those who were not. The rate of risk reduction of MTCT among exposed infants whose mothers were on Option B+ was 79%.

Conclusions: Option B+ remains an effective control strategy for reducing the rate of mother-to-child transmission of HIV.

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Effet de l'infection au vih sur la séropositivité au SRAS-coV-2 : etude comparative en situation pré-pandémique au cameroun

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L'objectif était d'évaluer en période pré-pandémique à la COVID-19, la séropositivité au syndrome respiratoire aiguë sévère (SRAS-CoV-2), déterminer la réactivité au SRAS-CoV-2 en fonction du statut VIH, et déterminer la variation de cette réactivité en fonction des paramètres immuno-virologiques chez les PVVIH. Une étude transversale a été conduite de Juin-Juillet 2021 sur 288 échantillons de plasma collectés en 2017-2018 au Centre International de Référence ''Chantal BIYA'' (CIRCB), Cameroun: 163 VIH-positifs versus 125 VIH-négatifs. Le test Abbott Panbio COVID-19-IgG/IgM a été utilisé pour la détection des immunoglobulines G(IgG) et M(IgM) spécifiques au SRAS-CoV-2. Chez les PVVIH, la charge virale plasmatique du VIH-1 (CV) a été réalisée sur Abbott m2000RT Real-Time PCR ; le taux de lymphocytes TCD4 (LTCD4), préalablement analysé sur BDFACSCalibur, a été collecté dans la base de données du CIRCB. Les analyses statistiques ont été faites, $p<0.05$ considérée significative. L'âge médian [IQR] de la population d'étude était de 25 [15;38] ans. La séropositivité globale au SRAS-CoV-2 était 14,6% (42/288) dont 7.3% (21) de IgG, 7.3% (21) IgM et 1.0% (3) IgG/IgM. En fonction du statut VIH-positif versus VIH-négatif, la séropositivité au SRAS-CoV-2 était respectivement 11,6% (19/163) versus 18,4% (23/125), p=0.07 ; avec IgG 6,1% (10/163) versus 8,8% (11/125), p=0.26 ; IgM 5,5% (9/163) versus 9,6%, (12/125), p=0,13 ; et

IgG/IgM 1,2% (2/163) versus 0,8% (1/125), p=0,59. Chez les PVVIH, la séropositivité au SRAS-CoV-2 selon les LTCD4 était de 9,2% (>500 cell/µl) versus 0,6% (<200 cell/µl), OR 17,7(p=0,0002), et de 9,2% (>500 cell/µl) versus 1,8% (200-499cell/µl), OR 3,5(p=0,041). Selon la CV, cette séropositivité variait de 6,7% (>40 copies/ml) versus 4,9% (<40 copies/ml), OR= 3,8 (p=0.006). En contexte pré-pandémique à la COVID-19, la présence des anticorps dirigés contre le SRAS-CoV-2 suggère une réaction immunitaire croisée, pouvant contribuer à atténuer l'impact de la COVID-19 en milieu tropical. Toutefois, les PVVIH présentent une faible réactivité immunitaire contre la COVID-19, favorisée par l'immunodépression sévère. Ainsi, indépendamment de la réplication virale, les PVVIH ayant de faible taux de LTCD4 constituent une population vulnérable à la COVID-19 et une cible prioritaire dans les stratégies vaccinales et autres mesures barrières en contexte de pandémie au SRAS-CoV-2.

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Profiling integrase mutations after raltegravir salvage therapy failure in Brazil

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Due to the widespread, long-term use of antiretrovirals in Brazil, many patients were exposed to sequential monotherapy and unboosted Protease Inhibitors. Until January 2017, the only Integrase Strand Transfer Inhibitor available in Brazil was Raltegravir, which was reserved for salvage therapy when resistance to PIs was detected. We analyzed the mutational profile of genetic fragments of HIV-1 reverse transcriptase, protease, and integrase from 701 patients with virological failure to raltegravir and current or previous virological failure to nucleoside reverse transcriptase inhibitors NRTIs, non-nucleoside reverse transcriptase inhibitors NNRTIs, and PIs from January 2017 to December 2018 in Brazil. Statistical analyzes were performed using the R program.

All individuals were using boosted PIs and NRTIs. Some patients were also using etravirine, and/or maraviroc and/or enfuvirtide. From 701 patients, 182 (26%) resistance-associated mutations 145 (20.7%) to PIs, 339 (48.4%) to NRTIs, and 327 (46.7%) to NNRTIs. In general, 148HR pathway was found in 45 (24,72%), N155HS in 40 (21,97%), and Y143CHR in 33 (18,13%). As a proxy of early virologic failure, we analyzed the prevalence of mutations among individuals harboring only one INST RAM. We found the N155H/S pathway in 22 (12,08%) followed by Y143R/C in 7 (3,84%). Among individuals with more than 1 INSTI RAM, we detected (148) pathway in 45 (24,72%), followed by 155 in 18 (9,89%), and 143 in 26 (14,28%). The longer the time of exposure to salvage therapy schemes containing raltegravir, the higher the prevalence of the 148 pathway. Viral load was lower among patients harboring wild-type strains than 1 and 2 INSTI RAMs (p=0.023 and p=0.020, respectively). There was a positive relationship between the number of previous use of cART and the number of INSTI RAM (p = 0.0007). There was a distinct RAM profile according to the HIV-1 clade. Strains predicted as R5 present more 155 RAM (p=0.003), whereas non-CCR5 users present more 148 RAMs (p=0.0002). Here, the prevalence of INSTI RAMs was low, revealing either a relatively higher genetic barrier to resistance or low adherence. Predictors of selection of 148 pathway, which relates to cross-resistance to 2nd generations INSTI, should be further evaluated.

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The Risk of Hyperglycemia Associated with Use of Dolutegravir among Adults Living with HIV in Kampala, Uganda: A Case-Control Study

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Background: Emerging evidence suggests a possible association between hyperglycemia and dolutegravir (DTG), a preferred first-line antiretroviral agent in sub-Saharan Africa (SSA). There is need for rigorous studies to validate this association in the face of increasing DTG use and burden of non-communicable diseases among people living with HIV (PLHIV).
Setting: The study was conducted at Mulago ISS clinic in Kampala.

Methods: We conducted a case-control study to assess the risk of hyperglycemia associated with use of DTG-based antiretroviral therapy among PLHIV. Cases had hyperglycemia while controls had no hyperglycemia as confirmed by plasma glucose tests. Data were collected using interviewer administered questionnaires and medical record abstraction. Analysis compared cases and controls on DTG use prior to diagnosis of hyperglycemia while controlling for potential confounders using multivariable logistic regression.

Results: We include a total of 204 cases and 231 controls. In multivariable analysis, patients with prior DTG use had nearly 30-fold greater odds of subsequent diagnosis of hyperglycemia compared to those who had non-DTG-based regimens (adjusted odds ratio [aOR] 29.06, 95% CI 9.86–85.70). The odds of hyperglycemia also increased with older age (56 and above vs. 18–35 years, aOR 7.53, 95% CI 2.65–21.38), and hypertension (aOR 5.64, 95% CI 2.60–12.21).

Conclusion: Our study demonstrates a strong association between prior DTG exposure and subsequent diagnosis of hyperglycemia. Given the benefits of DTG, wide-scale use, and the growing burden of DM in SSA; there is need for systematic screening for hyperglycemia and consideration of alternate regimens for those at risk for DM.

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Improved Retention among Adolescents Enrolled in the Red Carpet Program—a Fast-Tracked, Peer-Led Support Initiative for HIV Care and Treatment in Malawi: A Quasi-Experimental Study

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Background: Adolescents and youth living with HIV (AYLHIV) consistently experience poor outcomes along the HIV cascade. EGPAF-Malawi adopted the evidence-based Red Carpet Program (RCP) to provide AYLHIV fast-tracked services, utilizing multidisciplinary teams and a trained youth cadre to support HIV identification, linkage to ART, retention in care, and viral load suppression (VLS). We evaluated the effect of RCP on HIV testing, linkage to care, retention, and VLS among AYLHIV in Blantyre, Malawi.

Methods: This quasi-experimental study compared individual and aggregate-level HIV treatment outcomes among newly-identified AYLHIV enrolled in four intervention health facilities that implemented RCP with three control facilities between July 2020-March 2021. Matching was used to select control sites based on similar patient volumes and retention rates (within +/-5%) with intervention sites based on baseline figures. We compared testing yield, linkage to ART, retention in care, and VLS of AYLHIV enrolled in RCP sites to AYLHIV at control sites over the same period. Proportions and Chi-square tests were used to compare outcomes between control and intervention sites.

Results: Data were abstracted for 489 AYLHIV from intervention/RCP sites and 253 AYLHIV from control sites. Females accounted for 85% of the AYLHIV at control sites compared to 78% at RCP sites. The median age at ART initiation was 21 years in both sites. The average HIV testing yield was 8% (499/6,336) at RCP sites and 5.5% (251/4,534) at control sites. Linkage to ART was 98% (490/499) at RCP sites compared to 96% (241/251) at control sites. Retention was higher in RCP sites with 73% of AYLHIV in care at three months compared to 62% in control sites (p=0.08) and 81% at six months compared to 69%, respectively (p=0.004) after ART initiation. VL coverage was low and the VLS rate difference was minimal between control and intervention sites (87% vs. 86%; p= 0.83).

Conclusion: RCP sites had significantly better retention among AYLHIV vs control sites; HIV testing yield and ART linkage was slightly higher in RCP sites. COVID-19 restrictions posed challenges for VL testing and documentation. The RCP model has the potential to be scaled up to improve AYLHIV outcomes.

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Developmental Disorder Probability Scores at 6 – 18 Years Old and Relationship to In- Utero /Peripartum Antiretroviral Regimen Exposure among Ugandan Children

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Background: We examine the hypothesis that in-utero/peripartum antiretroviral (IPA) exposure may affect the likelihood of developmental disorders – i.e., attention deficit and hyperactivity disorder (ADHD), autism spectrum disorder (ASD) and functional impairment (FI).

Methodology: 250 children perinatally HIV-infected (CPHIV), 250 children HIV-exposed uninfected (CHEU) and 250 children HIV unexposed and uninfected (CHUU) along with their primary caregivers were enrolled at 6-18 years old and followed for 12 months. CHEU's IPA exposure -type was established via medical records and categorized as: no IPA, single-dose nevirapine with/without zidovudine (sdNVP±AZT), sdNVP+AZT+Lamivudine (3TC), or combination ART (cART). Developmental disorders were assessed at months 0, 6 and 12 per caregiver response to standardized questions from the third edition of Behavioral Assessment System for Children. Multivariable linear regression models estimated standardized mean differences (SMDs) with 95% confidence intervals (95%CI) according to IPA exposure-type relative to CHUU with adjustment for dyad's socio-demographic and psychosocial factors.

Results: Relative to CHUU, outcomes were similar for CPHIV/CHEU with cART, sdNVP±AZT and no IPA exposure in the peripartum period. sdNVP+AZT+3TC exposure was associated with lower resiliency (SMD = 0.26, 95% CI: -0.49, -0.51), and elevated scores on ADHD (SMD=0.41, 95%CI: 0.12, 0.70), ASD (SMD=0.40, 95%CI: 0.19, 0.61), EBD (SMD=0.32, 95%CI: 0.08, 0.56) probability and functional impairment (SMD= 0.39, 95%CI: 0.18, 0.61) index scores for CHEU relative to CHUU. With exception of ADHD, the adverse association between sdNVP+AZT+3TC and outcomes was replicated for CPHIV relative to CHUU.

Conclusion: Results provide reassuring evidence that cART exposure in the peripartum period is unlikely to be adversely associated with developmental disorder probability scores in late childhood and adolescent years. However, the peripartum sdNVP+AZT+3TC-exposure associated elevation in

developmental disorder probability and functional limitation at 6 – 18 years of life is a concern. These findings underscore the importance of implementing specifically designed studies to understand proximate mechanisms and inform modifiable clinical and behavioral interventions to mitigate risks and increase the likelihood that all HIV-affected children thrive in the long-term.

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Stunted Growth is Associated with Dyslipidemia in Young Adults with Perinatal HIV Infection

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HIV increases the risk of atherosclerosis and cardiovascular diseases (CVD). This risk maybe even higher in children born with HIV during their adulthood due to prolonged exposure to HIV and its treatments. Nutritional deprivation in early life may further increase CVD risk. This study assessed for dyslipidemia in 18-24 year-olds with perinatally-acquired HIV with or without linear growth retardation ("stunting"). Anthropometry and fasting lipid profiles were measured. Stunting was defined as having a height-for-age z-score less than two standard deviations below the mean (-2SD). Dyslipidemia was defined as having non-HDL-C ≥130 mg/dL, LDL-C ≥ 100mg/dL, or HDL <40 mg/dL for males or <50 mg/dL for females. We utilized logistic regression to determine whether dyslipidemia was associated with stunting while adjusting for demographic and HIV treatment variables. One hundred and seven young adults (46 males; 61 females) were enrolled and 36 (33.6%) were stunted. Prevalence of dyslipidemia was 11.2%, 24.3%, and 65.4% for high non-HDL-C, high LDL-C, and low HDL-C, respectively. In univariable analysis, being stunted was associated with elevated LDL-C (OR 2.52; 95% confidence interval [CI] =1.02-6.25) but not with non-HDL-C (OR=2.17; 95% CI = 0.65-7.28) nor with low HDL-C (OR=0.75; 95% CI = 0.33-1.73). Being female (OR= 4.86; 95% CI = 2.06-11.46) and number of years on HIV treatment (OR= 1.15; 95% CI = 1.03-1.29) were independently associated with low HDL-C but not with the other dyslipidemia variables. The association between stunting and elevated LDL-C (OR=4.40; 95% CI = 1.49-12.98) remained significant after controlling for measured confounders.

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Improving TLD Transition Coverage Among People Living with HIV in Nkurenkuru District, Namibia

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Background: The Namibia Ministry of Health and Social Services' (MoHSS) revised ART guidelines launched in August 2019 adopted the WHO recommendation of Tenofovir, Lamivudine, and Dolutegravir (TLD) as the preferred first-line antiretroviral therapy (ART) regimen for people living with HIV as TLD has a high genetic barrier, potential to improve adherence and retention with better drug tolerance, and reduced side effects. Transition of patients to TLD started in October 2019 but nationwide transition was slow. In January 2020, the MoHSS decided to improve TLD transition by setting regional and district targets for patient transition. At the time of target setting, Nkurenkuru Health District (Kavango West region, Namibia) had

transitioned 585 patients (16%) to TLD out of an estimated 3,727 eligible patients.

Materials and Methods used: Health facility teams used a quality improvement (QI) approach to identify challenges to TLD transition. Gaps included: lack of HCW training on how to transition patients; HCW discomfort with transitioning female clients due to presumed DTG side effects; and no monitoring tool in place. In response to these findings, change ideas were developed using plan, do, study, act (PDSA) cycles.

Results: From January to December 2020, TLD transition improved from 585 (16%) to 3,515 (94%) of the 3,727 estimated eligible patients. A significant improvement was noted in the first month with TLD transitions doubling from 16% to 33%. In that month, key change idea(s) implemented which proved successful were strengthening teamwork and team spirit, training of staff on TLD transition, generating lists of patients eligible for TLD transition from the electronic Patient Management System (ePMS) to distribute to the facilities, appointing a focal nurse in each facility, establishing a monitoring tool to track progress, holding monthly QI meetings to review performance data and discuss progress, and providing of regular onsite and virtual mentorship support.

Conclusions: Strengthening HCW teamwork and commitment, establishing a dedicated monitoring tool, and consistent monthly QI meetings to review results and plan next steps were key in improving TLD transition across ART sites in Nkurenkuru Health District. Other health facilities could adopt these processes to accelerate and improve TLD transition.

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HIV Status Is Associated With Reduced Risk for Precancerous Lesions

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Background: Cervical cancer is one of the leading causes of death in women and the commonest cancer in sub-Sahara Africa in the reproductive age group. Screening for precancerous lesions using visual inspection with acetic acid (VIA) is an early diagnosis method used to detect cervical lesions that can be treated successfully with cryotherapy or Loop electrosurgical excision procedure to prevent cervical cancer. The aim of this study was to determine the risk of precancerous lesions among women of child bearing age living with or without HIV.

Methods: We conducted a cross-sectional study at Livingstone Teaching Hospital among 329 adult women between January 2019 and December 2020. Precancerous lesions were defined by a positive VIA indicated by presence of a dense ulcerative acetowhite area in the transformation zone of the cervix. We collected demographic, laboratory and clinical information using medical records and a questionnaire. Data were analyzed using SPSS version 22.0. Chi-square test, Mann-Whitney and logistic regression were the statistical methods used.

Results: The median (interquartile range) age of participants was 37 (29, 44) years. Among 329 participants, 208 were living with treated HIV and were virally suppressed. The prevalence of precancerous lesions was 19% (95%CI 15, 24). Among the HIV-positive participants, only 12.9% compared to 29.1% HIV negative had precancerous lesions. After controlling for age, marital status, full term pregnancies, alcohol consumption, history of tuberculosis and use of family planning, HIV-positive participants had a significantly 63% reduced odds of having

precancerous lesions as compared to the HIV-negative participants [odds ratio (OR) 0.37; 95% confidence interval (CI) 0.19, 0.70)].

Conclusions: Precancerous cervical lesions are common among our study participants; however, they are less common in the HIV positive population compared with the HIV negative. This unique finding may have been influenced by other factors beyond the scope of our study such as differential infection with human papilloma virus (HPV) and use of antiretroviral therapy in HIV that reduces the risk of precancerous lesions. Screening for precancerous lesions and HPV must be intensified to mitigate the burden of cervical cancer.

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Dolutegravir Resistance in Malawi's National HIV Treatment Program

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Background: While millions of Africans are on dolutegravir-based antiretroviral therapy (ART), information on dolutegravir resistance from the region is sparse and no published data exist from Malawi. Dolutegravir resistance testing capacity is not locally available in Malawi. We describe cases with dolutegravir resistance mutations from Malawi's HIV program.

Methods: In Malawi, 98% of patients in the national HIV ART program are on dolutegravir-based regimens. Guidelines did not require recent suppressed viral load (VL) when switching from non-nucleoside reverse transcriptase (non-NRTI)- to dolutegravir-based regimens. We extracted VL results from the laboratory information management system (LIMS) and reviewed all applications for HIV drug resistance (HIVDR) testing of clients on dolutegravir-based ART to the national HIVDR committee, November 2020-September 2021. After approval by this committee, dried blood spot samples were transported to a reference laboratory in South Africa for genotyping.

Results: Based on the LIMS database, 5,544 clients on dolutegravir-based ART had a repeat VL above 1,000 copies/mL and were eligible for HIVDR testing. Only 87 applications for HIVDR testing were submitted, 53 were approved and 33 samples were transported to South Africa. Of 27 samples that underwent successful sequencing, all showed infection with HIV subtype C. Eight/27 (30%) had dolutegravir resistance mutations of whom 88% were male. The age ranged from 15-46 years and all 8 were on single-tablet generic dolutegravir/tenofovir disoproxil-fumarate/lamivudine. Range of VL results at HIVDR testing was 29,900-4,424,530. The R263K mutation was most common (7/8), followed by E157Q and S147G (2/8 each) and E138K (1/8). Dolutegravir resistance level was high in 1, intermediate in 6 and low in 1. NRTI and non-NRTI resistance mutations were present at variable degrees in 7/8 and could not be determined in 1. One individual was reportedly ART-naïve when starting dolutegravir-based treatment, 4 had transitioned from first-line non-NRTI-based regimens, three from protease inhibitor-based second-line regimens. Five had no documented VL result when switching to dolutegravir-based ART.

Conclusion: Dolutegravir resistance may be common among persons with persistently elevated VL in the Malawi HIV treatment program. Adequate HIVDR testing capacity in Malawi is urgently needed for individual clinical management and regular national HIVDR surveillance.

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Factors Associated with Antiretroviral Therapy Failure among Persons Living with HIV in Zambia, 2013–2020 –a Retrospective Cohort Study

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Introduction: Zambia achieved high antiretroviral-therapy (ART) coverage among persons living with HIV (PLHIV), making the control of the epidemic within reach. However, unsuppressed viral load (VL) despite ART threatens Zambia's trajectory toward ending HIV. We assessed factors associated with ART treatment-failure in Zambia using national electronic health record (EHR).

Methods: A retrospective cohort study was conducted of PLHIV aged ≥15 years enrolled in the national EHR (called 'SmartCare') during 2013–2020 in Zambia. We defined treatment failure as ≥2 unsuppressed VLs ≥6 months after initiating ART and ≥6 months apart, or being switched from first- to second-line ART. We excluded participants with unknown ART initiation dates, already on second-line ART at initiation, <2 documented VL results, and undocumented prescription lengths. Covariables included sex, age, province, rural/urban, and prescription length (categorized as <3 months, 3-5 months, and ≥6 months). We did multivariable logistic regression and Kaplan-Meier survival analysis in R.

Results: We analyzed 673,066 (55.6%) of the 1,210,156 PLHIV enrolled in SmartCare during 2013-2020. Mean age was 41 years and females comprised 65.8%. A total of 52,881 (7.86%) PHLIV failed treatment, with an incidence of 14.15/1,000 person-years. Fifty percent of those classified as failing treatment did so by 3.03 years. Compared with a prescription length of <3-months, 3-5 month and ≥6-month lengths had lower odds of treatment failure (adjusted odds ratio [aOR]: 0.49 [95% confidence interval (CI): 0.48–051]; 0.327 [95% CI: 0.27–0.29], respectively). Being male and living in an urban district were associated with higher odds of treatment failure (aOR: 1.37 [95% CI: 1.34–1.41]; aOR: 1.31, 95% CI: 1.26–1.34], respectively).

Conclusion: Longer ART prescription lengths were associated with lower treatment failure in Zambia. That PLHIV with well-controlled disease are often offered longer prescription lengths could explain lower failure among the longer prescription length groups. These findings could also be biased by the large number of excluded observations. Persons recently initiated on ART need close monitoring given that >50% failed within the first 3 years of treatment initiation. Increasing programs that target males and urban PLHIV might help improve HIV outcomes in Zambia.

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Multi-Month Dispensing and Use of Dolutegravir Associated with Better Viral Suppression among Children in Nigeria

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Introduction: Few studies have investigated the effect of multi-month dispensing (MMD) of antiretroviral treatment (ART) and compared the effect of dolutegravir (DTG) to other regimen on viral suppression in program settings among children in sub-Saharan Africa.

Methods: We utilized program data (July 1, 2020-June 30, 2021) for children ages 0-15 years from 74 facilities in northern Nigeria. Definitions: MMD (ART dispensed for >84 days); viral suppression (<50 copies/ml on

recent viral load [VL]); ART regimen (DTG-based, non-nucleoside reverse transcriptase inhibitor [NNRTI-based], and protease inhibitor [PI-based]); regimen-line (first or second line). Multivariate analyses using generalized linear models estimated the effect of ART regimen, MMD, and a combination of MMD and ART regimen on viral suppression. We adjusted for duration on ART, gender, regimen-line in the three models, ART regimen in the MMD model and MMD in the ART regimen model. We report relative risks (RR), bootstrapped 95% confidence intervals (95%CI) and p values (α=0.05) to account for clustering by facility.

Results: Of 3,824 children, 1,939 (51%) were male, median age of 10 ((IQR: 6-13) years, on ART for 4 (1-6) years; 2,210 (58%) were suppressed, 3,580 (94%) on first line regimen, 2,290 (60%) on DTG, 1,095 (29%) on a PI and 386 (10%) on an NNRTI; 1,590 (42%) were on MMD and 1,159 (30%) were on both DTG and MMD.
Compared to children on DTG, those on a PI had a 16% lower likelihood of suppression (0.84 [0.71-0.99], p=0.049). The difference in suppression between those on DTG and NNRTI was not significant (0.89 [0.71-1.13], 0.306). Those on MMD had an 18% higher likelihood of suppression (1.18 [1.06-1.32], p=0.001) compared to those not on MMD. Lastly, children on DTG without MMD had a lower likelihood of suppression compared to those on DTG+MMD (0.83 [0.76-0.92], p<0.001 and 0.73 [0.63-0.85], p=0.001 respectively). The difference in suppression between those on DTG+MMD and MMD only was not significant (0.83 [0.65-1.07], p=0.162).

Conclusion: Slightly over half of the children achieved undetectable VL levels. VL suppression is higher among children on MMD and those on DTG, and even higher among children on DTG plus MMD.

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Offering HIV Index Contact Testing to Improve Case Identification and Linkage to Appropriate Care among Sexual Partners and Biological Children of Plhiv; Kavango East and West Namibia

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Background: Despite progress in identification of people living with HIV (PLHIV), sexual contacts and biological children of PLHIV remain at significant risk of acquiring HIV. Introduction of Index Contact Testing (ICT) in routine HIV Testing Services (HTS) has improved case identification including in settings nearing epidemic control. In the Kavango regions, ICT was conducted at the facilities and in the community.

Methods: A retrospective data review of program outcomes from October 2020 to September 2021 was conducted at five selected high-volume facilities in Kavango East and West. Newly diagnosed HIV-positive individuals and PLHIV with viral loads >1000 copies/ml were offered ICT services using a structured interview guide. Recent sexual contacts and exposed biological children <18 years were listed. Index clients selected referral options for contacts following verbal informed consent and intimate partner violence (IPV) screening. Contact notification approaches included passive/self, provider, contract, and dual referral options. Contacts with unknown HIV status were notified, tested, and linked to ART or HIV preventions services depending on result. Data was captured using REDCap.

Results: ICT services were offered to 449 HIV-positive individuals, 413 (92%) consented and listed 538 contacts (1.3 contacts elicited per

index client) with 443 contacts eligible for testing and 254 (57%) tested. Of contacts eligible for testing, 78 (31%) newly tested HIV-positive and 77 (99%) were linked to ART; 176 tested HIV-negative of which 110 were sexual contacts. Of the 110 sexual contacts testing HIV-negative, 78 (71%) were linked to PrEP. Overall, 32% of the listed contacts were HIV-positive.

Conclusion: Offering ICT services to sexual contacts and biological children of PLHIV identified many newly diagnosed HIV positive cases at selected high-volume sites. ICT services had a high rate of acceptance (consent), and more than one contact was elicited from each index client. A high proportion of contacts were linked to either ART or PrEP services.

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Rétention et prédicteurs de l'attrition parmi les Personnes Vivant avec le VIH sous traitement antirétroviral en Guinée : Etude de cohorte historique sur un recul de 13 ans dans neuf (9) sites à grande cohorte

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Résumé: Cette visait à actualiser les connaissances sur la rétention des patients sous traitement antirétroviral en Guinée et identifier les prédicteurs de l'attrition.

Méthodes: Il s'agissait d'une étude de cohorte historique portant sur les adolescents de 10 à 14 ans et adultes ≥ 15 ans vivant avec le VIH. L'étude a concerné les patients mis sous ARV entre Septembre 2007 - Avril 2020 et au moins suivi pendant 6 mois dans neuf sites à grande cohorte. Les techniques de Kaplan Meier ont été utilisées pour estimer les probabilités cumulées de rétention et d'attrition. Le test de Mantel Heanszel log-rank a été utilisé pour la comparaison des courbes de survie. Les modèles de risques proportionnels de Cox ont été utilisés pour identifier les prédicteurs de l'attrition.

Résultats: La probabilité cumulée de rétention à 12, 24, 48, 120 et 156 mois était respectivement de 76,77% ; 71,23% ; 65,56% ; 54,28% et 49,98%. La probabilité cumulée d'attrition était de 35,20%, soit une incidence de 11,35 pour 100 personnes années. Les principaux facteurs associés à un risque accru d'attrition comprenaient : taux CD4 faible (HRa 5,71 : 5,080 – 6,424), stade avancé de l'infection (HRa 3,33 : 3,030 - 3,583), charge virale élevée (HRa 1,59 : 1,390 - 1,824), âge ≥ 15 ans (HRa 1,48 : 1,099-2,001) et statut marital célibataire (HRa 1,071: 1,010 - 1,135).

Conclusion: Il ressort de l'étude que la probabilité de rétention sous ARV en guinéen diminue au fil du temps ; tandis que les probabilités d'être perdue de vue ou d'être décédé augmentent. La rétention estimée dans cette étude est inférieure aux prévisions nationales guinéennes de 2020. Ceci suggère la mise en place ou le renforcement des mécanismes d'amélioration de la rétention des patients sous ARV à vie.

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Incidence et facteurs associés à la perte de suivi des patients sous thérapie antirétrovirale au Centre de Santé Urbain de Gbessia Port1 à Conakry, Guinée

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L'objectif était de déterminer l'incidence cumulée des PDV, d'estimer le taux de survie

des patients suivis et d'identifier les facteurs associés au PDV des patients sous ARV.

Méthodes: Une cohorte rétrospective chez les patients sous ARV au centre de santé de Gbessia Port1 à Conakry, réalisée entre Mars 2014 à Janvier 2020. Les patients âgés (≥ 15 ans), ayant initié le TAR au moins 6 mois et suivis jusqu'en juin 2020 ont été inclus dans l'étude. L'analyse des données a été. faite sur SPSS. Les courbes de Kaplan Meier pour estimer la survie des patients. Les facteurs associés ont été identifiés à l'aide des risques professionnels spécifiques à la cause.

Résultats: Sur les 1435 patients (63,2% de femmes, 34% de ≥ 39 ans, 90% de stade 3/4 de l'OMS et 52,2% de taux de CD4 50-200 cellules / mm 3) et 78,5 % étaient non scolarisés, 5,6% avaient un IMC < 18,5kg/m2 (maigreur) et 45% avaient une charge virale de base >100000 copies/ml. 60,60% étaient suivis dans la cohorte contre 39,4% d'attrition (16,72% de PDV, 15,92% de décédés et 6,76% de transférés). L'incidence cumulée des perdus de vue était à 16,5% en 24 mois (2 ans). La probabilité pour qu'un patient soit perdu de vue était respectivement de 5% à 6 mois, 25% à 12 mois, 40% à 24 mois, 59 % à 36 mois. Le taux de survie variait d'une période à une autre ; respectivement de 94,3% à 6 mois: (93,8 – 96,1) ; 86,7% à 12 mois : (76,7 – 90,7) ; 73,3% à 24 mois : (69,8 – 84,8) et 62,1% à 48 mois (4 ans): (53,9 – 71,4). Le niveau d'instruction, l'indice de masse corporelle, la classification OMS, stade I et la charge virale de base < 1000 copies/ml étaient associées au PDV chez les patients sous TAR.

Conclusion: Le taux d'incidence de PDV augmente au fil du temps et la rétention à 4 ans est bien inférieure à l'objectif d'au moins 70% fixé dans le CSN sur le VIH, les IST (2018-2022).

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Adherence Monitoring Methods to Measure Virologic Failure in People Living with HIV (PLWH) on Long-Term Antiretroviral Treatment in Uganda

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Introduction: Visual analogue scales (VAS), appointment keeping (AK) and self-reporting (SR) are methods used by clinicians to measure antiretroviral treatment (ART) adherence. However, there is uncertainty regarding the predicative performance of these methods for identifying virologic failure (VF) among PLWH on long-term ART in sub-Saharan Africa. We describe the incidence and socio-demographic predictors of VF, and the predictive performance of VAS, AK, SR for VF among adults on long-term ART in Uganda.

Methods: We analyzed longitudinal long-term ART data of PLHIV initiating ART between April 2004 and April 2005; followed-up until December 2021. VF was defined as two consecutive plasma viral load measurements ≥1000 copies/ml. VAS, taking pills ≥95% of follow-up time; AK, 100% adherence to refill appointments; SR, taking pills ≥95% of follow-up time. Univariate descriptive statistics described the cohort. Associations between ART adherence measures and VF were estimated using Cox proportional hazards models. Performance of AK, SR and VA for predicting VF was evaluated using receiver operating characteristic curve analysis.

Results: Of 1,000 participants, 61.7% were women and median age 51 years (IQR 47-57); 94.8% were unaware of sexual partner HIV status, 92.4% had not disclosed HIV status to sexual partners, and 91.5% didn't know if their partners had tested for HIV at enrollment. Twenty-one VF cases were observed (VF incidence, 4 per 1000 person-years). VF incidence was higher for SR ≥95% (incidence rate ratio [IRR]=21.0, 95%CI: 13.3–33.4) versus SR <95% (IRR=0.76, 95%CI: 0.24–2.35). There was low risk of VF with VAS adherence

measurement (adjusted hazard ratio [AHR]=0.14; 95%CI: 0.05–0.37), and with baseline CD4 ≥200 copies/ml irrespective of adherence method; VA (AHR=0.24, 95%CI: 0.06–0.83), SR (AHR=0.23, 95%CI: 0.06–0.79), and AK (AHR=0.22; 95%CI: 0.06–0.79). The VAS adherence method best predicted VF (area under the curve [AUC] 0.751) versus AK (AUC 0.674) and SR (AUC 0.687).

Conclusion: Overall incidence of VF was low in this long-term ART cohort. All three adherence measures had low predicative performance for identifying unsuppressed viral load, but VAS was best able to predict VF. Routine plasma viral load monitoring remains the gold standard for adherence monitoring and confirming HIV treatment response.

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Is Decentralizing Art Services to Private Clinics a Feasible Way to Alleviate Pressure on Government Health Facilities in Malawi? Early Lessons from a Four-District Pilot

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Background: As the number of people living with HIV (PLHIV) on antiretroviral therapy (ART) increases, especially amid COVID-19, Malawi is increasingly challenged to support their treatment continuity. Challenges with male clients aged 15-35 years have specifically been noted. Private clinics in Malawi have the capacity to provide standard HIV services, have longer operating hours, offer privacy levels expected by clients, and are often closer to where PLHIV live and work than government facilities. PSI Malawi, through USAID- and PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project led by FHI 360 and in collaboration with the Malawi Ministry of Health (MoH), piloted Decentralised Drug Distribution (DDD) through private clinics.

Materials & Methods: In four districts (Mulanje, Machinga, Kasungu, and Mangochi), 17 health facilities piloted DDD and devolved clients to 11 private clinics for refills and clinical review. Mass media (local television, radio, and billboards) and interpersonal (health/clinic talks and expert clients (ECs)) platforms were used for demand creation. ECs engaged clients in the community and at health facilities and offered enrollment. The national ART supervision team of the MoH conducted monitoring to ensure private providers' adherence to the national protocols.

Results: Between March and October 2021, 507 clients were devolved: 145 (28.6%) in Kasungu, 144 (28.4%) in Machinga, 124 (24.5%) in Mulanje, and 94 (18.5%) in Mangochi. In total, 507 (292 [57.6%] female; 215 [42.4%] male) clients enrolled and picked-up ARVs at a private clinic. Clients were largely ≥35 years old (339, 66.9%), and the remaining were 30-34 (74, 14.6%), 25-29 (52, 10.3%), 15-24 (31, 6.1%) and ≤14 years old (11, 2.2%). An increasing number of clients enrolled monthly: 20 in March, 34 in April, 33 in May, 81 in June, 60 in July, 60 in August, 102 in September, and 120 in October.

Conclusion: DDD through private clinics in Malawi is feasible and, amid COVID-19, DDD can offer a safer service delivery option that minimizes transmission risk for clients and health providers.

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Association between Cytochrome 2b6516 G>T, HIV Drug Resistant and Host Pharmacoecological Factors with Nvp Plasma Levels among HIV Patients in Kenya

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Background: The use of antiretroviral treatment (ART) following the current guideline of test and treat has significantly reduced deaths and morbidity for HIV patients. At the time of this study, Nevirapine (NVP) was widely prescribed first line ART regimen due to its affordability and availability in generic fixed drug combinations. Therapeutic drug exposure is a major requirement for ART management. Suboptimal exposure to NVP jeopardizes treatment success. Nevirapine plasma concentrations are influenced host and viral factors. This was the basis of this study among patients receiving NVP based ART regimen in western and coastal Kenya.

Methods: Blood samples were obtained from 377 consenting patients (272- western and 105 coastal Kenya) and a detailed sociodemographic questionnaire administered. The NVP plasma concentration was measured by LC–MS/MS. Both CYP2B6 variation and HIV drug resistant determined by validated RT-PCR methods.

Results: Out of the 377 participants (30.2%) were experiencing virologic failures. The steady state NVP concentration varied widely among patients ranging from 4ng/mL to 44207ng/mL with control group having higher levels than the cases. 25.5% participants had NVP <3100 ng/mL while 74.5% had >3100ng/mL. Gender (p=0.047), education (p=0.026) and region (p=0.016) were the only sociodemographic variables that were associated with NVP plasma concentrations. 8.2% of participants were infected with a drug resistant virus. The mean plasma NVP levels were significantly higher among individuals who had no HIV drug resistant mutation (5498 ng/mL) when compared to those who had resistant mutations (2283 ng/mL) (p=0.001). CYP2B6 516TT participants had significantly higher mean plasma concentrations of 6753.5 ng/mL compared to the other genotypes (p<0.001). Heterozygous mutant participants had higher mean plasma levels when compared to other genotypes. However, the differences were not significant (p=0.256).

Conclusion: Routine evaluation of plasma concentrations of NVP and other ART drugs considering, male gender, education level, region of origin and CYP 2B6516 G>T genotypes are key to ensuring optimal ART treatment outcomes in Kenya. These findings will guide policy formulation on treatment strategies leading to optimal responses to ART which might influence current dose recommendation of HAART.

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Viral Suppression Levels among Newly Enrolled Art Patients on Multi-Month Dispensing of Antiretroviral Drugs

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Background: HIV programs across sub-Saharan Africa adopted multi-month dispensing (MMD) of antiretroviral treatment (ART) as a preventative measure during the COVID-19 pandemic. We evaluated the effect of MMD on viral suppression among newly enrolled adolescents and adults with HIV in northern Nigeria.

Methods: We abstracted electronic medical records for patients ages ≥10 years, newly

initiated on ART and with viral load test (VL) done at 6 or 12 months after initiation, across 11 states in Northern Nigeria (April 1, 2019-June 30, 2021). A VL performed 6-9 months after ART initiation was considered a 6-month VL, while those performed between months 9 and 15 were considered 12-month VL. A VL of <50 copies/ml was considered suppressed. Participants were categorized in the MMD group if they were issued ART for ≥84 days within 6 months of ART initiation. The period when participants were enrolled was classified as pre-COVID-19 (before April 1, 2020) and during the COVID-19 pandemic.
We estimated the relative risk (RR) comparing proportion of virally suppressed among patients on MMD and not on MMD, and adjusted for age, gender, COVID-19 period, and ART regimen. We report 95% confidence intervals (95%CI) and p values (α=0.05).

Results: Of the 6,415 patients, 94% were >19 years, 66% were female, 73% were enrolled during the pre-COVID-19 period, 86% were on a dolutegravir-based regimen, 54% had a 6-month VL, and 57% had a 12-month VL. Of 3,474 with a 6-month VL, 2,197 (63%) were virally suppressed, while 2,280 (63%) of the 3,638 with a 12-month VL were virally suppressed.
We found that MMD was associated with viral suppression at 6 months (p=0.046). Those on MMD had a 5% higher likelihood of viral suppression compared to patients not on MMD (RR: 1.05 [95%CI: 1.00-1.11]). There is no association between MMD and viral suppression at 12 months, (RR: 1.04 [95%CI: 0.99-1.09], p=0.148).

Conclusion: Approximately two thirds of newly enrolled patients achieved VL suppression after 6 months and 12 months on ART. Multi-month ART dispensing is a plausible option for newly enrolled ART patients.

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Effect of Obesity and HIV on Fertility among Men Seeking Fertility Treatment

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Introduction: Male infertility might be due to low sperm production, abnormal sperm function, and blockage of testicular tubes, preventing sperm delivery and fertilization. However, the impact of obesity and HIV/AIDS on fertility has been met with diverse views leading to controversy. This study aims to assess the effect of obesity and HIV on fertility among Nigerian men living with HIV (on Anti-Retroviral Therapy), seeking fertility treatment.

Method: The study was carried out at the Nigerian Institute of Medical Research, Lagos. A total of 206 married male participants aged, 18 years and above participated between 2014 to 2 2018. Demographic data including age, sex, occupation, weight, and height were obtained for statistical analysis. The participants were screened for semen parameters, hormonal profiles, and obesity, while statistical analysis was done using SPSS V.23.

Results: The HIV participants (all on antiretroviral therapy, ART) were 94 (46.6 %) with mean age of 47 years. Out of the 94 HIV (ART) participants, 30 (31.9 %) were fertile while 64 (68.1 %) were infertile. Also, from the 112 HIV negative participants, 70 (62.5 %) were fertile while 42 (37.5 %) were infertile. Generally, testosterone, triiodothyronine, and thyroxine were the most inversely correlated hormones with BMI -0.4 (P=0.000), -0.2 (P=0.001) and -0.3 (P=0.001) respectively. Seminal fluid analysis revealed significantly consistent lower value in sperm volume (P=0.02) and progressive increased sperm motility in individuals with normal BMI as compared to obese individuals. prolactin, luteinizing and follicle stimulating hormones were significantly associated with HIV infections and ART treatment (OR = 1.959, 95 % CI: 1.077 – 3.563; p = 0.02, OR = 0.000, p= 0.05 and OR = 0.181, 95 % CI: 0.058 – 0.561; p = 0.00). There is significant statistical difference in progressive motility concentration between HIV positive

participants (on ART) and HIV negative participants in this study. Results also revealed that, total sperm count, sperm concentration and sperm morphology in the HIV positive group was significantly lowered compared to the HIV negative group.

Conclusion: Increased BMI and hormonal abnormality is associated with reduced reproductive function among HIV men seeking fertility treatment.

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Fasting Blood Sugar Correlates Positively With Markers of Arterial Stiffness, Monocyte Activation and Hypertension in HIV

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Background: Persons living with HIV (PLWH) are more likely to develop metabolic and cardiovascular disease (CVD) when compared with the HIV-negative population. This study was aimed at determining the relationship between markers of metabolic, immune activation and CVD associated with hypertension in black PLWH.

Methods: This was a cross-sectional study conducted at Livingstone Teaching Hospital between 2019 and 2020. A total of 226 antiretroviral treated PLWH attending routine visits were recruited. Data on socio-demographic, dietary, physical activity, metabolic (fasting blood sugar), lipid profile, monocyte activation and clinical profile including blood pressure readings were collected. Hypertension was defined using the American Heart Association and the American College of Cardiology hypertension guidelines using cut-offs of ≥130/80 for systolic and diastolic blood pressure, respectively. Interviewer-structured questionnaires adapted from the World Health Organization Stepwise approach to Surveillance (WHO STEPs) and the international physical activity questionnaire (IPAQ) were used to collect data. Statistical evaluations were employed to elucidate relationships between dependent and all independent variables.

Results: Mean age (± standard deviation) was 43 (± 12) years with a female preponderance of 66% in this study. The prevalence of hypertension was 42%. Factors significantly associated with increased odds for developing hypertension after adjustments in multivariable logistic regression were age, body mass index (BMI), employment status, fasting blood sugar (FBS) and table salt consumption ($p<0.05$ for all). FBS correlated positively with pulse pressure [0.00-0.02 (95% CI); $p=0.03$) which is an indirect measure of arterial stiffness and positively with activated monocytes (CD14+ CD86+) [0.01-0.12, (95% CI); $p=0.02$] in the hypertension group but not in the group without hypertension ($p>0.05$) after adjusting for sex, age and BMI.

Conclusion: In PLWH, those with hypertension have higher FBS, pulse pressure and monocyte activation compared to normotensive individuals. FBS correlated positively with markers of arterial stiffness and immune activation only in hypertension. Screening for diabetes, arterial stiffness and assessment of immune cell activation is recommended in high risk PLWH.

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The Impact of Intensified Active Tracking of Clients Who Interrupted Treatment in HIV Care: Experiences From an HIV Program in the Center Region, Cameroon

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Background: Adherence to antiretroviral therapy and continuity in HIV care remains a key factor in achieving optimal treatment outcomes. On the other hand, interruption in treatment is not only associated with poor health outcomes but is also a contributing factor to resistance to ART. Therefore, there is the need for an active search for clients who interrupt their treatment of care. We report the results of an active program to track defaulters and clients who interrupted treatment in fifty-four health facilities across twenty-four health districts in the Center region of Cameroon.

Methods: A return to care campaign was organized in November 2021, to actively track all clients who were reported as interruption in treatment during the reporting period from October to December 2021. Clients who interrupted treatment (IIT) here refer to clients who were not on treatment for more than 28 days since their last expected clinic visit or drug pickup. Different strategies were implemented including group calls among case managers, short message services (SMS) with messages to educate them on the importance of being adherent, home visits for dispensation for those unable to come to the facility, the use of expert clients to counsel those who have stopped their treatment for various reasons. A daily monitoring tool (a google sheet) which was a summary of the patient tracking registers was instituted to follow up clients brought back to care in the fifty-four facilities.

Results: Of the 2914 clients who interrupted treatment in November 1641 (56%) clients were brought back, counseled, and re-engaged to care. 87 (2.9%) had been transferred out to other facilities, 31 (1%) were reported dead and 1155 (39.6%) were unreachable by phone or secondary contact.

Conclusion: Active tracking of clients who default or interrupt their treatment appears to have a positive impact on retaining clients on ART. In this study, intensified active tracking was successful in re-engaging clients that defaulted from treatment. However, the considerable number of unreachable clients raises the need for additional strategies to effectively bring back and maintain these clients in care.

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Silent Transfers Determination Using HIV Recency Testing: CRS EpiC 3-90, Zambia

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Background: The Epidemic Control 90-90-90 (EpiC 3-90) Project is a Centers for Disease Control & Prevention (CDC) funded project that supports the Ministry of Health (MOH) in Zambia to achieve the UNAIDS 95-95-95 targets in faith-based and Government facilities. Scope of HIV recent infection surveillance support is in three provinces (Lusaka, Southern and Central) of Zambia. The aim of this program is to identify recent HIV infections among newly diagnosed HIV+ patients via an algorithm that combines rapid test for recent infection (RTRI) with HIV Viral load (VL) testing. The program also identifies silent transfers; patients who claim to be ART naïve, yet have a suppressed VL result (<1000copies/ml) before ART initiation.

Description: Eligible (≥15years old, newly identified) HIV+ patients were enrolled in the program with all documentation procedures upheld. Determination of silent transfers was made upon receipt of both RTRI and VL results; patients with an RTRI results (both recent and long term) plus a suppressed VL result were categorized as silent transfers. Data obtained were mapped to districts, facilities, and testing modality. Findings presented are from October 2020 to September 2021.

Lessons Learnt: Among 2,704 patients subjected to the testing algorithm, 659 (24%) had suppressed VL results. These patients may be silent transfers; HIV elite controllers are

rare in Zambia. Out of 102 supported health facilities, only four accounted for 81% of these patients with one facility accounting for 42%, indicating that this challenge is concentrated in certain pockets of the region. Nearly 50% tested HIV positive via either voluntary counselling and testing (VCT) or patient-initiated testing and counselling (PITC) modalities. These two modalities require prioritization in strengthening pre-testing education and post testing counselling, mentorship in effective utilization of the Known HIV+ screening tool, as well introduction of patient biometric identification systems.

Conclusion: Tools to curb the "silent transfer" phenomenon must be employed prior to patient ART initiation to optimize continuity of care from one facility to another. If uncontrolled, silent transfers can cause inaccuracies in the number of newly identified HIV+ patients and subsequently, cause inaccuracies in data driven decision making for HIV epidemic control in Zambia.

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Viral Suppression in the Era of Dolutegravir (DTG)

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Background: Kenya was the second country in sub-Saharan Africa, and the first in East Africa to introduce TLD in its national ART program after having preferred TDF/3TC/Efv (TLE) as a first-line regimen since 2014. The Ministry of Health through NASCOP began transitioning the ART regimen from a TLE-based treatment to a Dolutegravir based alternative. USAID Dumisha project; Bungoma and Busia Counties implemented the NASCOP guidelines through transitioning of all eligible clients.

Implementation processes: The NASCOP 2018 guidelines recommend a transition to TLD, after confirmation of viral suppression (VS), defined as VL <400 copies/µL, for adolescents (≥15 years) and adults. WHO raised concerns over preliminary studies from Botswana that showed there may be an increased risk of neural tube defects in babies born to women on TLD and this let women in reproductive age continue with TLE. However, in 2019 guidelines were released with sufficient evidence allowing women to transition irrespective of their age pregnancy status. Activities included line listing of clients, updating viral load results of the clients, calling and rescheduling of clients clinics, all eligible transitioned with close monitoring of the side effects and adverse events.

Results: As of September 2020, the Dumisha project had 53,522(Bungoma 24,051, Busia 29471) who had been transitioned to TLD with overall suppression of 90 %(M, 88% F, 91%) in Busia and 91 %(M, 90% F, 91%) in Bungoma County. This was an improvement from 75% (M, 71 F, 76) suppression in Busia and 72% (M, 69% F, 74%) in Bungoma County.

Conclusions: This illustrates how efficacious DTG based regimens are, with fewer side effects and client-friendly due to single pill ingestion. This is paramount to quality care to the clients and its impact on the epidemic control as a result of good suppression of the clients.

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Experiences From Early Introduction of Paediatric Dolutegravir (pDTG) in Malawi

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Background: Sub-Saharan Africa remains the epicentre of the HIV epidemic with a PLHIV burden of about 90% of the 38 million persons living with HIV globally according to UNAIDS (1). Recently, the burden of AIDS has reduced with only 680,000 deaths reported in 2020

largely due to wide availability of treatment. Despite remarkable scale up of treatment, children have had sub-optimal VLS outcomes everywhere including in Malawi. This has largely been attributed to lack of child-friendly treatment regimens. Malawi has nearly 900,000 people on ART with 5% being children (2). ART Coverage in children in Malawi is at 78% with most of them taking LPV/r based regimens until June 2021.

Description: Despite high enrollment on ART, VL suppression remains lowest (74%) in children compared with 97% in adults (3). As a solution, Malawi was among the early adopters of the novel child-friendly pDTG drug. In June 2021 pDTG was rolled out by MoH as the preferred paediatric 1st line ART regimen. The phased roll-out targeted about 100% (7,000) of the paediatric cohort weighing between 3 -19.9Kgs for immediate transitioning. The ministry conducted nationwide site visits between July and December 2021 to assess early implementation of the policy with an intention to document insights on patient safety, product experience, health care worker (HCW) capacity and support troubleshooting ahead of national scale-up.

Lessons learned: By December 2021, a higher percentage of the 7,000 eligible children were on pDTG. An effective roll-out was made possible through stakeholder cooperation, site-level orientations, monitoring visits, distribution of HCW education materials, and community support. During COVID-19 pandemic, a staged transition ensured an adjusted supply chain. Due to easier tolerability, administration and palatability for children, caregivers, CLHIV, and HCWs in targeted sites preferred pDTG over LPV/r.

Conclusions: Malawi was one of the first countries to roll out pDTG nationwide. Better clinical profile and tolerability of pDTG are expected to result in optimal viral suppression rates. Malawi's experience as a best practice for rapid adoption of child-friendly treatment can be learned by national HIV programs.

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Adherence to ART Drug Pick-up and Its Association With Viral Suppression Among Children Living With HIV in North Central Nigeria

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The ultimate impact of increased antiretroviral therapy (ART) availability for Children Living with HIV (CLHIV) is on viral suppression as a result of timely drug pick-ups and medication adherence. Compliance with expected drug pick-ups may be used as a proxy for medication adherence. We assessed drug pick-up compliance and its association with viral suppression among CLHIV in North-central Nigeria.

In this retrospective chart review, we abstracted data from ARV refill records for CLHIV aged 6 months to 10 years across six HIV treatment centers in Federal Capital Territory and Nasarawa State between June 2020 and May 2021. Compliant drug pick-up (pickup +/- 7 days of drug refill appointment date) and drug pickup compliance rate (number of compliant drug pick-ups /total number of expected appointments in a 12-month period x 100) were assessed. Excellent compliance was benchmarked at ≥95%. Viral suppression (Viral load <1000 copies/mL) was also evaluated. Age, gender and residence were considered explanatory variables. Chi-square was used to assess associations and binary logistic regression for multivariate analysis.

We reviewed records of 133 CLHIV, with mean age of 7.2 yrs (SD ± 2.35 yrs). Approximately 18% (24/133) were under-5 years of age, and 78% were female. Only 30.1% of CLHIV had ≥95% compliant drug pickup rate. Furthermore, 48.9% (65/133) CLHIV had

suppressed viral load. Compliant drug pickup rate was comparable among CLHIV ≥5 years old [32.1% (35/109)] and under-5 CLHIV [20.8% (5/24)], p= 0.275. Similarly, drug pickup adherence was comparable among male [32.7% (18/55)] versus female CLHIV [28.2% (22/78)], P=0.575. Viral suppression was also comparable among male [58.2% (32/55)] compared to female CLHIV [42.3% (33/78)], P=0.071. Multivariate regression revealed that CLHIV ≥5 years (AOR= 2.79, 95%CI= 1.04-7.47) were more likely to be virally suppressed, compared to under-5 children. Also, non-compliant children (AOR=0.44, 95%CI= 0.20, 0.98) were less likely to be virally suppressed compared to the compliant children.

Compliant ARV drug pick-up remains a challenge among CLHIV in North Central Nigeria, and is associated with poor viral load suppression. Our findings demonstrate a need for strategies to address patient/caregiver and facility-level challenges with drug pick-up compliance and viral non-suppression among CLHIV.

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Mother Baby Pairing: Lessons From Using the Tingathe Model Among HIV Positive Breastfeeding Adolescents in Zambia- A Mixed-Methods Approach

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Introduction: The Tingathe model, used in Malawi, engages community health volunteers (CHV) to track HIV-infected and exposed babies and their mothers over a period of 24 months until the outcome of baby HIV status is documented. This model was highly successful in Malawi showing retention in care increasing 30% to 78%. Using peer educators, CIDRZ has adopted this model to improve tracking of HIV infected babies and their adolescent mothers in 12 health facilities of Lusaka.

Methodology: The study used a sequential explanatory mixed-method approach and was conducted in 12 health facilities of Zambia. Quantitative date of HIV positive breasting adolescents (14-19 years) and their babies (0-24 months) was collected from the monthly reports submitted from 12 health facilities, disaggregated by age and sex. While qualitative data was collected using focus group discussions with adolescent peer educators. A total of 4 Focus Group Discussions were conducted in 4 health facilities. The data was collected from September 2021 to January 2022. Descriptive statistics was used to analyze the data using excel.

Results: The results showed that from the 203 adolescent mothers who attended antenatal in the 12 health facilities, a total of 99 adolescent HIV positive mothers had been paired with their babies. Out of these 99 babies paired with their positive adolescent mothers, 54 exposed infants were HIV negative, 4 exposed infants were HIV positive and enrolled on ART. 41 infants had no results on their HIV status. Qualitative results from the FGDs found that the reason some infants had no HIV results was due to poor turnaround time of dry blood samples from the laboratories to avoid discrepancies in results of babies as had been the case previously.

Conclusion: Lessons from the Tingathe model in the project highlights the importance of baby mother pairing and tracking as well shines a light on the challenges experienced during the collection of dry blood samples of babies from the laboratories. There is therefore need to scale up this intervention to other health facilities as well as improve laboratory turn around for dry blood samples of infants in the health facilities.

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Réponse immuno-virologique en population pédiatrique infectée au VIH-1 à Yaoundé, Cameroun

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Contexte: L'infection à VIH en milieu pédiatrique est une préoccupation dans les pays à ressources limitées. L'objectif de cette étude était d'évaluer la suppression virale et la réponse immunitaire chez les enfants et adolescents infectés au VIH-1 sous Traitement Antirétroviral (TARV).

Matériels et méthodes: Une étude transversale, observationnelle et analytique a été menée chez les enfants et adolescents à Yaoundé, Cameroun de Janvier 2017 à Décembre 2020. Les réponses virologiques et immunologiques ont été évaluées par la charge virale (<1 000 copies/mL: SV) et le nombre de CD4 (échec immunologique (EI): CD4<500 cellules/µL chez les enfants de 1 à 5ans et <250 chez les enfants de plus de 5ans). p<0,05 était considérée comme statistiquement significative.

Résultats: Au total, 272 participants (71 enfants et 201 adolescents) ont été enrôlés dans cette étude (âge médian de 13[9–15,5]ans), avec une prédominance masculine (54%). La durée médiane sous TARV était de 7[3–10]ans. La trithérapie la plus prescrite chez les enfants et adolescents était AZT+3TC+NVP (36,62%) et TDF+3TC+EFV (28,86%) respectivement. Environ 61,4% des participants ont été dépistés pendant la PTME. Le taux global de SV était de 54,41%, soit 57,75% chez les enfants et 53,23% chez les adolescents (p=0,60). Selon la localité géographique, la SV était de 56,96% en milieu urbain et 40,48% en milieu rural (p=0,04). Le taux d'EI était de 22,43% soit 15,79% chez les enfants de 1 à 5ans et 22,92% chez les enfants de plus de 5ans (p=0,66). L'EI était de 10,87% et 85,71% respectivement en milieu urbain et en milieu rural (p<0,0001). Selon la ligne thérapeutique, l'EI était de 25,82% en première ligne et 10,17% en seconde ligne (p=0,01). L'EI était de 7,43% et de 40,32% respectivement chez les participants ayant une SV, et chez ceux en non-SV (p<0,0001).

Conclusion: Le taux de SV dans cette étude reste faible, spécifiquement en milieu rural. La réponse immunitaire est favorable avec une meilleure reconstitution immunitaire sous TARV de seconde ligne. Une surveillance régulière de la charge virale en pédiatrie permettrait de réduire le risque d'échec virologique avec un accent sur le suivi en zone rurale.

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Factors Associated With Immunological and Virological Discordant Responses to Highly Active Antiretroviral Therapy Among Adult HIV Positive Individuals in Ethiopia

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Background: In clinical practice, not all human immune deficiency virus (HIV) positive individuals who received highly active antiretroviral therapy (HAART) achieve the desired concordant response characterized by sustained viral suppression or immune recovery. The expected success of HAART doesn't occur in all treated patients and a discordant response between CD4 count and the viral load (VL) has been a major concern in the treatment of HIV patients. Thus, this study is designed to describe the factors associated with immunological and virological discordant responses to HAART among adult HIV-positive individuals.

Methods: A hospital-based cross-sectional study with secondary data review was conducted on 423 HIV-positive individuals on HAART from February 1 to April 30, 2017. Socio-demographic characteristics, clinical data and about 10mL of blood specimen for HIV VL, and CD4 count measurement were collected. The data was entered into SPSS version 20 and descriptive, bivariate, and multivariate logistic regression analysis was employed.

Results: The mean age of the patients at study time was 39 (±9.8). The average follow-up duration of patients on antiretroviral therapy (ART) was 7 (±3) years. The prevalence of immunological discordance and virological discordance to HAART were 13.2% and 47%, respectively. With multivariate logistic regression analysis duration of follow-up on ART ≤6 years (adjusted odds ratio [AOR]=3.29(1.80–6.03), P ≤ .001) and VL ≥20 copies/mm3 (AOR=3.08 [1.70–5.61], P ≤ .001) were significant factors for immunological discordance conversely the patients who switched drug as a result of TB (AOR=3.33 [1.10–10.08], P=.03) was significant factors for virological discordance.

Conclusions: The prevalence of immunological discordance and virological discordance to HAART among HIV patients is high. Patients with the duration of follow-up on ART ≤6 years, VL≥20 copies/mm3, and patients who switched drugs as a result of TB were significant factors for discordance. Hence, intensive adherence support and counseling should be provided to achieve the UNAIDS 90 target. HIV-positive individuals co-infected with TB, who have had VL≥20 copies/mm3 and who are ≤6 years duration of follow-up on ART need to be carefully monitored. In addition, the national-based study of discordant groups is recommended.

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Drug Resistance Among Women Attending Antenatal Clinics in the Northern Part of Ghana

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Background: Initial evidence from resource-limited countries using the WHO HIV drug resistance (HIVDR) threshold survey suggests that transmission of drug-resistance strains is likely to be limited. However, as access to ART is expanded, increased emergence of HIVDR is feared as a potential consequence. We have performed a surveillance survey of transmitted HIVDR among recently infected persons in the geographic setting of Accra, Ghana.

Methods: As part of a cross-sectional survey, 2 large voluntary counseling and testing centers in Accra enrolled 50 newly HIV-diagnosed, antiretroviral drug-naïve adults aged 18 to 25 years. Virus from plasma samples with >1,000 HIV RNA copies/mL (Roche Amplicor v1.5) were sequenced in the pol gene. Transmitted drug resistance-associated mutations (TDRM) were identified according to the WHO 2009 Surveillance DRM list, using Stanford CPR tool (v 5.0 beta). Phylogenetic relationships of the newly characterized viruses were estimated by comparison with HIV-1 reference sequences from the Los Alamos database, by using the ClustalW alignment program implemented .

Results: Subtypes were predominantly D (39/70, 55.7%), A (29/70, 41.4%), and C (2/70; 2, 9%). Seven nucleotide sequences harbored a major TDRM (3 NNRTI, 3 NRTI, and 1 PI-associated mutation); HIVDR point prevalence was 10.0% (95%CI 4.1% to 19.5%). The identified TDRM were D67G (1.3%), L210W (2.6%); G190A (1.3%); G190S (1.3%); K101E (1.3%), and N88D (1.3%) for PI.

Conclusions: In Accra the capital city of Ghana, we found a rate of transmitted HIVDR, which, according to the WHO threshold survey method, falls into the moderate (5 to 15%) category. This is a considerable increase compared to the rate of <5% estimated in the 2006-7 survey among women attending an

antenatal clinic in mamobi. As ART programs expand throughout Africa, incident infections should be monitored for the presence of transmitted drug resistance in order to guide ART regimen policies.

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Assessing the Effect of Community Client Led Art Delivery Models on Retention Care Among Adult HIV Patients in South Western Uganda

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Background: Although Community client-led ART delivery groups (CCLADs) were introduced as part of the differentiated service delivery models to better serve individual needs and reduce unnecessary burden on the HIV care delivery system, there is limited evidence on their effect on retention and viral suppression. We sought to assess the effect of CCLADs on retention in care and viral load suppression among adult HIV positive patients at rural clinics in south western Uganda

Methods: This was a cross sectional mixed methods study conducted among adult HIV patients in Bushenyi and Rubirizi HC IVs in south western Uganda enrolled in CCLADs. Data collected included the social demographics, viral load, factors(barriers, facilitators, perceptions and experiences) associated with CCLADS and the date of the last visit. We also conducted in-depth interviews (IDI)to get a deeper understanding of CCLADS from the patient and provider perspective. Responses from participants were recorded using audio recorders and were translated and transcribed. We used thematic analysis for qualitative data to obtain barriers, facilitators, perceptions and the experiences from the providers, leaders and patients. We used logistic regression to analyze quantitative data for the retention and viral suppression outcomes.

Results: Out of 113 participants that we interviewed only 104 participants with viral load results were included in the final analysis. Overall suppression rate among CCLADs was at 98.1% and majority of the clients were females (60.8%) and married (73.4%). Most participants enrolled in CCLADs were virally suppressed due to the reduced costs incurred to pick their medications since only one person picks for all the members, reduced stigma and peer advise from CCLAD members on adherence.

Conclusions: CCLADs are an effective and efficient model to improve retention and viral suppression among patients living with HIV hence improving HIV care outcomes.

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Economic Evaluation and Impact of Community Pharmacy ART Refill: A Differentiated Service Delivery Model in Kaduna State, Nigeria

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Background: Community pharmacy antiretroviral (ART) refill is a model of differentiated care in which clients in high volume hospitals, who are active on treatment and with good ART adherence status are offered the opportunity of accessing ARV refill in registered community pharmacies close to them. The objective of this study was to measure the impact of community pharmacy ARV refill on clients' overall treatment outcome and their economic status.

Methodology: 108 clients receiving ARV refill in 4 supported community pharmacies in Kaduna state were monitored for one year from their initial date of devolvement. They were reviewed using 4 basic criteria: presence of opportunistic infections, client satisfaction, viral suppression, and retention in care. Client chats were reviewed at the community pharmacies as and the hub facilities. Key informant interviews and structured questionnaires were applied. Adherence to ART was also evaluated using pill counts and appointment data at the community pharmacies.

Results: A total of 106 (98.1%) devolved clients were retained in care at the four community pharmacies after one first year of devolvement. Two clients were referred to their hub facilities to access prevention of mother-to-child transmission (PMTCT) services. 105 (99.0%) retained clients were virally suppressed following repeat viral load test. Comparative analysis of average distance and cost between Health facility visits and community pharmacy visits as reported by participants, showed a significant difference of 55km - 75km at a cost of $2.50 - $3.65 as against 0.5km - 2.8km at a cost of $0.12 - $0.24 respectively. 85% of the clients indicated that they were satisfied with the model and would recommend it to a peer. 92.5% of clients reported that accessing ARVs in community pharmacies close to their homes provided them flexibility, while saving time and cost.

Conclusion: Accessing ARVs in Community pharmacies can greatly improve client retention in care, ensure viral suppression and directly impact the clients' overall quality of life. Scaling up this model would ensure achievement of the UNAIDS 95-95-95 goal.

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Personalized HIV Medicine Improves Antiretroviral Treatment Outcomes Among Adolescents in Cameroon: Experience from the EDCTP READY-Study

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Background: Acquired drug resistance (ADR) is common among adolescents living with perinatal HIV (APHI) in sub-Saharan Africa (SSA). Despite long-term treatment, wide HIV-1 diversity and inconsistent-adherence, pediatric treatment-outcomes could be improved by personalized monitoring. We sought to evaluate the effect of HIV-1 mutational profiling on immuno-virological response and ADR among APHI.

Methods: A cohort-study was conducted from 2018-2020 among 311 APHI receiving ART in Cameroon. Clinical (WHO-staging), immunological (CD4) and virological (viremia) responses were measured at enrollment (T1), 6-months (T2) and 12-months (T3). Immunological failure (IF: CD4<250 cells/mm3), and VF (viremia≥1000 copies/ml), ADR were analyzed. Determinants of ADR were assessed, with $p<0.05$ significant.

Results: At enrollment, male-female ratio was similar (1:1); mean age was 15(±3) years; median [IQR] ART-duration was 36[21-81] months. At T1, T2, and T3 respectively, adherence-level was similar (66.4%, 58.3% and 66.5%); 14 viral clades were found with a predominant CRF02_AG in all phases (58.2%, 59.4%, and 58.3%); and detection of ADR favored an increased switch to second-line ART (16.1%, 31.2%, and 41.9%, $p<0.0001$). Interestingly, from T1-T3 respectively, there were declining rates of clinical failure (9.9%, 9.9%, and 9.1, P=0.09), IF (25.5%, 18.9%, and 9.83, $p<0.0001$), VF (39.7%, 39.9%, and 28.2%,

p=0.007), and HIVDR (96.4%, 91.7%, and 85.0%, p=0.099). Predictors of ADR were being on first-line ART (p=0.045), VF at baseline (OR=12.56, p=0.059), and IF (OR=5.86, p=0.010). Inversely, good adherence (OR=0.13, p=0.0003), and optimised ART following mutational-profile (OR=0.05, p=0.002) were protective factors.

Conclusion: In this SSA setting with variable adherence-levels, personalized HIV medicine prompts the use of optimized ARV regimens, which subsequently lead to improved immuno-virological responses, with a reduced emergence of ADR. Thus, universal access of optimized ART strategy among ALPHI in SSA would contribute in achieving the 95-95-95 goals.

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Liberia's Successful Expansion of Antiretroviral Therapy Refills Through Community Pharmacies and Community-Based Organizations

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Background: Provision of client-centered differentiated service delivery (DSD) for antiretroviral therapy (ART) is recommended by the World Health Organization (WHO). Liberia has about 19,000 people living with HIV (PLHIV) on ART. Treatment interruption, due to stigma and long travel distances to treatment sites, is an enduring concern. The USAID and PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project piloted decentralized drug distribution (DDD) through private pharmacies (PPs) and one community-based organization (CBO) in Monrovia, Liberia, to address these issues.

Description: DDD was piloted in Monrovia beginning in April 2021 in one health facility, and from September 2021 in two health facilities, through a collaborative partnership with the National AIDS Control Program (NACP), Liberia Pharmacy Board, health facility management teams, and the Liberia Network of People Living with HIV (LibNeP+). Health facility and PP providers were trained on DDD. A memorandum of understanding was established between the three collaborating health facilities, PPs, and the NACP. Clients established on treatment were offered the model and selected one ART pick-up location from 26 PPs and one CBO (a LibNeP+ office) for their next ART refill. The LibNeP+ office was added as an option in October.

Lessons learned: Between April and November 2021, 1,314 clients established on treatment were offered enrollment in DDD. One Hundred and twenty-four (9.4%) clients accepted and were enrolled from three high-volume health facilities. Ninety clients (77 [85.5%] female; 13 [14.4%] male) chose PPs, and 34 clients (16 [47.1%] female and 18 [52.9%] male) chose the CBO as their preferred pick-up location. Despite the high interest in DDD expressed by PLHIV at the health facility (52% of 58 clients established on treatment who were surveyed at baseline), the initial enrollment was slower than anticipated. Client concerns expressed during health talks included fear of confidentiality breach and losing contact with their clinicians.

Conclusions/Next Steps: DDD is feasible in Liberia. However, expanded pick-up points and targeted counseling to address client fears regarding confidentiality are necessary to sustain the program in Liberia. More work is needed to understand sex-related differences in model choice.

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Accuracy of Neck Circumference Measurement as a Screening Test for Cardiovascular Diseases Risk in

People Living With HIV in Uganda

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Background: The risk of cardiovascular disease (CVD) among people living with HIV (PLWH) is 2.0 times higher than in the general population. Neck circumference (NC) is a simple and inexpensive point of care test, compared to laboratory tests used to estimate CVD risk, and it correlates well with the CDV risk in the general population. There is no study in PLWH. We determined the accuracy of neck circumference and the NC cut off indicative of increased CVD risk in PLWH.

Methodology: In this cross-sectional study, we enrolled PLWHIV ≥ 30 years from urban public clinics, Kampala, Uganda, in 2019. Medical history, physical examination (including NC), lipid profile and HbA1C were obtained. CVD risk was computed using the Framingham Risk Score (FRS) calculator. Receiver operator curves were constructed for different values of NC with FRS as gold standard for CVD risk stratification, and used to determine the accuracy of NC as a screening tool and the NC cut off indicative of cardiovascular disease risk. Factors associated with increased neck circumference above the cutoff were determined using Poisson regression model

Results: Of the 384 enrolled participants, 74% were females, median age was 42 years (IQR 34-39 years) and median neck circumference 33 cm (IQR 31-35 cm), the mean time from HIV diagnosis was 8.9 years. The area under the receiver operator curve (AUROC) was 0.63 and the optimum neck circumference cut off was 33.5 cm (sensitivity 48.3%; specificity 74.0%). Factors associated with a neck circumference ≥ 33.5 cm were male gender (Adjusted Poisson ratio (APR): 2.7, CI: 2.15 - 3.4; P<0.001), increased body mass index (overweight APR 2.4, CI: 1.24 - 4.47, P:0.009; obese APR: 3.2, CI: 1.67 - 6.24, P 0.001), waist circumference, (1.7, CI: 1.26 - 2.21<0.001). Having HDL ≥ 1.50 was found to be negatively associated with large neck circumference (0.7, CI: 0.55 – CI: 0.87 P: 0.002). No other factor was associated with large NC.

Conclusion: Neck circumference measurement is an easy and quick tool which can be used accurately at cut off values of 33.5 cm to screen HIV individuals for risk of cardiovascular disease.

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Applying a Seven-Step Approach to Rapidly Improve Viral Load Testing Coverage: Lessons From Burundi, Nigeria, and Togo

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Background: Viral load (VL) monitoring is the preferred approach for monitoring treatment outcomes for people living with HIV on antiretroviral therapy. Globally, VL testing coverage falls short of the 95% benchmark and in 2021 was only 73%, 69%, and 35% in Burundi, Nigeria, and Togo, respectively. The FHI 360 Viral Load Action Group worked with three FHI-360-supported projects (RAFG Burundi, #EAWA Togo/Burkina Faso, SIDHAS Nigeria) to implement a seven-step approach to examine barriers to VL testing coverage, develop and implement tailored plans to address barriers, and track progress to achieve optimal VL coverage.

Description:
We implemented the following steps:

1. Developed the VL testing service chain framework to guide identification of and address gaps
2. Developed a 31-item VL testing coverage gap diagnostic tool in MS Forms™ to identify barriers at each step in the VL service chain
3. Developed an interactive analytic and visualization tool in Excel™ using PowerQuery™ and PowerPivot™ to generate graphs and tables
4. Applied the VL diagnostic tool in 10 provinces in Burundi, three regions in Togo, and two states in Nigeria
5. Used the data analytics and visualization tool to map gaps, decide which sites to prioritize, and develop VL testing surge plans tailored to the largest gaps
6. Implemented the VL testing surge plans
7. Tracked progress and provided feedback

We conducted a pre- and post-intervention analysis using routine data from the three projects to determine the impact of these interventions.

Lessons learned: On the Burundi project, VL testing coverage increased post-intervention from 34% in March 2021 to 83% in August 2021 at an average of 9.0% per month compared to 5.8% per month pre-intervention (p–value=0.01). In Togo, coverage increased from 6% in October 2020 to 93% in August 2021, with an average growth of 9.9% per month post-intervention (p–value=0.34). On the Nigeria project, coverage increased from 61% in October 2020 to a peak of 94% but dropped to 78% at the end of August 2021.

Conclusion: The multi-step, structured approach tailored to country context improved VL testing coverage significantly. When scaled up, this approach could help close global VL testing coverage gaps.

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Eswatini's Differentiated Service Delivery (DSD) Models: Adaptation, Scale-up and Monitoring.

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Background: Since 2016, the Eswatini Ministry of Health (MOH) has prioritized the expansion of HIV differentiated service delivery (DSD), including scale-up of differentiated treatment (DT) models. Because routine monitoring and evaluation (M&E) systems did not capture key DT data, MOH invested in adaptations to the national electronic Client Management Information System (CMIS) to enable tracking of DSD-relevant data, collected ad hoc data on DT scale-up, and conducted annual DSD system self-assessments supported by the multi-country CQUIN learning network.

Description: We triangulated scale-up of DT in Eswatini using national HIV annual program reports (2016-2020), CMIS quarterly reports (2020-2021), results from DT client satisfaction study, and Eswatini's CQUIN annual meeting reports and capability maturity model dashboard staging (2018-2021).

Lessons Learned: The proportion of health facilities (HF) implementing DT grew from 22/176 (29%) in 2016 to 193/202 (96%) in 2020. The proportion of ART clients enrolled in DT rose from 13,791/174,103 (7.9%) in 2017 to 164,336/204,286 (80.4%) in 2020. The diversity of DT models also increased over time; the eight current models include 5 facility-based, (Mainstream, Fast Track, Family Centered Care, Treatment Clubs, Teen Clubs) and 3 community-based models (Outreach, Community Drug Distribution, and Community Antiretroviral Therapy (ART) groups). Tailored DT models are available for adults, adolescents, people with HIV and co-morbidities, advanced HIV disease, men, pregnant and breast-feeding women, high viremic, and key and vulnerable populations. All DT models offer 3-multimonth dispensing

(MMD) or 6MMD. Ad hoc studies indicate high levels of client satisfaction. National systems cannot yet compare viral load suppression (VLS) for clients in different models, but VLS for all PLHIV on ART increased from 90% (males) and 91% (females) in 2017 to 96% and 97% respectively in 2020.

Conclusion: Eswatini has markedly scaled up DT coverage and diversity, ensuring that HIV treatment is responsive to the needs of different groups and sub-populations. An increasing proportion of PLHIV are virally suppressed, receiving their HIV treatment through DSD models with extended ART refills and less frequent clinical visits. Moving forward, ongoing investments in CMIS will allow MOH to use routine program data for in-depth monitoring of DT model uptake and outcomes.

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Dolutegravir Associated Weight Gain: Real or Perceived? Real World Experiences From Zimbabwe

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Background: Dolutegravir (DTG) based regimens have been associated with weight gain in clinical trials. We compared real-world weight changes after starting or switching of treatment for DTG, efavirenz (EFV), and atazanavir (ATV/r) based regimens.

Methods: We included adults (≥18 years) starting or switching (defined as baseline) to EFV, ATV/r, or DTG between 2008 and 2021 at Newlands Clinic, Zimbabwe. We calculated weight changes for subsequent visits from the baseline weight. We aggregated data by treatment regimen, sex, and month after baseline and calculated median weight change for each data cell. We analyzed trends in median weight changes after baseline by generalized additive models. We included sex, regimen, and their interaction as fixed effects, and smoothed monthly trends by sex and regimen. We analyzed overall and baseline BMI category (<18.5 "low", 18.5-24.9 "normal", ≥25 "high") stratified weight gain.

Results: We included 59,564 weight measurements of 7047 adults, with 5342, 1108, and 597 being on DTG, EFV, and ATV/r, respectively. Two years after baseline, estimated median weight (95% confidence interval) increased by 3.81kg (3.43-4.19), 2.01kg (1.58-2.44), and 1.92kg (1.52-2.31) for DTG, EFV and ATV/r, respectively in males and by 4.63kg (4.24-5.01), 1.21kg (0.81-1.61), and 1.61kg (1.23-2.00) for DTG, EFV and ATV/r, respectively in females (Figure). Overall, DTG-based regimens showed a strong, almost linear increase in weight over time, while weight gain plateaued with time for ATV/r and EFV-based regimens. For patients with low baseline BMI, increases in weight were similar among treatment groups, while patients with normal or high baseline BMI had substantially larger weight gains with DTG-based regimens. Females at week 24 had gained 4.82kg (CI: 4.43 – 5.21) while males 3.94 (CI 3.56 – 4.33) among the normal BMI DTG group.

Conclusions: Patients receiving DTG based regimens had a two- to four-fold weight gain compared to EFV and ATV/r over two years, with little evidence of plateauing of the trend among those receiving DTG.

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Chronic Kidney Disease and Its Predictors Among Highly Active Antiretroviral Therapy NAïve and Experienced HIV Infected Individuals at the Selected Hospitals, Southwest Ethiopia:

Comparative Cross-Sectional Study

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Objective: To determine the prevalence of chronic kidney disease and its predictors among highly active antiretroviral therapy naïve and experienced HIV-infected individuals.

Design: Hospital-based comparative cross-sectional study
Setting: Mizan-Tepi University Teaching Hospital, Bonga General Hospital, and Tepi General Hospital Southwest Ethiopia.
Participants: The total of 616 Naïve and Experienced HIV Infected Individuals participated in this study. A systematic random sampling method was used to select the highly active antiretroviral therapy experienced HIV-infected Individuals and consecutive sampling was used to select Naïve patients. Descriptive statistics were used for all study variables. Independent t-test and logistic regression analysis was performed to compare the mean between Naïve and
experienced patients and to identify its predictor variables considering a p-value of <0.05, and 95% CI, respectively.

Primary outcome: Prevalence of Chronic Kidney Disease among Highly Active Antiretroviral Therapy Naïve and Experienced HIV Infected Individuals and Associated Factors.
Results: A total of 616 HIV-positive respondents were enrolled in this study. The prevalence of chronic kidney disease (CKD) was 41(29.3%) and 78(16.4%) among the total HAART naïve and
HAART experienced HIV patients, respectively. Rural residency, being anemic, being hypertensive, having had a family history of kidney disease, and stage IV current WHO clinical stage were independent risk factors of CKD among Naïve HIV patients, whereas, rural residency, utilization of drinking water per day below the recommended amount, being anemic, being hypertensive, stage IV current WHO clinical stage and BMI of obesity were predictor variables of CKD among experienced HIV patients.

Conclusion: Chronic kidney disease was higher among HAART naïve than HAART experienced study participants. Therefore, early initiation of ART drugs, modification of lifestyles to decrease
obesity and early detection and treatment of co-morbidities like; anemia and hypertension have profound effects in reducing CKD and increasing patients' quality of life.

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Prevalence and Risk Factors of Renal Dysfunction in HIV Patients On Tenofovir Treatment Regimens at Kigali University Teaching Hospital." (National University of Rwanda)

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Background: Prevalence and Risk Factors of Renal Dysfunction in HIV Patients On Tenofovir Treatment Regimens at Kigali University Teaching Hospital."
Background: TDF nephrotoxicity is well documented. Several recent studies, however, have found that patients who start ART in Sub-Saharan Africa (SSA), regardless of ART regimen, have similar risk of severe renal impairment (1.6 - 2.4%). These studies of patients in SSA have shown that women have increased risk of severe kidney injury compared with men. We sought to clarify risk factors for kidney injury in SSA patients who start ART.

Methods: We performed a single-center retrospective cohort study of adult HIV patients in Rwanda who received outpatient

care at the Kigali University Teaching Hospital (KUTH) between April and September 2014. Patient interview and medical record audit was used to collect baseline creatinine, demographics, and risk factors for renal toxicity. Multivariate logistic regression was used to determine independent risk factors for kidney injury.

Results: We collected data on 451 subjects with HIV who recently started ART. Sixty-six percent had been exposed to TDF. Mean creatinine prior to ART was similar in men and women (77.2 vs 73.8, p=0.72). eGFR was normal (>90) in 51% of subjects, mildly impaired (60-89) in 43%, moderately impaired (30-59) in 4.9%, and severe (<30) in 0.2%. Among subjects with any renal impairment, 4.2% had been exposed to TDF, compared with 3.1% renal impairment in subjects not exposed to TDF (p=0.30). Women overall had lower odds of developing any renal dysfunction (1.8% vs 16.6%, OR=0.09), but among subjects with renal impairment, women were more likely to develop moderate or severe renal dysfunction (58.2% vs 33.7%, p<0.001).

Conclusions: Rwandan women on ART with kidney injury, regardless of regimen, had a significantly increased risk of severe renal dysfunction when compared with men. Our findings suggest that in SSA, ART regimens containing TDF do not confer a greater risk of renal failure compared with non-TDF regimens. Women in SSA may be uniquely susceptible to ART-induced renal injury. Healthcare workers in SSA should have a higher clinical suspicion for kidney injury in women who start ART, not in patients using TDF.

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Assessment of Drug Resistance Mutations Associated With Integrase Inhibitors in Patients Newly Diagnosed With HIV-1 Positive and Naïve to Antiretroviral Therapy in Benin

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Background: A recent study conducted in Benin showed the transmission of drug resistance mutations associated with non-nucleotide reverse transcriptase inhibitors transmitted up to 10% in naive patients.
Benin has adopted the latest WHO recommendations by replacing non-nucleotide reverse transcriptase inhibitors with dolutegravir in the first-line treatment regimen. Uncontrolled use of this latter class of antiretroviral treatment could lead to the selection of mutations which could in the long term be transmitted to naive populations.
This study is to assess whether HIV-1 resistance mutations associated with integrase inhibitors are present in newly diagnosed patients in Benin and whether genotyping is necessary before starting ART.

Materials & Methods: Retrospective study was conducted among 45 patients newly diagnosed HIV-1 in 2017. Viral loads were performed on the Abbott platform and RNAs extracted with the Qiagen kit. A nested PCR was performed with the primer pairs INT1s / INT1as and INT2s / INT2as generating a DNA sequence covering the entire integrase, ie 288 amino acids. The sequences were edited with Seqman software and then subjected to the Stanford Mutation Interpretation Algorithm to identify positions associated with resistance. A phylogenetic analysis under Seaview was performed to determine the diversity of the subtypes, followed by a search for recombination under Simplot.

Results: The mean age of the patients is 37 years, 95% CI [19-71] with 56% women and 44% men. They are all Beninese and mostly have secondary education (17/45; 38%). The mean viral load is 5.55log 95% CI [4.54; 6.59].
No major mutations conferring resistance to integrase inhibitors have been observed. However, nine patients (9/45; 20%) harbor viruses carrying 10 minor mutations (10/45; 22%). The most represented is E157Q (5/45; 11%) followed by H51Y, D232N, G163K, T97A, G140E (for each 1/45; 2%).
CRF02_AG (25/45; 56%) is the predominant strain, followed by G (4/45; 9%), CRF06_cpx (3/45, 7%), A3 (1/45; 2%), CRF09_cpx (1 / 45; 2%) and unique recombinant forms (11/45; 24%).

Conclusion: Our results show that viruses carried by newly infected patients are sensitive to integrase inhibitors and that genotyping is not essential before starting antiretroviral treatment.

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Improving ART Initiation Among Men Who Use HIV Self-Testing in Malawi: A Qualitative Study

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HIV self-testing (HIVST) increases HIV testing uptake among men; however, linkage to antiretroviral therapy (ART) among male HIVST users can be low. We qualitatively examined barriers to linkage to care and ART initiation for men who used HIVST, and their preferences for innovative strategies to improve treatment engagement following self-testing.

Semi-structured in-depth interviews were conducted with men (≥15 years) in Malawi who tested HIV-positive using HIVST between 2018-2020, and their female partners (≥15 years) who distributed HIVST kits to men. Medical records from seven facilities were used to identify respondents. We included men who received HIVST from a health facility (primary distribution) and those who received HIVST from female sexual partners (secondary distribution). Interviews were conducted in the community and were audio-recorded, translated and transcribed, and analyzed using constant comparison methods in Atlas.ti v.8.4, comparing themes by men who received HIVST through primary versus secondary distribution strategies. Data were collected between 2019-2020.

Twenty-seven respondents were interviewed: 16 respondents in male/female dyads, eight men without a female partner, and three women who represented men who were unreachable. Among the 19 men represented, seven received HIVST through primary distribution and 12 through secondary distribution. Six men never initiated ART (all secondary HIVST distribution users). Barriers to ART initiation centered on the absence of health care workers at the time of diagnosis and included lack of external motivation that pushed men to link to care (men had to motivate themselves) and lack of counseling before and after testing (leaving ART-related fears and misconceptions unaddressed) – the latter was especially true within secondary HIVST distribution. Desired interventions were similar across primary/secondary HIVST distribution and included ongoing peer mentorship for normalizing treatment adherence, male-tailored counseling (focused on how HIV treatment can support men's role as financial providers, maintaining a strong physical body, and ensuring a promising future for their children), outside-facility HIV treatment for convenience and privacy, and help understanding how to navigate ART clinics.

Male HIVST users face unique challenges to ART initiation, especially those receiving HIVST

through secondary distribution. Male-tailored interventions are desired by men and may help overcome barriers to care.

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What Barriers Are Preventing HIV Programs From Achieving Optimal Viral Load Testing Coverage? An Assessment From 27 Countries

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Background: Globally, viral load (VL) testing coverage falls short of the 95% UNAIDS goal. To attain optimal VL testing coverage at project and national levels, interventions must target specific barriers and locations. We developed and applied a VL coverage gap diagnostic tool within FHI 360-supported projects in 35 countries to help program managers identify gaps and tailor interventions appropriately.

Description: Building on the VL testing service chain framework, the Viral Load Action Group at FHI 360 developed the diagnostic tool to provide a structured approach to identifying and rating all barriers and validated it with FHI 360 technical experts. Using MS Forms™, we deployed it as a cross-sectional survey at the subnational unit level (SNU) (e.g., regions, states, provinces) in HIV treatment programs led by FHI 360 and funded by PEPFAR and Global Fund. Respondents were VL testing focal persons in project-supported SNUs. Survey data fed into an interactive VL barriers analytic and visualization tool that used PowerQuery™ and PowerPivot™ to generate graphs, tables, and descriptive analyses. Barriers were rated as (a) not applicable, unrelated, not a barrier; (b) relevant but not important; and (c) important or very important.

Lessons learned: Pooled data from the 109 SNUs surveyed across 27 countries showed VL testing coverage to be 55% and VL suppression 96%, with 31 unique challenges rated. About half of the pre-analytic (52%), analytic (53%), and post-analytic (56%) barriers were rated as important or very important. When further categorized, client-related, pre-analytic barriers presented the greatest barriers to optimal VL testing coverage (70%). However, barrier ratings varied across countries; for example, client-related, pre-analytic barriers constituted 0%, 29%, 82%, 95%, and 100% in Indonesia, Burundi, Central Asia, Democratic Republic of Congo, and Dominican Republic, respectively. Within countries, SNUs also varied in their ratings of barriers. Similar variation was observed for all other barrier categories.

Conclusion: The tool helped identify barriers at the appropriate level to target interventions. Specific barriers to optimal VL testing coverage varied across and within countries. Identifying the degree to which each barrier presents challenges in a given context can guide interventions to improve VL testing coverage.

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Living With HIV After the Age of 65 Years at Newlands Clinic in Zimbabwe: What Are the Major Challenges

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Introduction: As people living with HIV (PLWH) live longer due to the success of antiretroviral therapy (ART), it is important to offer relevant and appropriate solutions to their health needs. We assessed the major health challenges of people living with HIV (PLWH) aged ≥65 years receiving care at Newlands Clinic in Zimbabwe by December 2021.

Methods: Routinely collected clinic patient level data was analyzed. Blood pressure (BP) control was defined as a most recent BP of less than 140/90 mm/Hg. Diabetic control was defined as a most recent glycosylated haemoglobin level of less than 8%. Chronic kidney disease (CKD) stages 3, 4 and 5 were defined as having an estimated glomerular filtration rate of 30 – 59, 15 – 29, and <15 ml/minute/1.72m2, respectively. Chi-square test was used to compare males to females

Results: A total of 267/6 994 (3.8% of clinic population) patients in care were aged ≥65 years with a median age of 69 years (Interquartile range [IQR]: 69-72), 58% were female. Half of the patients were married, and men were significantly more likely to be married than women (p<0.001). The median duration on ART was 12.6 years (IQR: 8.7-15.5). Only four (0.01%) had a most recent viral load (VL) of > 1000 copies/ml while 94% of the patients were suppressed with VL <50 copies/ml. A documented diagnosis of hypertension was noted in 73% of patients with 56% of these achieving optimum BP control on treatment. Sex was not associated with having hypertension nor its control (p=0.336). Diabetes mellitus was prevalent in 16% of patients without association with sex (p=0.739) and 79% of these had optimum glycemic control on treatment. CKD stages 3, 4 and 5 were prevalent in 30%, 2% and 1% of patients respectively.

Conclusion: Elderly patients in care had excellent viral load suppression rates. Poorly controlled hypertension and CKD were major health challenges in this cohort. Furthermore, we noted that a high proportion of patients were not married. HIV treatment programs must strengthen the provision of holistic HIV care beyond ART for elderly patients.

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Prevalence and Predictors of Virological Failure in Indian Children With HIV on Antiretroviral Therapy

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Background: Children with HIV (CLHIV) are at a greater risk of treatment failure than adults. This study aimed to assess the prevalence of virological failure (VF) and identify various factors that could predict it in CLHIV receiving antiretroviral therapy (ART).

Methods: This case-control study conducted during 2019-2021 included CLHIV aged ≤ 18 years on 1st line ART for ≥ 6 months. Viral load was assessed for all eligible subjects, who were accordingly divided into 2 groups: those with and without VF (defined as viral load >1000 copies/ml). The demographic details, ART related factors and laboratory parameters were compared among the two groups using logistic regression to assess factors associated with virological failure.

Results: Of the 266 enrolled CLHIV, 26 were already on 2nd line ART. Viral load was assessed in remaining 240 CLHIV, of whom 19 had VF (cases), while remaining 221 did not have VF (controls). Thus, total prevalence of VF was 16.9% (45/266 children). Among the 19 CLHIV with newly detected VF, 7(36.8%) were also in immunological failure, while none had clinical failure. The factors significantly associated with VF were poor adherence (≤95% adherence in past 3 as well as 6 months) to ART (OR 10.05, 95% CI: 3.69-27.38) and educational status of child, illiterate vs literate (OR 3.03, 95% CI: 1.15-7.98). VF was not associated with age at ART initiation, gender, socioeconomic status, primary caregiver HIV and educational status, mode of transmission, ART regimen, duration of ART, change in ART regimen in the past, TB co-infection, WHO clinical stage and low baseline CD4 counts (<200 cells/µL). The prevalence of underweight (47.4% vs 21.7%) and short stature (57.9% vs 17.2%) children was significantly higher among children with VF at current assessment.

Conclusions: Adherence to ART and educational status of the child were the only factors that were significantly associated with VF in this study. On-going counseling to ensure strict adherence to ART is the key to successful treatment outcome in CLHIV.

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Effect of HIV-1 Genetic Diversity on Immune-Virologic Response Among Adolescents in Cameroon: Experience From the EDCTP READY-Study

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Background: Following the numerous benefits of antiretroviral therapy (ART) scale-up, a high rate of HIV drug resistance (HIVDR) has been observed within adolescents living with perinatal HIV (APHI), in the frame of a wide HIV-1 heterogeneity. Our objective was to evaluate the diversity of HIV-1 and its effect on virological response among adolescents.

Methods: A cohort-study was conducted from 2018-2020 among 311 APHI receiving ART in Cameroon. Sociodemographic data, immunological (CD4) and virological (plasma viral load, PVL) responses were measured at enrolment (T1), 6-months (T2) and 12-months (T3). HIV-1 subtypes were inferred by phylogeny; immunological and virological responses were evaluated using BD FACSCalibur and Abott m2000 RT respectively. Protease and reverse transcriptase gene regions were sequenced and analysed using Stanford HIVdB v8.8; $p<0.05$ was considered statistically significant.

Results: Male-female ratio was similar (~1:1); with mean age of 15 (±3) years; and median [IQR] duration on ART of 36[21-81] months. From T1-T3 respectively, adherence-level to ART was similar (66.4%, 58.3% and 66.5%). Totally, 14 viral clades were found with a predominant CRF02_AG (58.2%, 59.4%, and 58.3%) in all phases. From T1-T3 respectively, there were declining rates in CD4 cell count<250 cells/mm3 (25.5%, 18.9%, and 9.83, $p<0.0001$), PVL≥1000 copies/ml (39.7%, 39.9%, and 28.2%, $p=0.007$), and HIVDR (96.4%, 91.7%, and 85.0%, $p=0.099$). Using CRF02_AG vs. non-AG, median CD4 count was 429[286-780] vs. 453[344-635], while median PVL was 19160[5316-161932] vs. 37784[7782-154265]. Moreover, eight potential emerging variants were identified (Recombinant K, G; Recombinant F1, G; Recombinant F2, A1; G, potential recombinant; Recombinant A1, G; Recombinant, F or F2; and Recombinant of F2, A1), indicating a great viral diversity.

Conclusion: In this vulnerable population living in Sub-Saharan Africa, standard ART monitoring leads to a significant viral response and immune recovery. Despite the very broad and evolving HIV-1 molecular epidemiology, HIV-1 clade does not significantly affect ART response.

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Mobility Is Associated With ART Interruptions Among Men in Malawi: A Mixed-Methods Study

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Introduction: Frequent trips away from home, or 'mobility,' is common across sub-Saharan

Africa. Mobile men in antiretroviral treatment (ART) programs may face unique challenges to accessing care. We sought to understand how mobility impacts HIV care for men living with HIV in Malawi.

Methods: This mixed methods study was embedded within two trials conducted with men from 20 health facilities in Malawi. Eligibility criteria were: >15 years; HIV+; and not currently on ART (never initiated or stopped treatment). Survey questions on mobility were conducted at trial enrollment. In-depth interviews (n=32) were performed with a subset of 'highly mobile' men (defined as spending >14 nights away from home in last year). Interviews focused on reasons for travel and relationship between travel and ART interruption. Interviews were translated, transcribed, coded, and analyzed using grounded theory in Atlas.ti.

Results: Between August-December 2021, 651 men with treatment interruptions were enrolled in the trials. Median age was 38 years (IQR 31-45) with median 3.7 years since HIV diagnosis (IQR 1.1-10.5); 69% were married and 28% attended secondary school. Of these men, 34% were highly mobile (median 60 nights away from home in past year [IQR 30-90]). Among them, 77% took long trips (>14 consecutive days), of which 32% were international and 68% were for income generation. In-depth interviews revealed that men had limited control over travel dates and durations. Most men experienced unplanned, "urgent" trips due to employer demands or familial deaths (24/32). While the majority brought ART during travel (28/32), most ran out of medication while away (23/28). Men understood the importance of adherence and made extensive efforts to adhere during travel, including having caregivers collect ART refills (11/32), accessing refills at alternate clinics (8/32), and returning home solely to collect ART (8/32), though efforts were often unsuccessful to prevent treatment interruption. Participants desired multi-month dispensing, rapid/flexible access to refills pre-travel, and the ability to refill at any facility in Malawi.

Conclusion: Mobile men were highly vulnerable to ART interruptions despite efforts to prioritize treatment. Mobile men may require multi-month dispensing and flexible ART refill locations and days of operation to achieve sustained retention.

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Reducing Client Waiting Time for Collection of Antiretroviral Therapy (ART) Refills: A Preliminary Time and Motion Analysis in Five Health Facilities in Bulawayo, Zimbabwe

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Background: Health facility waiting times have long-term implications for patient retention with care and access to timely antiretroviral therapy (ART) refills is essential in achieving viral suppression. The central question examined in this study was whether introducing pharmacy dispensary assistants (PDAs) in selected high volume healthcare facilities contributed in reducing patient waiting times.

Method: A time and motion analysis was conducted in five health facilities implementing the Target, Accelerate and Sustain Quality Care for HIV epidemic control (TASQC) program. The study compared two healthcare facilities with PDAs and three facilities without PDAs. The study population were HIV positive clients presenting for ART refills and/or clinical visits. Data were collected using Open Data Kit (ODK) and exported to Stata 15.1 for analysis. Categorical variables (age and gender) were summarized using proportions. Medians and interquartile ranges

(IQR) summarized the dependent variable (waiting time). The Mann-Whitney U test measured association between the availability of a Pharmacy Dispensary Assistants and client waiting times at a statistical significance level of p-value less than 0.05.

Results: We enrolled 238 (82 males) clients with mean age of 40 years (SD- 12.9). Median waiting time in facilities with PDAs was 47 minutes (IQR 2.5 – 83.5) compared to 141 minutes (6-280) where PDAs were not available. The presence of PDAs was significantly associated with reduced waiting times (p<0,001).

Conclusion and recommendations: This operational research supports the notion that improving direct service delivery staffing at health facilities is directly linked with reducing client waiting times in healthcare facilities. This has positive implications for client retention in the lifelong ART program. We recommend implementation at scale of this intervention in the TASQC program.

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Risk Factors for Single Drug Switch From Tenofovir to Abacavir in a Cohort of South African Patients on First-Line Antiretroviral Therapy

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Background: Tenofovir disoproxil fumarate (TDF) is a key component of antiretroviral therapy (ART) globally but may be nephrotoxic, which in South African ART guidelines necessitates a switch to an abacavir (ABC) based regimen. We aimed to identify risk factors for single drug switch to ABC during the first year after starting first-line ART.

Methods: We conducted a retrospective cohort study among HIV-positive patients aged > 15 years, initiated on first-line TDF-containing ART regimens between 2016 and 2019 in 59 public sector clinics in KwaZulu-Natal, South Africa. We analyzed deidentified, routinely collected data to identify risk factors for a single drug switch from TDF to ABC within one year of ART initiation using multivariable logistic regression.

Results: Among the 111948 patients initiating first line TDF-containing ART between January 2016 and June 2019, the median (interquartile range (IQR)) age was 31 (26-37) years and 76368 (68.2%) were female. In total, 240 (0.21%) switched to ABC within a year with a median (IQR) of 122 (49-222) days to switch, which correlates with routine monitoring of renal function performed at month three on TDF-based ART regimens. In multivariable regression, older age (adjusted odds ratio (aOR): 1.07 (95% confidence interval (CI): 1.06-1.08)) and lower CD4 count (<200 cells/mm3) (aOR: 2.62 (95% CI: 1.77-3.88) were associated with switching to ABC. After controlling for age and CD4 count, gender was not significantly associated with switching, while having tuberculosis (TB) at ART initiation was weakly associated with switching to ABC.
Conclusion: Older age and lower CD4 counts at initiation are risk factors for single drug switch to ABC during the first year of ART. ABC switch was more likely to occur just after 3 months, suggesting switches were made after routine ART monitoring of creatinine for patients on TDF-based regimens.

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Virological Outcomes and ARV Switch Profiles One Year After Dolutegravir Transition Among Children in Southern Mozambique

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Background: WHO recommends treatment optimization with dolutegravir (DTG) for first- and second-line ART among children. We describe DTG treatment in children approximately one year after DTG introduction in pediatric programs in Gaza and Inhambane provinces, Mozambique.

Methods: Clinic records from children 0-14 years with HIV-related clinic visits between September 2019 and October 2020 were extracted from medical records in 16 health facilities. Among children aged ≥5 years (proxy for weight ≥20kg, threshold for DTG 50mg), we report treatment switches, defined as change in anchor drug, ignoring changes only to NRTI backbones. Among those on DTG-based regimens, we described treatment changes and available viral load (VL) outcomes.

Results: Of 3,205 children aged ≥5 years (52.7% female), 2,685 (83.8%) switched ART regimens during this period; 995 (37.1%) children switched ≥ 2 times; 34 (1.3%) changed 5-7 times. Of those who switched, 2,523 (94.0%) switched to DTG-based ART, including 146 who started on DTG, switched off and then back to DTG; 1,955 switches (77.5%) were from NNRTI-based ART. At last visit, 89.7% (2,785/3,104) of children were receiving DTG, excluding 101 without a documented regimen during follow-up. Among children who switched to DTG, 2014/2523 (79.8%) were on continuous DTG for ≥6 months. Of these, 725 children had VL results available at median 9.1 [7.4-10.8] months after DTG start; 571 (78.8%) had suppressed VL <1,000 copies/mL. Among 372 with pre-DTG VL results, 187 (50.3%) were virally suppressed. Of those who switched to DTG for ≥6 months, 1657 (83.1%) also changed NRTI backbone; 474/602 (78.7%) with available VL were virally suppressed. Of 336 DTG switches with same NRTI backbone, 89/114 (78.1%) were suppressed; 21 children changed from 3 NRTI-ART to DTG-ART.

Conclusions: 90% of eligible children were on DTG after one year of rollout, though DTG was not consistently maintained for all. Among ART-experienced children, viral suppression rates were higher following DTG switch. Most children with VL results also changed NRTI backbone; suppression rates were similar to those who switched with same backbone, though numbers were limited. Further exploration, including drug resistance testing, is needed to understand why 21% are unsuppressed after nearly a year on DTG.

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Resistance Testing for Management of HIV Virologic Failure in Sub-Saharan Africa.

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Background: Virologic failures in HIV predicts the development of drug resistance and mortality. Genotypic resistance testing (GRT), which is the standard of care after virologic failure in high-income settings, is rarely implemented in sub-Saharan Africa. The study aimed to estimate the effectiveness of GRT for improving virologic suppression rates among people with HIV in sub-Saharan Africa for whom first-line therapy fails.

Methods: The study was pragmatic, unblinded, randomized control trial, enrolled adults receiving first-line antiretroviral therapy with a recent HIV RNA viral load of 1000 copies/mL or higher, from five HIV clinics in public sector in Uganda and South Africa. The participants were randomly assigned to receive standard of care (SOC) including adherence counseling sessions and repeat viral load testing or immediate GRT. We defined the primary outcome of interest as achievement of an HIV RNA viral load below 200 copies/mL 9 months after enrollment.

Results: The clinical trial enrolled 840 participants equally divided between countries. Approximately half (51%) were women. Most (72%) were receiving a regimen of teneforvir, emitricitabine and efavirenz at enrollment. The rate of virologic suppression didn't differ 9months months after enrollment between GRT group (63% [263 of 417]) and SOC group (61% [256 of 423]); odds ratio [OR], 1.11[95%CI, 0.83 to 1.49]; p=0.46). Among participants with persistent failure (HIV RNA viral load ≥1000 copies/mL) at 9 months, the prevalence of drug resistance was higher in SOC group (76% [78 0f103] vs 59% [48 of 82]; OR 2.30 [CI, 1.22 to 4.35]; p=0.014). Other secondary outcomes, including 9-month survival and retention in care were similar between groups.

Conclusion: The addition of GRT to routine care after first-line virologic failure in Uganda and South Africa did not improve rates of resuppresion.

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Community Health Commodities Distribution to Address Community Needs During COVID-19 Pandemic in Eswatini

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Background: Community Health Commodities Distribution (CHCD) was launched in March 2020 as emergency response to COVID-19 pandemic. Eligible Human immunodeficiency (HIV) clients with suppressed viral load(VL) and patients on selected chronic medications refill at community pick up points (PUP). Antiretroviral therapy, Tuberculosis (TB) and TB preventive therapy (TPT), pre-exposure prophylaxis (PrEP), family planning (FP) and non-communicable diseases (NCD) commodities were distributed. HIV testing and laboratory services are also provided.

Description: By October 2020, about 97 health facilities offered CHCD services during the pandemic. Community members and patients were informed about services in their catchment areas by Expert Clients (EC) during visits to health facilities. Patients were recruited and registered into the CHCD service delivery model at the public health facility. A day prior to service delivery, the CHCD facility team (nurse, EC, and data clerk) prepack the necessary commodities. On the appointment day, the facility team deliver the necessary commodities to the community PUPs where patients access the services.

Lessons Learned: From April to October 2020 about 23,906 clients received CHCD services. About 70,000 medications and commodities were distributed every month and approximately 370,000 condoms distributed. Among all medications and commodities distributed, 34,288 (64%) were HIV-related: self-test kits 22,953 (67%); rapid diagnostic tests kits 5,241 (15%); VL test 5,029 (3%), TB and TPT 1,146 (6%) and PrEP refills 1,065 (3%). The non-HIV services commodities were 19,343 (36%),which included, 14,992 (78%) general outpatients' medications, refills for: hypertension 2,204 (11%); diabetes 785 (4%) and FP 216 (1%). Facilities added different curative and HIV related services based on client specific needs, and availability of commodities. However, service package and monitoring and evaluation is not standardized across the country and there is lack of some chronic disease medications.

Conclusion: There was a rapid roll out of CHCD during the COVID-19 pandemic, increase access to commodities during COVID-driven lockdown, decongest facilities, integrated model of care and increased service coverage. We recommend standardization of services to all PUPs. Based on uptake of CHCD and to ensure sustainability, public health facilities need to integrate CHCD in their outreach programs.

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Early ART and Mental Health Outcomes in Ugandan Children: A Longitudinal Comparative Study of HIV-Exposed and Community Control Children at 8 – 18 Years

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Background: Whether in-utero/peripartum antiretroviral (IPA) exposure influences long-term mental health symptoms in children HIV-exposed but uninfected CHEU) and children with perinatally acquired HIV infection (CPHIV) is unknown. We compared mental health outcomes in a large sample (n=577) including children HIV unexposed and uninfected (CHUU) at 8 – 18 years old.

Materials and Methods: Children were evaluated at intake, 6- and 12- months for self-reported mental health outcomes -specifically anxiety and depressive symptoms, using the Behavioral Assessment System for Children (BASC-3). IPA exposure was established via medical records for children perinatally HIV infected (CPHIV) and children HIV exposed but uninfected (CHEU). IPA was categorized separately for CHEU and CPHIV as: no IPA, single-dose nevirapine with/without zidovudine (sdNVP±AZT), sdNVP+AZT+Lamivudine (3TC), or combination ART (cART). Time-averaged mean differences (β) with 95% confidence intervals (95% CI) for various IPA exposure-types relative to CHEU without IPA exposure were estimated using multivariable linear regression models adjusted for caregiving quality, caregiver socio-demographic and psychosocial factors.

Results: Overall depressive and anxiety symptoms were lower in CHUU relative to CHEU/CPHIV and as a group, mental health symptoms were similar for CPHIV relative to CHEU. Relative to CHEU with no IPA exposure, CHEU with peripartum sdNVP±AZT exposure had elevated anxiety (β =0.51, 95%CI:[0.06, 0.96]) and depressive symptoms (β=0.48, 95%CI:[0.07, 0.89]). Likewise, CHEU with peripartum sdNVP+AZT+3TC exposure had higher anxiety (β=0.0.45, 95%CI: [0.03, 0.86]) and depressive symptoms (β =0.72, 95% CI: [0.27, 1.17]) vs. CHEU with no IPA exposure. Depressive/anxiety symptoms were similar for CHEU/CPHIV exposed to peripartum cART (β =0.12 to 0.60, 95% CI: [-0.41, 1.30]) and for CHUU (β =-0.04 to 0.08, 95% CI: [-0.24, 0.29]) vs. CHEU without IPA exposure.

Conclusions: Data from this sample suggests that IPA exposure may influence emotional and mental wellbeing by school-age/adolescent years of life in regimen dependent fashion. Specifically, peripartum sdNVP±AZT and sdNVP+AZT+3TC predicted higher anxiety and depressive symptoms whereas cART exposure was not associated with worse mental health symptoms. Findings underscore importance of other studies of mental health trajectory of HIV-affected children in relation to IPA type in order to inform clinical practice and prevention efforts.

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High-Level of Cross-Resistance to 2nd Generation Non-nucleoside Reverse Transcriptase Inhibitors Among Patients Failing Antiretroviral Therapy in Cameroon: Implications for Future ART-Regimens in Africa

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Background: Etravirine (ETR), rilpivirine (RPV) and doravirine (DOR) are second generation (2Gen) non-nucleoside reverse transcriptase inhibitors (NNRTI) approved for the treatment of HIV-1 infection. In Africa, there are limited data on the resistance profile of 2Gen-NNRTI. This study aimed to evaluate 2Gen-NNRTI resistance and their susceptibility in patients failing antiretroviral treatment (ART) in Cameroon.

Methods: A cross-sectional study was conducted from 2019-2020 among 340 patients failing ART, received at the Chantal Biya International Reference Centre, Yaoundé-Cameroon. Treatment history and immuno-virological data were obtained from patients' files. Genotypic resistance testing was interpreted using Stanford HIVdb v8.7. The following variants were considered as resistance mutations to 2Gen-NNRTI: Y181CIV, Y188LC, V106AMI, M230L, K101EP, L234I, G190ASEQ, L100I. The penalty scores of drug resistance were ≥60 (high-resistance); 30–59 (intermediate-resistance); <30 (susceptible). Acceptable threshold for potential drug-efficacy was set at >50% at population-level.

Results: A total of 340 patients were enrolled, of which 230 were failing first-line (1Gen-NNRTI based) and 110 second-line (protease-inhibitors) regimens. Median [IQR] CD4 and viremia were respectively 184 [60–332] cells/µl and 82,374 [21,817–289,907] copies/ml; ART-duration was 18 [10–27] months. Overall rate of resistance to 2Gen-NNRTI was 79.70% [71.30–87.02], similar between first- vs second-lines. Prevailing mutations were: Y181C (23.52%), G190A (17.64%) and P225H (13.53%). Drug susceptibility rate was 52.05% (ETR); 43.23% (RPV), 36.17% (DOR). Following susceptibility profile, patients failing on EFV-based regimens were more susceptible to 2Gen-NNRTI (OR=0.42; 95%CI:[0.24–0.74]; p=0.003), while those failing after receiving EFV and NVP were less susceptible to 2Gen-NNRTI (OR=4.4; 95%CI:[1.16–14.81]; p=0.02). Low viremia (≤4log10) was associated with susceptibility to 2Gen-NNRTI (OR=0.22; 95%CI:[0.12–0.41]; p<0.0001). CRF02_AG was the prevailing subtype (58.53%), followed by A1 (11.47%), G (7.35%); without any significant effect on 2Gen-NNRTI susceptibility (CRF02_AG vs non-AG; p=0.8).Variables statistically associated with viral susceptibility in the bivariate analysis with a P≤0.20 were included in the logistic regression.

Conclusion: After ART-failure in Cameroon, there is a high-level of cross-resistance to 2Gen-NNRTI. However, etravirine retains residual efficacy in half of the population. Thus, after ART-failure in African patients, the use of etravirine as 2Gen-NNRTI is possible, pending genotypic profiling.

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HIV Re-Testing Among PLHIV in ART Care: A Threat to Retention and Adherence, a Cross Sectional Study on ART Clients Attending the HIV Clinic at Aids Information Centre Kampala

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Background: Uganda has made significant progress towards achieving the first 95 while the second 95 and third 95 of UNAIDS Targets still lag behind with 84% and 75% respectively. Retention in care is a key player in achieving the second and third 95-95-95 UNAIDS goals by the year 2030. However, reports of HIV negative results by ART clients after HIV re-testing from other clinics could become a hindrance to adherence and retention in care. This study sought to establish the magnitude of HIV re-testing among ART clients, HIV negative results and their effect on adherence.

Materials and methods: In December 2021, a cross sectional study was conducted randomly

on 204 PLHIV clients who attended the ART clinic at AIDS Information Center using an offline electronic questionnaire to assess the incidence of HIV re-testing and negative HIV results among ART clients. The study collected socio-demographics, ART duration, number of sexual partners, reasons for re-testing, and effects of the test results

Results: 53.9% of the respondents were female. 35% of the respondents had had a HIV repeat test and 40% were between 20 and 30 years of age with 55% having two or more sexual partners. 37% reported new sexual partner as the reason for re-testing and 20% reported spiritual/traditional healing as their reason for re-testing.
The median duration on ART was 1.5 years and 25% of the repeat HIV results were negative. 20% of these, reported poor adherence while 10% reported an interruption in ART. 75% of those who had an interruption in ART gave spiritual/traditional healing as their main reason for re-testing.
We also found that 30% of the positive HIV re-test results reported stigma, discrimination, separation and 10% poor ART adherence

Conclusion: Our study found that HIV re-testing is relatively high among ART clients due to socio- marital pressures, spiritual and traditional healing. Results of HIV negative can attribute to poor adherence and ART treatment interruption. This needs to be addressed in an effort to achieve the second and third 95-95-95 UNAIDS targets.

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The Dynamism of the HIV Epidemic as Reflected in All-Cause Mortality in an Urban Zimbabwean HIV Cohort in 2010 and 2020

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Background: The life expectancy of people living with HIV (PLHIV) has improved due to widespread roll out of antiretroviral therapy (ART). With the decline of AIDS-related deaths, non-HIV related conditions have become more important. The study was conducted to investigate all-cause mortality in an outpatient HIV clinic in Zimbabwe, 10 years apart.

Methods: A retrospective cohort study was conducted, with demographics, HIV data and cause of death (COD) data abstracted for all deaths which occurred to patients in care at an HIV referral clinic in Harare within the time periods January - December 2010 and 2020.

Results: 156 deaths were recorded in the two-year period; 65/3292 patients in care died in 2010 and 91/6709 in 2020. In 2010, 38% (25) of deceased were male increasing to 46% (42) in 2020. Median age at death was 19 years (interquartile range [IQR] 13-44) in 2010, and 46 years in 2020 (IQR 34-57). Median CD4 at death was 242 cells/mm 3 (IQR 105-381) in 2010 and 289 cells/ mm 3 (IQR 74-537) in 2020. Median ART duration at time of death was 62 weeks (IQR 18-216) in 2010 and 396 weeks (IQR 171-655) in 2020. COD in 2010 and 2020 respectively were: 49% (32) versus 33% (30) due to infectious causes, 12% (8) versus 29% (26) due to malignancy, 1% (4) versus 14% (13) due to non-communicable diseases (NCDs). All 2010 NCD-related deaths were due to chronic kidney disease (CKD). In 2020, 8 were due to CKD, 4 to cardiovascular disease and 1 to diabetes. 38% of patients with cancer had HIV-associated malignancies in 2010, declining to 27% in 2020. Anogenital malignancies increased from 12.5% in 2010 to 23% in 2020. Other COD contributed 27% in 2010 and 9% in 2020 and was unknown for 11% of cases in 2010 and 15% in 2020.

Conclusions: COD and median age at time of death has changed dramatically over the decade. Non-HIV related malignancies and NCDs have become significant contributors to COD. Integrated HIV care which includes

screening, monitoring and treatment of NCDs and non-HIV-associated cancers is highly recommended.

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Fast Tracking Efforts to Sustain Viral Suppression Among HIV Positive Women Through a Robust Peer Approach in Multi Countries in Africa

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Background: Supporting Pregnant and breastfeeding women (PBFW) with HIV to adhere to their medication, and increasing access of viral load test and results among PBFW allows us to establish more sustainable viral suppression rates among our clients. Viral suppression is extremely important in increasing the survival rates of PBFW on antiretroviral therapy and prevents HIV transmission to their unborn and breastfeeding infants. Viral load suppression is defined in two different ways: viral load of less than 1000 copies/ml can be interpreted as viral suppression (WHO, 2020) but the more stringent classification followed by the Global Centre of Disease Control (CDC), requires a viral load of less than 200 copies/ml for viral suppression to be achieved.

Description: A stratified, representative sample of 5,507 pregnant women and new mothers enrolled in the m2m program from January 2019 – December 2020 from sites in Ghana, Kenya, Lesotho, Malawi, South Africa, Uganda and Zambia. Mentor Mothers routinely profiled HIV positive PMTCT clients to establish recent VL testing status, record results and assist clients to use their results to inform monthly self-care plans. Mentor Mothers followed up clients due for VL tests and routinely assessed for ART adherence using the 7-day recall and 5- point adherence behavior and efficacy scale

Lessons learned: The results were calculated as the percentage of days in the past week that a client took medication, averaged over multiple indicators. Over 95% of the multi country samples achieved viral load suppression of less than 200 copies/ml, compared to the benchmark of 91% viral suppression in Eastern and Southern Africa (UNAIDS; 2020). Over a third (90%) of the women had undetectable VLs. These clients with undetectable VL have higher survival rates and with their chances of transmitting HIV to their HIV negative partners or to their unborn or breastfeeding babies being greatly minimized.

Conclusions/next steps: The m2m peer model of supporting pregnant and breastfeeding mothers to adhere to their treatment is key to achieving viral suppression. Our results demonstrate the importance of peer led viral load result reporting and routine support for positive self-care and adherence.

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Sustained Viral Suppression Among HIV Positive Women Through a Robust Peer Approach in m2M Countries During COVID-19 Pandemic

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[1]*Mothers 2 Mothers*

Background: The impact of Covid 19 on health services areas resulted in catastrophic impacts for the most marginalized and vulnerable people. Starting march 2020 COVID 19 was declared a pandemic across the continent with most of m2m countries announcing lockdowns and heavy restrictions. Our peer cadres known as Mentor Mothers were declared essential workers, enabling continuity of services during the full lockdown and restricted access periods imposed in response to Covid 19. Within three weeks, the m2m hybrid model was introduced, which included a new type of

eservices: Peer via Phone (PvP) using m2m's FLWs to deliver an average of 5 structured monthly calls ranging from education, psychosocial support, adherence and self-care support and follow up/support for clinical services. In some cases, Mentor Mothers delivered pre-packed ART to defaulting clients in the community.

Description: From inception in Apr-2020 to Dec 2020, over 208, 321 m2m clients were reached through PvP eService across Ghana, Kenya, Lesotho, Malawi, Mozambique, South Africa, Uganda and Zambia. Using case based DHIS2 tracker cumulative number of clients receiving PvP disaggregated by call type, client risk profile and receiving the first, introductory Call and at least one other PVP call.

Lessons learned: The results show that HIV-positive clients were prioritized 34% pregnant, 64% breastfeeding, and 2% in General ART. HIV serostatus remains a key determinant in client risk profiles and PvP eService delivery algorithms with 71% of the clients were HIV positive.

Conclusions/next steps: m2m's PvP were effective at reaching high risk clients such as HIV pregnant and breastfeeding mothers. The results underscore the importance of having the risk profiling variables enhanced to ensure that all vulnerable clients are provided with differentiated care by m2m peer models.

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Increasing Protease Inhibitor Resistance Mutations Among HIV-Infected Children and Adolescents with Virologic Failure

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Background: The advancement of antiretroviral therapy (ART) in Tanzania has lead to increased ART resistance among children and adolescents living with HIV (CALHIV). However, few studies have examined ART resistance among ART users in Tanzania, especially in CALHIV.

Methodology: A retrospective chart review was conducted on genotypes taken from CALHIV between 2014 and 2019. Patient characteristics were obtained from the clinic electronic medical record. Genotyping results were analyzed using the Stanford HIV Drug Resistance Database.

Results: Thirty-seven clients with genotypes were included. Twenty-one (57%) were female and 32 (87%) were >15 years old at the time of genotype. Four (10%) CALHIV were severely malnourished and two (5%) had active TB. On WHO staging 36 (97%) were stage III/IV and at the time of genotype, 23 (62%) had CD4<200cells/mm3. For the most recent CD4, 14 (38%) had CD4 counts <200cells/mm3.
Examining chart status through 2021, 31 (84%) CALHIV were active in care and 6 (16%) were lost to follow-up. At baseline, all clients had unsuppressed viral loads (VL) (>1000copies/ml) and 35 (95%) were on PI-based ART. On follow up VL,19 (51%) successfully suppressed.
For genotype results, a total of 106 resistance mutations were found: 45 (42%) high-, 29 (27%) intermediate- and 32 (30%) low-level. Six (16%) clients had no resistance. PI mutations were 48% (51/106) of the total and of those, 43% were high-level. Among all clients, 11 (30%) had PI resistance only, 9 (24%) had NNRTI+PI, and 8 (22%) had three-class resistance.

Conclusions: There is a trend of increasing PI resistance mutations over time in CALHIV. Adherence to ART and timely VLs and genotyping for clients with failing VL will help to safeguard PIs from this progressive increase.

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Diagnostic Accuracy of Point – of – Care CD4 test (VISITECT CD4) Compared With BD FACSPresto in the Management of Clients with Advanced HIV/AIDs Diseases (AHDx) in Akwa Ibom State, Nigeria

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Introduction: The identification and prompt management of clients with Advanced HIV/AIDS Diseases (AHDx) in RISE supported facilities is needed to further drive the stride in making HIV/AIDS ceases to be a Public Health concern in the nearest future. The diagnostic accuracy of POC VISITECT CD4 was compared with BD FACSPresto as a measure of CD4 count amongst clients receiving care at General Hospital, Ikot Ekpene, Akwa Ibom state.

Methodology: secondary data of 118 newly diagnosed HIV clients who were concurrently screened by the laboratory scientist of the facility for AHDx using both VISITCET CD4 (finger-prick samples) and BD FACSPresto (on venous blood) was generated from the AHD register of General Hospital, Ikot Ekpene in July, 2021. Descriptive statistics was done for qualitative and quantitative variables. Psychometric analysis for VISITECT CD4 was analyzed. Chi square test was used to assess the level of association and kappa statistics was used to assess the degree of agreement between VISITECT CD4 and BD FACSPresto. The level of statistical significance was set at □<0.05 at 95% Confidence Interval.

Results: of the 118 newly diagnosed PLHIV screened for AHDx, 68.6% were females, 98.3% were ≥15 years old with a mean age (35.9 ± 12.1 years) and 40% had AHDx with CD4 count <200 cells/mm3 (BD FACSPresto). The only correlate of CD4 count measured using BD FACSPresto was education of respondents with 71.4% of those with AHDx (<200 cells/mm3) having secondary level of education (x2 = 7.94, p = 0.047). The sensitivity of VISITECT CD4 was 100%; specificity, 78.6%; positive predictive value, 75.7% and negative predictive value, 100% with an excellent degree agreement between VISITECT CD4 and BD FACSPresto (kappa = +0.75, p = <0.001).

Conclusion: the study reported an excellent agreement between VISITECT CD4 compared with the "Gold-standard" – BD FACSPresto implying no difference in performance between the point-of-care kit and laboratory-based testing. This shows the potential of this POC in Differentiated Service Delivery (DSD) Models such as Community ART, Community Pharmacy etc. in ensuring that CD4 testing services are accessible for every new client being screened for Advanced HIV Disease in resource limited settings.

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Patterns of Medication Adherence and Appointment Keeping Among Young People Living With HIV in Niger State, Nigeria

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People living with HIV (YPLHIV) are a critical age group for attaining the 90: 90:90 global HIV/AIDS goal. However, young people experience several challenges such as; treatment interruption, suboptimal medication adherence, ART regimen complexity and poor care seeking behavior which often lead to drug resistance and poor health outcomes. Young people aged 15 to 24 years make up approximately a third of all new HIV infections in sub-Saharan Africa. This study, therefore, determined the levels of medication adherence and appointment

keeping among Young people aged 18 to 24 years living with HIV in Niger State, Nigeria

A quasi-experimental study design was used to collect data from 222 YPLHIV in four facilities in Niger State Nigeria. A self-reported adherence and retention instrument, a visual analogue scale (VAS), and a one-week recall log was used to determine adherence and appointment keeping at baseline. Data was analyzed using STATA 15.0 with significance level set at $p<0.05$. Pearson's chi-square test statistics was used to measure association between categorical patient characteristics, medication adherence, and appointment keeping.

The median age of the respondent was 19 ± 1.67 years (IQR 18-20); 64.4% were females and 65.3% hold a high-school certificate. Eighty-eight percent (196/222) reported taking all their medication in the past week while the average VAS rating was 95%. More male YPLHIV reported higher medication adherence than females. Eighty-five percent (123/146) of the YPLHIV who had clinic appointment in the last 28 days reported keeping their clinic appointments. We observed that 70% who reported medication adherence have disclosed their HIV status to their family and 63.4% of them kept their clinic appointments in the last 28 days. Also, there was a significant relationship between self-reported medication adherence and age. Older Youths in the age bracket 20-24 years reportedly adhered to their treatment more than youths in the younger age bracket of 18-19 years.

Medication adherence and appointment keeping are sub-optimal among YPLHIV in Niger State. There is a need for a better support system and the design of cost-effective youth-friendly programs and health literacy interventions to improve adherence to antiretroviral therapy among this population.

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Incidental Anaemia in Patients Started on Antiretroviral Therapy in Harare, Zimbabwe: A Retrospective Cohort Study

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Introduction: Though antiretroviral treatment (ART) reduces the prevalence of anaemia, some patients remain at risk of developing anaemia after commencing ART. Anaemia is associated with reduced quality of life in people living with HIV (PLWHIV). We estimated the incidence of anaemia after ART commencement and associated risk factors in a cohort of PLWHIV.

Methods: Using records collected during routine patient care, we conducted a retrospective cohort study of patients in care at Newlands Clinic who started ART between January 2016 and December 2020. These were followed up until an anaemia event, censorship or for 104 weeks after ART commencement. Anaemia was defined according to the World Health Organisation age and sex specific reference ranges of haemoglobin. Cox regression was used to assess for independent risk factors for anaemia.

Results: A total number of 1,110 patients ≥ 5 years old, were commenced on ART and the prevalence of anaemia at ART commencement was 40.0%. After excluding those with prevalent anaemia, incomplete blood results, or pregnant during follow up we included 529 patients with a total follow up time of 823.6 person years. The median age was 36.1 years (IQR 27.0 - 44.6) and 290 (58.4%) were female. The incidence rate of anaemia after ART commencement was 176.1 per 1,000 person years (95% CI 149.6 - 207.2) with 146 (27.6%) of the participants developing anaemia during follow up. The median time to developing anemia after ART commencement was 48.1 weeks (IQR 24.1 – 91.5). Of those with incidental anemia, 79.6% had normocytic,13.6% had macrocytic and 6.8% had microcytic anemia. Female patients (aHR 2.06 95% CI 1.45-2.94, p=0.001), zidovudine use (aHR 4.03-6.24, p=0.001) and age < 18

years (aHR 1.47 95% CI 1.17-1.86, p=0.001) had higher risks of developing incidental anaemia.

Conclusion: Almost one in every five participants a year developed anaemia. Female sex, zidovudine use, and young age were independent risk factors for developing anaemia. The impact of this high incidence of anemia on disability in this cohort of PLWHIV needs to be assessed in future studies.

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Improving Child and Adolescent Viral Load Suppression Rates in Rundu, Namibia

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Background: Recent estimates indicate Namibia is approaching the UNAIDS 95-95-95 targets for HIV epidemic control in the general population. Children and adolescents <19 years (paediatric patients), however, lag in achieving viral load suppression (VLS) (<1,000 cps/ml) often due to adherence barriers. In October 2019, a routine review of VLS at Rundu Paediatric ART Clinic showed 263 of 418 (63%) achieved VLS. This rate is far below the 95-95-95 targets and much lower than Namibia's 2019 SPECTRUM model estimated VLS of 91.6% in the general population.

Methods used: A multi-disciplinary quality improvement committee (QIC) was established at the facility to rapidly foster and sustain improvement in VLS outcomes for paediatric patients using plan, do, study, act (PDSA) cycles. The QIC conducted monthly meetings and implemented several interventions including: targeted on-site training of all cadres on the management of high VL paediatric patients ; enhanced adherence counselling (one-on-one and group counselling); daily or weekly Directly Observed Treatment (DOT); involvement of social services for home visits; peer treatment supporters; medication reminders (e.g., mobile phones, wrist watches with alarms, pillboxes); involvement of life skills teachers /hostel supervisors overseeing treatment of boarding learners on ART; and switching from failing ART regimens.

Results: During the implementation period between October 2019 and December 2021, among the 155 paediatric patients with unsuppressed VL, 13 (8%) became inactive on treatment (two died, five transferred to other facilities, and six were lost to follow-up before suppression was achieved). Among the remaining 142 active patients, 131 (92%) achieved VLS. Of the 11 patients (8%) who did not achieve VLS by December 2021, three were switched to 2nd line regimens, two were recommended for HIV drug resistance testing and six are still undergoing enhanced adherence counselling and close bio-clinical monitoring.

Conclusion: The dramatic improvement in VLS among paediatric patients at Rundu ART Clinic demonstrates the impact of focused enhanced adherence counselling and a multipronged approach using a patient-centered perspective to help patients navigate through barriers that are stumbling blocks to VLS in a collaborative manner. This approach may also be beneficial to other facilities and countries struggling to improve paediatric VL suppression.

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Prioritizing Viral Load Testing Among Adolescents Living With HIV in South Africa: Preliminary Analyses From a Mixed-Data Cohort

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Background: Adolescents living with HIV (ALHIV) experience sub-optimal ART adherence, treatment interruptions, and subsequent treatment failure. Viral load monitoring among ALHIV is critical to understanding their treatment trajectories and realizing U=U.

Methods: This analysis uses data from 1073 ALHIV (10-19 years at baseline) interviewed during the last round (2017-2018) of Mzantsi Wakho, a three wave South African cohort study (2014-2018) with over 94% retention . Using unique study identifiers, self-reported questionnaires were merged with VL data from National Health Laboratory Services (NHLS) and from paper-based medical records at health facilities. Paper-based medical record abstraction involved visiting all health facilities (n=52) within the population catchment and matching with the NHLS database used key identifying variables, such as the adolescent's full name and age. We describe viral load (VL) testing among ALHIV and examine the individual characteristics associated with having any VL test record and achieving viral suppression (<1000 copies/ml).

Results: At the last follow-up in 2017-2018, the mean age of participants was 16.6 years (SD=3.1 years), 57.4% were female, 76.2% lived in peri-urban locations and 74.2% were estimated to have acquired HIV vertically. Approximately 91% had at least one VL result on record, with the earliest record in 2004. Adolescents without any VL records (19%) were more likely to be older, female, and to have acquired HIV recently (most likely sexually). However, only 53.1% had a VL result during the last interview round, of whom 70.2% achieved viral suppression. Factors associated with viral suppression include younger age (OR=0.91, 95%CI 0.83-0.99, p=0.035) and living in urban dwellings (OR=1.79, 95%CI 1.19-2.68, p=0.005).

Conclusions: Sustaining viral load monitoring among older adolescents is critical for ensuring positive long-term treatment outcomes. Further analysis should assess long-term viral suppression trajectories to ascertain adolescents at risk of treatment failure.

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Pre-Analytical Errors in the HIV Anti Retro Viral Therapy (ART) Laboratory of Teaching Referral Hospitals in Addis Ababa, Ethiopia

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Aim: To assess the magnitude and associated factor of pre-analytical error in the Human Immunodeficiency Virus (HIV) antiretroviral therapy (ART) laboratory of a teaching referral hospitals in Addis Ababa, Ethiopia.

Methods: A cross-sectional descriptive study design was used from May 1, 2018 to Jun 30, 2018 by using both quantitative and quantitative data collection approach. Data was entered, cleaned using Statistical Package for the Social Science (SPSS) version 21 for Microsoft Windows.

Result: Among the 427 specimens submitted for laboratory testing, 41 (9.6%) were not accepted for requested laboratory diagnosis, because of pre-analytical errors. The most frequent reasons were mislabeling followed by hemolyzed and clotted sample. 47.6% of the phlebotomist did not take phlebotomy related professional development training and errors were higher in those service offered by non-trained phlebotomist.

Conclusion: The overall pre-analytical error rate was considerably high, 9.6%, even though, least magnitude compare to similar study. This finding suggests that strong comprehensive quality assurance interventions should be

implemented in the health laboratory facilities in order to deliver quality laboratory result within the agreed turnaround time.

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Medium-Long Term Impacts of Antiretroviral Drugs on Arterial Blood Pressure in People Living With HIV in Malawi

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Introduction: We explored the impacts of ART on Hypertension in a sample of 1350 HIV-positive alive in Malawi.

Methodology: A retrospective case control study carried out on patients enrolled from 2005-2019. age, gender, BP, ART regimen, BMI, CD4 count, Viral load, Biochemistry, hemoglobin, marital status, education level, survival and period on ARVs were analyzed. All patients were over 18 years (mean age: 43.4 and the SD was ±10.7 with 1031 (65.9%) females and 534 (34.1%) males who were taking ARVs > 6 months at the date of enrollment and not affected by hypertension or potentially related diseases like Renal failure at the enrollment. The mean observation time, from the HAART initiation was 77 months per person (SD±40).

Results: we divided the sample in two groups, 675 who developed hypertension and 675 who did not, Among patients with hypertension, 4.4% developed a stage 3 hypertension, 154 a stage 2 (22.8%) and 491 a stage 1 (72.8%). Hypertension stages were not associated to statistic significant differences of age and/or gender (p=0.422, p=0.281 respectively). baseline: patients who developed hypertension showed higher hemoglobin, higher CD4 count and lower VL (P<0.001). Patients on AZT-based regimen and TDF based regimen were at high risk to develop hypertension while PI-based regimen was protective to hypertension (P<0.001). In a multivariate analysis, factors independently associated to Hypertension were higher CD4 count and Body Mass Index at the visit date, while Baseline Viral Load and PI-Including regimes were protective factors. Education level was inversely associated with risk of hypertension, while being married was associated of risk of hypertension (p<0.001). Mortality rate among hypertensive patients was 1.6% for those treated for hypertension against the 3.6% for those not treated.

Conclusion: we found a protective action of PI-including regimens compared with AZT based regimen that is associated to an increased risk of hypertension. Factors related to a better general health status are associated to a higher risk of hypertension as well as lower education, older age and male gender. Treatment should be started as soon as Hypertension stages 2-3 are reached and control by behavioral factors is no longer effective.

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Evaluation of the Acceptance and Impact of Virtual Trainings Among Health Care Workers Providing Antiretroviral Therapy (ART) Services in Kaduna State; Northwestern Nigeria

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Background: In response to the novel coronavirus (SARS-CoV-2), which causes the COVID-19 disease, physical attendance at workshops, conferences and training courses ceased, forcing programs to shift towards virtual learning within the HIV program in Kaduna State. To continue enabling the

delivery of effective comprehensive antiretroviral therapy (ART) services in Kaduna state, tactical steps were taken to deliver necessary and required trainings via virtual platforms to health care workers (HCW) in the state. We examined the impact of virtual learning instruction for health care workers in the ART program in Kaduna State and possible limitations.

Methodology: A survey was conducted between 1st of June to 30th June, 2021 among HCWs providing ART services across 55 comprehensive ART facilities in Kaduna State. A total of 182 HCWs comprising of 32 (17.5%) ART clinicians, 41 (22.4%) pharmacists, 26 (14.2%) lab focal persons, 37 (20.2%) ART clinic managers and 47 (25.7%) ART nurses were randomly selected. A standardized structured questionnaire and 5 focus group discussions (40 participants) were applied in the study. Statistical analyses were performed in STATA (v13) while qualitative data was analyzed by thematic approach.

Results: 91.8% (n=168) of the participants had attended at least two virtual trainings between 1st April 2020 to 30th June 2021. 60.7% (n=111) of the participants indicated that they preferred virtual trainings, 29.5% (n=54) preferred physical trainings while 9.8% (n=18) of the participants were indifferent. 55.7% (n=102) would choose a physical training over a virtual training if given the choice. Technological issues revolving around internet connectivity, inability to focus on screen and distractions from both surrounding and participants were the major barriers to acceptance noted. Smaller participants size, shorter training times and better moderation were indicated as factors that could improve virtual training experience.

Conclusion: e-learning has come to stay and strategies to ensure that learners get the best out of the experience should be paramount. Virtual training of HCW in smaller groups as opposed to training larger crowds, shorter meeting durations and increased interaction should be considered.

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Mental Health of Adolescents Living With HIV in Cameroon

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Background: HIV-infected adolescents living with HIV frequently present with mental health, adaptation impairment and behavioral problems, as well as problems with school and professional integration. Support strategies for Cameroonian HIV-infected adolescents remain ineffective in improving retention in care and mental health. In this context, an intervention is conducting for developing and evaluating a community-based model of psychological and social support. We describe here the preliminary baseline mental burden among the adolescents included in this study.

Methods: This is a randomized controlled trial conducted in a sample of 300 vertically HIV-infected adolescents aged 10-19 years, on antiretroviral treatment and cared of in Chantal Biya Foundation, Yaounde, Cameroon. The study population is organized into 2 arms, each comprising 150 participants who will be followed for 18 months. The control arm only benefits from routine care in the health facility. The intervention arm also benefits from routine care in the health facility and is assigned to an HIV association (KidAIDS Cameroon) in order to benefit from the reinforced support model. The primary outcome of this study will be retention in care. Secondary outcomes will include mental state, etc.

Results: As of January 9, 2022, 110 participants are enrolled in the study at an average age of 14 years old, including 58 in the intervention arm and 52 in the control arm , 51 boys and 59 girls. Both parents died for 17 participants; only the father is alive for 25 participants; only the mother is alive for 17 participants, both parents are alive for 51 participants. The HIV status disclosure is respectively complete, partial and absent in 51, 20 and 32 participants. Among the study participants, 17 participants experience gender-based violence, 3 use psychoactive substances, respectively 47 and 17 participants suffer from moderate to severe depression, 40 have suicidal ideation, 52 present with moderate to severe and 7 have low self-esteem.

Conclusion: The preliminary results of this study illustrate the significant burden of mental health problems among adolescents living with HIV in Cameroon. Hence the urgency of reorienting the basic training of psychosocial counselors to better address the issues experienced by this sub-population.

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Public-Private Sector Partnerships: Contracting With Private Sector Laboratories in Botswana to Close Viral Load Testing Gaps During COVID-19 and Beyond

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Background: Challenges around viral load (VL) testing include equipment breakdowns, reagents stock-outs, shortages of trained staff, and long turnaround times (TAT) for results. These challenges prevent timely decision-making around client care. In Botswana, routine public sector VL testing was drastically affected at the national level by COVID-19 response measures, exacerbating existing challenges. The USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project piloted VL testing through private laboratories.

Description: EpiC contracted with a private laboratory to conduct VL testing at US$20 per test—comparable to public laboratory testing but less than half the usual cost in private laboratories. From October 2020 to September 2021, health providers in 12 clinics across 10 districts in Botswana collected VL samples at the health facilities or referred clients to their choice of one of the nation's 25 private lab-operated depots for VL sample collection, which clients could schedule at convenient times, including weekends. The private laboratory transported and processed samples, then returned the results to the referring provider through a secure electronic portal within 24 hours.

Lessons Learned: VL testing through private laboratories offered clients more location and scheduling options for sample collection, improving VL testing coverage among key population (KP) individuals who may not have received a VL test otherwise due to challenges in accessing services. From October 2020 to September 2021, 5,123 VL tests were conducted via private laboratories, 20% of which (1,042) were from KPs. At the 12 participating clinics, VL testing coverage increased significantly from 83% to 90% for KPs and slightly among the general population (90% to 91%). In addition, the TAT of results decreased from one to six weeks before the intervention to 24 hours following the intervention.

Conclusion/Next Steps: VL testing through private laboratories was feasible in Botswana at costs similar to public laboratory testing in the country. Countries with strong private laboratory systems should consider private-public partnerships to increase national VL testing capacity during COVID-19 and beyond. This model could help close VL testing gaps for KPs and other groups who face challenges in accessing HIV services.

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Feasibility of Implementing Decentralized ART Drug Distribution Through Private Pharmacies: Early Lessons From Five Sub-Saharan African Countries

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Background: The USAID/PEPFAR-supported Meeting Targets and Maintaining Epidemic Control (EpiC) project led by FHI 360 implemented decentralized drug distribution (DDD) of antiretrovirals (ARVs) through private pharmacies (PPs) for clients on antiretroviral therapy (ART) in five sub-Saharan African countries. DDD has potential to reduce client costs associated with ART pick-up and streamline service delivery when integrated across health conditions.

Materials & Methods: From February to December 2021, five countries (Côte d'Ivoire [CDI], Democratic Republic of Congo [DRC], Lesotho, Liberia, and Mozambique) implemented DDD. Baseline assessments were conducted, and stakeholders (Ministry of Health [MOH], regulatory bodies, people living with HIV associations, health facilities [HFs], PPs) were engaged for their buy-in. PPs were mapped and GIS-coded. Memoranda of understanding (MOUs) were signed between PPs, HFs, implementing partners, and the MOH to establish supply and data systems. Providers were trained on DDD. Virally suppressed (<1000 copies/ml) clients with no opportunistic infections were offered DDD alongside other differentiated service delivery (DSD) models at the HF during routine clinical reviews or via phone. Appointments for pick-up of three or six months of ARVs were scheduled at PP. PPs provided adherence counseling, tuberculosis screening, and blood pressure and weight measurement, and they entered data into electronic systems. Clients did not pay user fees.

Results: Stakeholder engagement and MOUs were crucial for well-coordinated patient data and stock management and successful DDD implementation. Across five countries, 1,882 clients received three- or six-month ARV refills at PPs as follows:

In CDI between August–December 2021, 37 clients were devolved from 7 HFs to 21 PPs; in DRC between November 2020–April 2021, 341 clients from 17 HFs to 20 PPs; in Lesotho, between May–December 2021, 661 clients from 8 HFs to 21 PPs; in Liberia, between July–December 2021, 68 clients from 3 HFs to 23 PPs; in Mozambique, between July–December 2021, 755 clients from 36 HFs to 67 PPs.
While initial enrollment was slow, uptake improved following demand creation (social media, through expert clients, continuous stakeholder engagement).

Conclusions: DDD through PPs is feasible countries in sub-Saharan Africa and should be scaled-up as another DSD option for ART clients.

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An Assessment of Management of Clients With High HIV Viral Load in Manicaland and Midlands Provinces of Zimbabwe in the Era of COVID-19 Pandemic, 2021

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Background: UNAIDS target is for 95% of clients on antiretroviral therapy (ART) to have a suppressed viral load. Poor ART adherence and viral mutations can lead to high HIV viral load (HVL) above 1000 copies/ml. Management of HVL algorithm stipulates that these clients should undergo two to three enhanced adherence counselling (EAC) sessions after an initial HVL and have another VL test after 3 months, after which they should be switched to 2nd line if found to have HVL. We assessed management of clients with HVL in selected health facilities of Manicaland and Midlands provinces of Zimbabwe.

Methods: We conducted a retrospective cohort analysis of routinely collected data from the laboratory database and a review of individual HIV positive clients' files and clinic registers. Cluster random sampling was used to select 76 (20%) of health facilities from Manicaland and Midlands provinces. All clients with a HVL were included. Data on compliance with the HVL management algorithm were collected from healthcare workers using an MS Excel template.

Results: A total of 1,741 clients with HVL were included in the analysis. Of these, 35% (608/1,741) received first EAC session and 72% (437/608) of these received second EAC session. Among the 437 who went through the second EAC session, 209 (48%) had a second viral load test and 58% of these were virally suppressed. Reasons for non-adherence to HVL management algorithm included clients interrupting treatment, deaths, clients being missed due to poor filing system, poor adherence, and patient migration.

Conclusions: Adherence to the algorithm for management of clients with high viral load was suboptimal across all facilities. We recommend systematic follow-up of HVL patients, improvement of filing system and healthcare worker capacity building.

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What Do We Know About the Quality of Differentiated Service Delivery (DSD)? Defining and Measuring Quality Standards for Differentiated Antiretroviral Treatment in Rwanda, Cote d'Ivoire, and Malawi

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Background: As countries work to scale up HIV differentiated service delivery, improving both the coverage and quality of differentiated antiretroviral therapy (DART) models for clients established on treatment is critical to achieving impact. While measuring DART coverage (the number of people enrolled in DART models) is relatively straightforward, there are no global quality standards for DART, few DSD indicators are captured in national M&E systems and the quality of DART services remains unclear in most settings. The HIV Coverage, Quality, and Impact (CQUIN) learning network, facilitated by ICAP Columbia University and funded by the Gates Foundation, convenes members from 21 countries for joint learning, peer-to-peer sharing and co-creation of resources. CQUIN's quality and quality improvement (QI) Community of Practice (CoP) aimed to address this gap through the development of DART quality standards and tools.

Description: CoP members, including representatives from ministries of health (MoH), national networks of people living with HIV, implementers, donors, and other

stakeholders, co-created a quality standards framework, indicators, and assessment tool to support DART program quality monitoring, problem identification, and QI. The toolkit includes cross-cutting and model-specific quality standards for 11 core domains, measured with 56 qualitative and quantitative indicators. From August to September 2021, MoH staff from Rwanda, Cote d'Ivoire and Malawi adapted and piloted the tools using a purposeful sample of 3 HFs per country. They collected data via site visits, chart review, and key informant interviews and characterized the quality of DART services at each HF. They reported that the toolkit provided HFs with real-time, locally relevant data to monitor DSD program quality. While DSD services were available at all sites with readily available trained staff, important quality gaps were identified including lack of DSD M&E systems, poor identification of DSD eligible clients, lack of protocols for fast-track services and ART clubs, and weak linkage with community programs. Adjustments were made to the assessment tool which was finalized in November 2021.

Conclusions: The DART quality toolkit enabled country teams to define national DSD program quality standards and conduct routine assessments, allowing leaders to make informed decisions about DSD program quality and improvement efforts.

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Home Delivery of Antiretroviral Drugs in Indonesia, Laos, Nepal and Nigeria: Implications of COVID-19 Experiences for Post-Pandemic Decentralized ARV Delivery

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Background: COVID-19-imposed health facility closures and travel restrictions, have impacted access to HIV services, prompting projects in Indonesia, Laos, Nepal, and Nigeria to introduce home delivery (HD) of antiretrovirals (ARVs) to ensure HIV treatment continuity. A 2020 program review revealed HD to be feasible and acceptable across the four countries, with 19%-51% of eligible clients receiving ARVs through HD. We report on continued HD during in 2021, the pandemic's second year, and present implications for decentralized drug delivery (DDD) beyond emergency circumstances.

Materials and Methods: Throughout 2021, all four countries continued the ARV home delivery mechanisms initiated in 2020. In Indonesia, the Jakarta Provincial Health Office continued to support Jak-Anter, a home-based ARV delivery system which utilizes ride-based apps and transport courier services. In Laos and Nepal, the HD conducted by community health workers continued, with the numbers of clients using the service varying with pandemic intensity. In Akwa Ibom State, Nigeria, clients were progressively transferred to alternative DDD models.

Results: In 2021, in Indonesia, Laos, and Nepal, 29.8%, 47.0%, and 28.4% of individuals on ARVs in project-supported areas were on HD. In Nigeria, HD was restricted to only to 12% of clients on ARVs in Mbo Local Government Area who could not go to the facility. In the four countries, service delivery guidelines were adjusted to support HD, but national policy change is still needed to sustain the approach were not made.

Conclusions: Understaffing in health facilities, exacerbated by COVID-19 infection among health care providers, made ARV HD a valuable service alternative. Six-month dispensing allows HD to be practical and affordable but requires consistent ARV stocks. In addition, the countries continuing ARV HD rely on donor funding and external technical assistance, and mechanisms for sustaining and scaling the approach without external support are not yet in place. New mechanisms for financing, supply

chain management, staff training and supervision, and client sensitization are needed to implement HD at scale. Options for decentralized.

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Contribution of Forgetting to Take Medication on Total Missed Medications and Its Effect on Viral Load Suppression Among HIV Positive Children, Adolescents, Pregnant and Breastfeeding Women in Kilimanjaro Region

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Introduction: Adherence to Antiretroviral treatment (ART) is crucial for virologic suppression. However, adherence to lifelong medications is challenging and affecting treatment outcomes. Actions monitoring adherence to treatment like pill counts and pharmacy refills, have been implemented but could not achieve optimal adherence. Tools for reminding to take medication have been advised by WHO, but the contribution of forgetting to take medication on total skipped medication is unknown. This study investigated contribution of forgetting to take medication on total missed medications and its effect on viral load suppression.

Methodology: A cross-sectional study conducted among children, adolescents, pregnant and breastfeeding women living with HIV on ART in Kilimanjaro region, Tanzania. Socio-demographic and individual factors associated with limited adherence and unsuppressed viral load were collected using semi-structured questionnaires. Numerical variables and categorical variables were summarized in measures of central tendency, dispersion, frequencies and percentages. We did multivariable logistic regression factors from literature associated with adherence which were statically significant in bivariate analysis.

Discussion: A total of 376 participants were recruited: 142(37.9%) children, 92(24.1%) adolescents and 142(37.9%) pregnant and breastfeeding women. Their mean age was 9.2(3.2), 17.4(1.4) and 31.4(6.4) years respectively. Sixty-three(17.7%) reported skipping medication over the past month, and 49(77.8%) was due to forgetting. Dolutegravir-based ART regime was significantly associated with viral-load suppression (Odds-Ratio(OR)=1.49 95%Confidence Interval(CI) 0.11-0.68 P=0.006). Age and disclosure status were significantly associated with suppression; Where for every one year increase in age the odds of viral suppression levels decreased by 0.12 (OR0.97CI-0.05,-0.01P=0.02) and children with disclosed status had lower odds of suppression (OR=0.41CI:-1.54,-0.21P=0.01). Females had lower suppression odds than males(OR=0.58CI:-1.03,-0.01P=0.03).
Frequency of missing pills and forgetting medication intakes were not associated with suppression
(OR=1.22CI:0.60,1.27P=0.34)(OR=1.58CI:-1.95,-2.85P=0.68).
Reasons mentioned for skipping medication included forgetting 51(73%), stigma 3(4.3%), side effects 4(5.8%), tired of medication 1(1.4%), busy with work 13(18.4%) and finished medication 5(7.2%). Reported reasons of forgetting taking medication included lack of reminder and work 46(88.5%) and lacking social support and stress among 6(11.5%).

Conclusion: Reasons for forgetting to take medication included lack of reminder and work. Special reminder tools would be useful to help those who forget to take their medication and improve adherence.

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Dolutegravir Resistance in Integrase Naïve, Treatment Experienced Patients From Zimbabwe: A Case Series

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Background: Since 2018 WHO has recommended the second-line integrase strand inhibitor (INSTI), dolutegravir (DTG) as preferred first line antiretroviral therapy (ART). Rapid transitioning to DTG has occurred across Sub Saharan Africa and DTG is now being used extensively in first, second- and third-line ART regimens. INSTI drug resistance mutations (DRMs) are rare in large population-based studies but emergent case reports of INSTI DRMs are being reported following widespread clinical use.

Methods: We describe 2 cases of treatment experienced, INSTI naive people living with HIV (PLWHIV) in Zimbabwe, who developed INSTI DRMs within 14 months of INSTI initiation.

Results: Case 1: an 18-year-old male patient initiated ART at seven years old. He took AZT/3TC/EFV for five years then was switched to ABC/3TC/LPV/r after virological treatment failure. He had nucleoside reverse transcriptase inhibiter mutations (NRTI) on genotypic resistance testing (GRT) at this point. He maintained viral suppression on a protease inhibitor containing regimen for four years then he was switched to a DTG containing regimen for regimen simplification. Virological rebound first occurred after 11 months on DTG, associated with a 3-month history of poor adherence. GRT done in June 2021 showed the reverse transcriptase (RT) mutations A98G, K101E, V106M, Y181C, G190A, M184V, M41L, T215Y; and the INSTI mutations E3138K, G140A, S147G, Q148R and N155H, conferring extensive INSTI resistance.

Case 2: a 28-year-old female patient on TDF/3TC/EFV for 3 years was switched to ABC/3TC/ATZ/r after contracting TB. In error, she received 3 months of rifampicin and ATZ/r then switched to ABC/3TC + DTG 50mg once daily with rifampicin for 3 months. The patient reported poor adherence to all medication. GRT 7 months after DTG initiation showed the INSTI mutation G118R, conferring intermediate DTG resistance. Unfortunately, due to a laboratory failure the RT mutation results are unavailable.

Conclusion: Despite the high barrier to resistance of second generation INSTIs, emergent INSTI DRMs can occur in treatment experienced INSTI naïve patients. Evaluation of background resistance, avoidance of drug to drug interactions and adherence support are essential to prevent the development of INSTI resistance.

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Metabolic Syndrome and Its Components Among HIV/Aids Patients on Antiretroviral Therapy and ART-Naïve Patients at the University of Calabar Teaching Hospital, Calabar, Nigeria

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Background: In Nigeria, progress towards 90-90-90 shows that 73.0%of all HIV positive cases are aware of their status and 89.0% are on treatment with antiretroviral therapy (ART). Although an increasing access to antiretroviral therapy in sub-Saharan Africa has made it possible for HIV/AIDS patients to live longer, clinicians managing such patients are faced with the challenge of drug-related metabolic complications.

Methods: A cross -sectional study was carried out at the University of Calabar Teaching Hospital, Nigeria, on three groups of participants; namely HIV patients on ART, ART-naïve patients and HIV negative subjects (n =75). Demographic and anthropometric data were collected using a well-structured questionnaire while biochemical parameters were measured using colorimetric methods.

Results: The highest prevalence of metabolic syndrome was associated with the HIV/AIDS patients on ART (i.e. 32.0 %, and 50.3% for National Cholesterol Program (NCEP-ATP III) and International Diabetes Federation (IDF) criteria respectively). Patients on ART had significant increases ($p< 0.05$) in waist to hip ratio, fasting plasma glucose, serum triglycerides and low density lipoprotein cholesterol levels; and a significantly higher ($p< 0.05$) prevalence of hypertension, diabetes, low high density lipoprotein cholesterol (HDL-c) and hypertriglyceridaemia compared to the ART-naïve patients. Low serum HDL-c was the most prevalent form of dyslipidaemia in all three groups and the most prevalent component of MS in HIV patients.

Conclusion: ART increases the risk of Metabolic Syndrome and Cardiovascular Disease. HIV/AIDS patients on ART should be advised on lifestyle modifications and undertake regular assessment of their cardiovascular risk factors.

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Résistance du VIH-1 aux antirétroviraux: état des lieux en Guinée

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Introduction: La surveillance de la résistance chez les patients sous traitements antirétroviral (TARV) reste un défi majeur pour les pays à ressources limitées. L'objectif de ce travail était d'évaluer la fréquence de la résistance transmise (HIVDR) chez les patients naïfs et d'évaluer l'efficacité du traitement ARV après douze mois de suivi en première ligne.

Matériel et méthodes: En 2015 des patients naïfs de TARV et sous TARV de première ligne d'au moins 12 mois ont été recrutés au niveau du CTA de Donka. A partir d'un prélèvement de sang veineux, des spots ont été confectionnés avant d'être transféré au laboratoire de bactériologie-Virologie du CHNU Aristide Le Dantec. La charge virale (CV) a été réalisée avec le kit Generic HIV Charge virale (Biocentric, France). Le génotypage de résistance a été effectué sur tous les échantillons de patients naïfs et chez tous les patients sous TARV à charge virale >3 log copies/ml avec la technique de l'ANRS/AC11. Les séquences ont été analysées en utilisant l'algorithme d'interprétation des résistances de HIVdb v8.1.1 et l'analyse phylogénique a été réalisée à l'aide du logiciel MEGA6.

Résultats: Cinquante patients naïfs et 150 patients sous TARV ont été recrutés. Les trithérapies étaient à base de AZT (60%) et TDF (40%). Le taux de résistance transmise était de 4,17% [IC à 95% : 0,5-14,25]. Le taux de succès virologique était de 76% et le taux d'échec virologique était de 24% (suivi médian : 48 mois [IQR : 24-72]) avec un taux de résistance globale de 15,33% [IC à 95% : 9,97-22,11]. Les mutations de résistance majeures retrouvées étaient la M184V (80%), K103N (64%) et les TAMs (T215Y 40%) chez les patients sous TARV. Les mutations INTI (M184V, T215F) et INNTI (K103N et G190A) ont été retrouvées chez les naïfs (2/50). Le CRF 02_AG demeure la souche prédominante (84 %).

Conclusion: Ce travail a permis de mettre à jour les données de la résistance du VIH-1 en Guinée. Malgré l'introduction du TDF en première ligne l'accumulation des mutations

de résistance reste un réel problème d'où la nécessité d'une surveillance continue.

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Needs and Contents of a Customized Digital Tool to Improve Retention in Care: A Mixed Methods Study Among Pregnant and Breastfeeding Women Living With HIV in Tanzania

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Retention in care and adherence to medication among pregnant and breastfeeding women living with HIV (PBWLH) is crucial for prevention of mother to child transmission (PMTCT) of HIV. Due to the wide coverage of mobile phones, digital tools have been described as a potential intervention to improve adherence. Therefore, the main objective of the study was to understand the needs and contents for a customized digital tool for retention in care and medication adherence among PBWLH.

A mixed-methods study was conducted from September 2021 to January 2022 at four health facilities. PBWLH (15-50 years) receiving PMTCT services were enrolled in a survey using a semi-structured questionnaires. The questions focused on exploring the adherence, clinic visits and mobile phones experience. Twenty breastfeeding participants were purposively selected and enrolled to use an internet enabled medication dispenser for one month, the so-called Wisepill dispenser. They also received different types of SMS reminders for a period of four weeks and after that feedback on their adherence patterns from a nurse counselor. They used an automatically generated adherence report from Wisepill. In-depth interviews (IDI) were conducted to explore: barriers, needs and contents of digital tools and contents of tailored feedback on adherence patterns.

We conducted descriptive analyses of quantitative data and thematic content analyses of qualitative data. Among 142 women interviewed, 42(29.5%) were pregnant and 100(70.5%) were breastfeeding. The majority 134(95%) had access to mobile phones and used SMS daily. Ninety-six percent were interested in receiving reminder messages. However, 31(22%) reported to have network challenges. Nearly 82(58%) preferred to be reminded daily before medication intake time. Showing adherence graphs during tailored feedback sessions was highly appreciated.

Preliminary analyses of IDIs showed that SMSs were very helpful to remind taking medications and all wished to continue using the device. Also, health educational messages on HIV, sexual, alcohol use, nutrition, breastfeeding and entrepreneurship were preferred to be added.
Tailored digital tools seem to be feasible and acceptable in this group. This study helps to construct useful content for future digital adherence tools to support the health of pregnant and breastfeeding women living with HIV.

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Antiretroviral Treatment Failure and Associated Factors Among People Living With HIV on Therapy in Homabay, Kenya: A Retrospective Study

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Background: HIV virologic treatment failure (VTF) can be defined as a viral load ≥1,000 copies /ml3 over a minimum of two consecutive observations at least three months apart in patients on antiretroviral therapy (ART) for at least 6 months. We undertook a study in Homabay County, Kenya, to assess the factors associated with, and the extent of, VTF.

Methods: We analyzed patients' records from 9 purposively selected health facilities using probability proportion to the numbers of patients receiving HIV services at the facility. Information from patients who had been on ART for at least six months between January 2017 and December 2019 was abstracted after systematic sampling stratified by age group, (0-14, 15+ years). We used logistic regression modeling to identify factors associated with VTF through odds ratios (OR) and 95% confidence intervals (CIs). Statistical significance was assessed at the 0.05 level.

Results: Of the 2007 patients sampled, 61% (n=1225) were 15+ years of age. A total of 163 (8.1%) were confirmed VTF. There were significantly higher VTF rates among male patients (n=79/830, 9.5%, p=0.038), patients aged 0-14 years (n=118/762, 15.5%, p<0.001), level 2/3 health facility attendees (n=42/366, 11.5%, p=0.009), patients initiating ART 30+ days after diagnosis (n=107/1160, 9.2%, p=0.034), those with CD4 counts <200 cells/mm3 at ART initiation (n=37/319, 11.6%, p=0.013), patients experiencing opportunistic infections (OIs) (n=55/419, 13.1%, p<0.001), and ART side effects (n=64/421, 15.2%, p<0.001). About 72% of the 163 were <15 years of age. Based on multivariable analysis, factors significantly associated with VTF were: age below 15 years (adjusted odds ratio (AOR) 5.97; 95% CI: 4.03, 8.86); experienced side-effects (AOR 2.64; 95% CI: 1.84, 3.78); CD4 count <200 cells/mm3 at initiation (AOR 2.50; 95% CI: 1.61, 3.88); experienced OIs (AOR 1.99; 95% CI: 1.38, 2.89); attending level 2/3 health facilities (AOR 1.56; 95% CI: 1.04, 2.33); and initiating ART 30+ days from HIV diagnosis (AOR 1.47; 95% CI: 1.03, 2.10).

Conclusion: VTF was identified in nearly 10% of individuals with most below 15 years. Other factors associated with VTF included attendance at primary care facilities, late presentation for treatment, delay in initiating ART and experience of side-effects.

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Burden and Outcomes of Advanced HIV Disease in Patients Enrolled at a Referral HIV Clinic in Zimbabwe in 2020

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Background: Despite progress in the management of HIV, up to half the people living with HIV continue to present to care with advanced HIV disease (AHD). People presenting with AHD are at an increased risk HIV associated comorbidities and death. We profiled patients with AHD who were enrolled in care in 2020 at a referral HIV treatment center in Zimbabwe. Furthermore, we assessed patients' clinical outcomes after at least year in care

Methods: A retrospective cohort study was done using routinely collected patient level clinic done. Data analysis was done using descriptive statistics. Baseline was defined as date of enrollment into care at referral clinic.

Results: A total of 278 (55% female) patients with AHD were enrolled into care in 2020 (this was 46% of total clinic enrollment). Median baseline age was 36 years (interquartile range (IQR): 25-47). Most of the patients (98%) were ART experienced. Median baseline log vl was 4.7 (IQR: 1.9-5.4). 62% of patients were in WHO clinical stage 3 or 4 and 76% had a CD4 cell count < 200 cells/mm3. Duration of ART for treatment experienced patients was a median of 4.3 years (IQR: 0.08-9.3) As of 31 December 2021, 75% of patients were still in care and 17% had deceased, 4% lost to follow up and 4%

transferred to other clinics. Week 48 vl were available for 185 (67%) patients. Of the patients with week 48 vl results: 148 (80%) had a vl<50 copies/ml, 30 (16.2%) had low level viraemia and 7 had vl >1000 copies/ml. Week 48 CD4 cell counts were not available for analysis.

Conclusion: AHD remains a significant challenge among patients enrolling at a referral HIV treatment center in Zimbabwe. Furthermore, one year mortality rate was noted to be very high highlighting the need for better monitoring and early referrals of patients from primary care facilities.

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Impact of Linkages Case Management (LCM) in Improving ART Initiation and Early Retention Amongst PLHIV in Eswatini

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Background: Although the initiation of Anti-Retroviral Treatment (ART) was decentralized in Eswatini, many People Living with HIV (PLHIV) were reluctant with test and treat initiative following Human Immunodeficiency Virus (HIV) diagnosis. This resulted with the country having slow increase in ART initiation among newly diagnose PLHIV, as in 2018 it was still below 90%. Some barriers to early ART initiation included long waiting time/ queues, fear of stigma and disclosure, denial, feeling healthy and fear of medications side-effects. Therefore, the LCM initiative was introduced to assist and support with bridging these barriers identified.

Description: LCM was implemented as of May 2019 in the four regions of Eswatini. Newly initiated PLHIV are voluntarily enrolled into LCM during health facility visits and are paired with an Expert Client (EC) for a period of 3 months. On the day of HIV diagnosis clients are escorted for ART initiation and informed about the facility layout to reduce waiting time. The EC routinely review the chronic care file to identify issues to be deliberated with the client before calling the client. During the three months, the EC provides four telephone calls to provide support on how clients are coping with treatment and to remind them of their next appointment. For clients delaying ART, follow up calls are made to offer counselling until they are ready for initiation. Three face-to-face counselling sessions are also provided to offer on-going support on disclosure, index testing and adherence counselling.

Lessons Learned: According to Eswatini HIV annual reports (2018 - 2020) and routine program data, the introduction of LCM increased ART initiations from16,755/26131(64.1%) in 2018 to 22,104/23,970(92.2%) in 2019 and 10,350/11,138(92.9%) in 2020. Retention at six months increased from 78% in 2018 to 89% in 2019 and 99% in 2020. This is in alignment with the decline of lost-to follow ups from 7,880 in 2018 dropping to 6,974 in 2019.

Conclusion: Providing targeted psychosocial support, relevant educational information and motivational counselling on the benefits of early enrolment and disclosure improved ART initiation, retention, and viral suppression. We recommend implementation of LCM for priority populations that seem to be lagging behind.

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Increasing ART Adherence and Suppression Among Paediatrics and Adolescents; A case of Myanzi HC III Kassanda Uganda

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Background: In pursuit to end the AIDS epidemic by 2030, UNAIDS set the 95-95-95

strategy whose aim is to ensure that 95% of people living with HIV know their status; 95% of the people who know their status are on treatment and 95% of the people on treatment are virally suppressed.
However, at Myanzi HC III, out of the 60 active paediatrics and adolescents by the end of March 2021, only 46 were virally suppressed (76.6%) which was way too low compared to the UNAIDS 95% viral suppression target and most of them had a poor adherence to treatment. We designed a project aimed at improving the viral load suppression and ART adherence among paediatrics and adolescents.

Methodology: A multidisciplinary team was created to identify the root causes of the low suppression rate and poor adherence among the children. It was found out that negligence of the care givers, deliberate refusal to take drugs by the paediatrics and adolescents and untimely IAC sessions were among the main causes of the problem.
Among methods employed to improve this poor performance included empowering children and adolescents on every visit to the facility to take their pills, conducting monthly caregivers' meetings, carrying out timely IAC sessions and proper documentation as well as assigning adolescent peers to these children.

Results: There was an increase in the suppression rates from 76.6% by the end of Mar 2021 to 81.6% at the end of June, 85% by the end September and 98.3% by the end of Dec 2021. Only 1 child was still failing and he was therefore switched.

Conclusions: Improving ART adherence and suppression among paediatrics and adolescents requires collective efforts from the caregivers, healthcare workers and the children themselves. Adolescent peers play a vital role in this case as they help their fellows to overcome self-stigma, adherence to treatment and achieve viral suppression.

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Multi-Month Dispensing Practice and Lessons Learnt From Western Region of Ghana

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Background: Ghana achieved 58:77:68 toward national 90:90:90 targets by the end of 2020. The country intends to rapidly reach the even higher 95:95:95 target through implementing strategic activities in the current National Strategic Plan (NSP) 2021 – 2025. For the second 95 goal for sustained treatment, the strategy includes ARV provision, monitoring and counseling PLHIV on treatment for improved adherence, retention in care, and tracking and returning to care clients who have interrupted treatment. However, intermittent shortage of medication, patient volume during ART clinic days and inability of clients to honor refill appointments hinder treatment retention.

Description: The USAID Strengthening the Care Continuum Project (Care Continuum), implemented by JSI Research & Training Institute, Inc. in partnership with the Population Council and Ghana Health Service, implemented an accelerated Multi-Month Dispensing (MMD) program to drive the dolutegravir-based regimen transition for eligible and stable clients in October, 2019. The Project worked closely with the Global Health Supply Chain – Procurement and Supply Management (GHSC-PSM) and the Western Regional Medical Store (RMS) to improve availability of commodities through timely requisition and supply. The Care Continuum provided trainings, on-site supportive supervision and virtual technical assistance to health facilities to effectively implement the Differentiated Service Delivering protocols by linking it with MMD and dolutegravir-based transition.

Lesson Learnt: The GHS and NACP revised the national MMD guidelines with the start of COVID in March, 2020. This action in addition to Care Continuum's targeted activities has improved MMD uptake from a baseline of 42% in December, 2019 (3,498/8,232) to 67% (11,431/16,999) in December, 2020 and has progressed to 77% (14,957/19,488) by October, 2021 for all eligible clients. This MMD uptake has reduced client load on health personnel during ART clinic days, while also reducing the client costs of time and transport to frequently refill their prescriptions. These benefits of MMD collectively contribute to a positive impact on client ART medication adherence.

Next Steps: National level advocacy on commodity management should focus on improving supply chain bottlenecks to ensure implementation of MMD practice is not stalled. The health outcome of clients on MMD should be assessed, including economic benefits.

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Prevalence, Trend and Associated Risk Factors of Mother to Child Transmission of HIV Among HIV-Exposed Infants

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Background: The Human Immunodeficiency Virus (HIV) Mother-To-child Transmission (MTCT) can occur during pregnancy, childbirth, and breastfeeding. However, there is limited recent evidence from a large-scale study on MTCT of HIV in Ethiopia. Thus, this study was aimed to determine the prevalence, trend, and associated risk factors of MTCT among HIV-exposed infants.

Methodology: A cross-sectional study was conducted on 5,679 infants whose specimen was referred to the Ethiopian Public Health Institute HIV referral laboratory from January 01, 2016, to December 31, 2020. The required information was obtained from the Early Infant Diagnosis (EID) database. Frequencies and percentages were used to describe the distribution of the infants. Logistic regression analysis was used to identify factors associated with HIV infection. The level of significance was set at 5%.

Results: The mean age of infants was 12.64 (±14.62) weeks with 4 to 72 weeks range. Half of the infants (51.4%) were female. The prevalence of HIV infection among HIV-exposed infants (HEI) was 2.6%. The prevalence of MTCT decreased from 2.9% in 2016 to 0.9% in 2020. After adjusting for covariates; infants tested after six weeks (Adjusted odds ratio (AOR) = 2.7; 95% confidence interval (CI): (1.8–4.0)), absence of PMTCT service (AOR = 4.6; 95% CI: (2.9–7.4)), being on daily prophylaxis at birth (AOR = 2.0; 95% CI: (1.3–3.2)) and mother HIV status before date of delivery (AOR =11; 95% CI: (5.5–22.1)) were significantly associated with HIV infection.

Conclusion: The prevalence of MTCT of HIV is considerable. However, the prevalence was declining during the study period. Tested after six weeks for EID, unavailability of PMTCT service were the factors associated with HIV infection among HEI. Strengthening PMTCT service and early HIV screening of HIV pregnant women is critical to reducing HIV infection among HEI.

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No Differences in Recipients of Care Perceived Quality of Care Between Differentiated Service Delivery Models and Conventional Care in South Africa

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Background: Differentiated service delivery (DSD) models aim to increase the responsiveness of HIV treatment programs to individual needs of recipients of care (RoC) to improve treatment outcomes and quality of life. Little is known about how care experiences in DSD models differ from conventional care.

Methods: From May-November 2021 we interviewed adult RoC at 12 primary clinics in four districts of South Africa. Participants, selected consecutively at routine visits and stratified by DSD model, were asked about perceived quality of care (QOC) including provider attitudes, trust in the provider, and time spent with the provider using questions with Likert-scale responses (Cronbach's alpha = 0.70). Mean scores were categorized as "low" QOC (score <=3) or "high" QOC (score >3). We used logistic regression to assess differences and report adjusted odds ratios (AORs). Qualitatively, participants explained their overall satisfaction; themes were identified through content analysis.

Results: 767 RoC (70.4% female, median age 39) were surveyed: 23.9% enrolled in facility pick-up-points; 26.2% in out-of-facility pick-up-points; the remainder in conventional care. Participants reported high QOC regardless of model. AORs were not significant for any variable except seeking outside healthcare, which was associated with low perceived QOC (AOR 1.96, 95% CI 1.18-3.25). Those in facility-based models perceived no differences in QOC compared to those in conventional care (AOR 1.00, 95% CI: 0.50-1.99); fewer RoC in out-of-facility models reported low QOC (AOR 0.85, 95% CI: 0.39-1.87). Participants who missed more visits, had more expected healthcare interactions and/or more out-of-facility interactions perceived lower QOC, as did those receiving longer dispensing (non-significant differences). Qualitatively, participants receiving conventional care perceived providers as helpful, respectful, and friendly; they were satisfied with care despite long queues. Those in DSD models frequently spoke about ease and convenience, particularly not having to queue.

Conclusions: RoC enrolled in DSD models in South Africa did not perceive differences in QOC compared to those in conventional care. Existing DSD models (facility and external pick-up-points) and dispensing intervals do not appear to affect self-reported QOC but are perceived as more convenient.

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Prevalence and Incidence of Hypertension in the African Cohort Study

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Background: There is scarce literature on hypertension in persons living with HIV (PLWH), however, demographic transitions have been observed in Sub-Saharan Africa indicating that people are shifting away from labor-intensive work in rural settings and adopting urban lifestyles which may lead to increased risk of hypertension. We assessed the prevalence and incidence of elevated blood pressure and identified associated factors in PLWH and uninfected participants in the African Cohort Study (AFRICOS).

Methods: AFRICOS has enrolled participants at 12 PEPFAR-supported clinics in Nigeria, Uganda, Tanzania and Kenya since 2013. All eligible participants completed demographic and socio-behavioral questionnaires at

enrollment and provided a written consent. Generalized linear models with a Poisson distribution and robust error variances were used to estimate unadjusted and adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs) for associations between elevated blood pressure and potential predictors.

Results: A total of 3481 participants were enrolled in the study. Of those, 239 reported to have elevated blood pressure with no statistically significant difference between PLWH and HIV-uninfected individuals. Among PLWH, prevalence of elevated blood pressure was observed more in females, older participants 50years+(40.2 %); with none or some primary education (aPR 0.60, 95% CI (0.41-0.90), smoke cigarettes aPR 0.35, 95% CI (0.14-0.86), overweight or obese aPR 2.08, 95% CI (1.22-3.55) and aPR 3.37, 95% CI (1.92-5.93) respectively, on ART, vl<1000; 151 (77.4%)
The incidence rate of elevated blood pressure observed in Mbeya Tanzania among PLWH and HIV uninfected respectively 44.40 IR per person years and 82.39 IR per person years. Kayunya, Kenya has the lowest among PLWH category with 13.70 IR person years and Nigeria, Abuja and Lagos having the lowest among HIV uninfected with 8.90 IR per 1000 person yrs. Incidence rates were also observed among PLWH on ART with Vl< 1000 (151 (77.4%)).

Conclusion: Findings from our analysis suggest that the prevalence and incidence of hypertension among PLWH is significant and increasing in Africa with hypertensive individuals not aware they have it. We hope this study will prompt appropriate policies towards improving diagnosis, awareness, health promotion programs and management of hypertension in PLHIV will be intensified.

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Potential Implications Of C-terminal p7 (NC)-p6 Gag Genetic Variants in the Emergence of Protease Drug Resistance Mutations Among HIV-1 Non-B Subtypes: A Case-Control Analysis in Cameroon

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Background: Response to ritonavir-boosted-protease inhibitors (PI/r)-based regimen is associated with some Gag mutations among HIV-1 B-clade. There is limited data on Gag variants and their covariation with mutations in protease among HIV-1 non-B-clades at PI/r-based treatment failure. We therefore sought to determine P7(NC)-P6 HIV-1 Gag gene variants selected under PI/r treatment failure and their co-variations with protease (PR) mutations among non-B clades.

Materials & Methods: This is a case-control study conducted from January 2018 through December 2020 among 362 HIV-infected individuals in Cameroon: control-arm (101 ART-naïve) versus case-arms (143 on PI/r-based and 118 on reverse transcriptase inhibitors, (RTI). Briefly, partial HIV-1 Gag (P7(NC)-P6) and the entire PR were sequenced and analyzed using Seqscape v.2.6. PI/r major drug resistance mutations (DRMs) were interpreted following Stanford HIVdb algorithm v8.9-1; comparison in the frequency of Gag variants between the control versus each of the case arms was performed using chi-squared tests of independence. Benjamini-Hochberg method was used in prioritizing the statistically significance in the presence of

multiple-hypothesis testing, with p<0.05 considered significant.

Results: Out of the 362 study participants (mean age: 39±12 years; 63% female), The most frequent HIV-1 subtypes were CRF02_AG (54.69%), A (13.53%), D (6.35%) and G (4.69%). Eighteen Gag variants (distributed in three groups) showed a significantly higher prevalence in PI/r-treated isolates compared to ART-naïve (p<0.05): Group 1 (prevalence <1% in drug-naïve): L449F, D480N, L483Q, Y484P, T487V; group 2 (prevalence 1%-5% in drug-naïve): S462L, I479G, I479K, D480E; group 3 (prevalence ≥5% in drug-naïve): P453L, E460A, R464G, S465F, V467E, Q474P, I479R, E482G, T487A. Furthermore, three Gag variants (I479R, Y484P and L449F) were also significantly higher in RTI-exposure versus ART-naïve (p<0.05). Five Gag variants (L449F, P453L, D480E, S465F, Y484P) positively correlated (Phi ≥0.2, p<0.05) with protease-resistance mutations. At PI/r-failure, no significant difference was observed between patients with and without these associated Gag variants in term of viremia or CD4 count.

Conclusions: This analysis suggests that some Gag variants are significantly associated with an increased frequency at PI/r failure among HIV-1 non-B clades. Cohort-studies are needed to confirm the clinical significance of these Gag-variants on response to PI/r-based regimens.

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HIV-1 Gag Gene Genotypic Profile among Vertically Infected Adolescents Failing Protease Inhibitor Treatment without Major Resistance Mutations in the Protease Gene in Cameroon: A Cross Sectional Analysis

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Background: In resource-limited settings, long term exposure of vertically infected adolescents (VIA) to antiretroviral treatment (ART) and a high likelihood of infrequent adherence has led to increasing burdens of HIV drug resistance, and a growing switch to ritonavir boosted protease inhibitors (PI/r)-based second-line ART. Of note, studies have shown a low frequency of HIV-1 protease drug resistance mutations in patients failing protease (PI/r)-based therapy and identified mutations in Gag as alternate pathway for PI drug resistance. We therefore sought to characterize HIV-1 P7(NC)-P6 Gag genotypic profile among VIA failing protease inhibitors in Cameroonian context.

Materials & Methods: This is a cross sectional analysis conducted from September 2019 through Mars 2020 among 23 HIV vertically infected adolescents in Cameroon failing PI/r-based therapy. Briefly, partial HIV-1 Gag (P7(NC)-P6) and the entire PR were sequenced and analyzed using Seqscape v.2.6. Protease drug resistance mutations were interpreted following Stanford HIVdb algorithm v.8.9-1.

Results: The mean duration of PI/r-based regimen was 27.6 months and ranged from 1 to 118 months. The mean viral load and CD4 count at time of measurement of drug resistance were 193246 copies/ml (range 2094– 733567) and 479 cells/mm3 (range 55–1168), respectively. Of the 23 VIA, fourteen adolescents (60.7%) had a CD4 count of <500 cells/mm3. The most prevalent protease mutations were H69K (n=20, 89.9%), L89M (n=20, 86.9%), M36I (n=20, 86.9%), and I13V (n=18, 78.2%). In addition, PI mutations accessory drug resistance mutation (DRMS) polymorphisms (L10F, K20I, L33F) were also detected. The most prevalent Gag mutations were E460A (n=23, 100%), L449P (n=14, 94,4%), and R464G (n=15, 84.4%). Known HIV-1 drug resistance-associated Gag mutations K436R (n=8, 34,7%), L449P (n=14, 94,4%), P453L (n=2, 8,7%), and P453T (n=2, 8,7%) were found. Other Gag mutations known to be

associated to PI/r exposure were also found Y441S (n= 11, 47.8%), P472S (n=11, 47.8%), Q474P (n=12, 52.2%), D480E (n=3, 13.0%) and E482G (n=9, 39.1%).

Conclusions: Several HIV-1 Gag mutations described as being associated to PI/r resistance and exposure have been found in these AVVIH on treatment failure in absence of protease major DRMS. Thus, supporting the involvement of HIV Gag gene mutations in PI/r DRMS management.

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Inhibition of HIV Replication in Vitro by Three Local Herbal Extracts

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HIV continues to be a major public health threat in Africa. Although antiretroviral therapy (ART) has reduced mortality and improved lifespan, it does not provide a cure. A cure for HIV remains elusive due to the persistence of the provirus in resting CD4+ T cells, which act as a reservoir to produce the virus once treatment is interrupted. Currently, various HIV cure strategies are being investigated by using novel compounds, medicinal plants, or extracts that can reactivate, inhibit and/or block and lock the virus. We are in the process of screening a library of African herbal extracts for their ability to inhibit HIV replication or reactivate the virus from latency.

We used U87 cell lines stably transfected with CD4 and CXCR4 (U87CD4CXCR4) for the screen. First, the cytotoxicity levels of the extracts were determined using MTT [3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide] assay at a ten-fold dilution. The cells were then infected with full length HIV NL4-3-luciferase in the presence of the extracts and controls (antiretroviral drugs and DMSO). HIV replication was determined by relative luciferase activity (RLA) in the presence of luciferin.
The extracts, at a concentration of 30ug/ml had no toxic effect on the cells after 48 hours of treatment. Preliminary results showed that the three extracts (JJNC006SB, JJNC057SB, and JJNC064SB) at the same concentration, inhibited HIV replication in a 6, 7, and 3 fold reduction respectively.

These preliminary results may indicate the inhibitory activity of the three extracts against HIV. It is important to determine the potential use and mechanism of action of these extracts.

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Comparison of HIV-1 Drug Resistance Mutations in the Cerebrospinal Fluid and Plasma of Individuals with Cryptococcal Meningitis in Botswana

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Background: HIV-associated cryptococcal meningitis (CM) remains a significant contributor to AIDS-related mortality in Botswana despite widespread access to antiretroviral therapy (ART). This could be due to HIV-1 drug resistance mutations (HIV-DRM). We assessed HIV-DRMs in the cerebrospinal fluid (CSF) and plasma of individuals with CM

at different frequencies within a viral population.

Materials and Methods: We used CSF and plasma samples from 33 ART-experienced participants in the AMBITION-cm trial carried out between 2018-2021 in Botswana. We sequenced and genotyped HIV protease and reverse transcriptase using Illumina Miseq. HIV-DRM detected at 5%-20% and ≥20% threshold was analysed and compared between CSF and plasma.

Results: Samples from 24 participants were successfully genotyped; 11 were CSF/plasma pairs, 11 were unpaired plasma and 2 were unpaired CSF. Of the 24 participants, 16 (66.7%) had at least one HIV-DRM in the CSF and/or plasma. Protease inhibitors (PI), nucleoside reverse transcriptase inhibitor (NRTI), non-nucleoside reverse transcriptase inhibitor (NNRTI)-associated mutations were found in 2/24 (8.3%), 12/24 (50.0%) and 14/24 (58.3%) participants, respectively. There were 15/24 (62.5%) participants with HIV-DRMs at ≥20% threshold. Overall, 5/24 (20.8%) participants harboured minority HIV-DRMs. There were 2/24 (8.3%) participants with discordant HIV-DRMs, and these mutations were observed in the plasma only. There were no DRMs found in CSF that were not present in plasma. The most predominant mutation was K65R occurring in 4/13 (30.8%) participants with CSF samples and 7/22 (31.8%) with plasma samples followed by M184V in 2/13 (15.4%) and 7/22 (31.8%) participants with CSF and plasma samples respectively.

Conclusion: We report a high prevalence of HIV-DRMs in ART-experienced individuals with HIV-associated CM. We also observed lower rates of discordance in HIV-DRM between the CSF and plasma compartment. Additional HIV-DRMs were detected at a 5%-20% threshold suggesting that deep sequencing can further detect mutations that could potentially be missed using the population-based sequencing method.

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Phylodynamic Structure of the Botswana HIV Epidemic

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Botswana has one of the world's highest HIV prevalence and incidence despite a successful program for free universal antiretroviral treatment (ART). Understanding population-level patterns of HIV transmission is vital for effective public health interventions.

As part of the Botswana Combination Prevention Project, 20% of adults residing in 30 villages were tested for HIV-1 between 2013 and 2018. Extensive demographic data was collected from participants and next-generation full-genome HIV sequences were generated from people living with HIV n=4,164, 78% were on ART. We inferred the stage of infection ≤or≥ 1 year among HIV cases based on nucleotide diversity and clinical data using a previously trained machine learning model. We reconstructed time-resolved phylogenies from BCPP pol sequences n=4,164, as well as additional sequences from other Botswana cohorts and publicly available sequences that were genetically close to those from Botswana n=800. We then statistically evaluated phylogenies for subtrees with diverging patterns of coalescence. For each subtree identified, we estimated viral effective population size through time, a measure of viral incidence. Finally, we compared the demographic makeup and clinical characteristics across subtrees using $\chi 2$ test, ANOVA and tukey analysis.

We identified eight subtrees within the pol phylogeny with different patterns of coalescence, indicating divergent patterns of transmission. Four subtrees displayed a recent origin post-1995, with rapid growth followed

by rapid declines; we refer to sequences in these subtrees as group 1. Another four subtrees group 2 originated earlier pre-1990 and continued to grow steadily. Two subtrees in group 2 showed a recent rise in growth post-2016 continuing until the present day. Participants in group 2 were much more likely to have recent infections p<0.001, while participants in group 1 were more likely to be chronically-infected and on ART. Nearly all sequences from outside Botswana 99‰ clustered in the group 2 subtrees.

Phylodynamic analysis suggests that geographically targeted HIV interventions may not work in Botswana due to the high mobility of the population. Transmission rates appear to be slowing in segments of the population with high access to ART. However, transmission is ongoing in sub-epidemics that include recent infections and sequences from patients outside Botswana.

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Horizontal Transmission of Chlamydial and Gonoccocal Infection by Anatomical Sites Associated with MSM Living with Advanced HIV Diseases Enrolled at HIV Testing Outreaches in Ede Township of Southern Nigeria

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Background: Evidence of plausible association between horizontal transmission of STI and HIV by anatomical site in other population has been established among MSM. Biological mechanism of action relating to this needed to be better understood especially with surge of HIV infection recorded among MSM in Nigeria. We aimed to evaluate the possible association of horizontal transmission of Chlamydial and Gonoccocal infection by anatomical sites with advance HIV disease among MSM that were enrolled though a community testing and facility based strategy in Ede Township of Southern Nigeria.

Methods: From January 2021 to November 2021, 113 MSM who engage in condomless anal intercourse with casual partners and living with advanced HIV disease were recruited through a community testing and facility based strategy for targeting key population for this study. Advanced HIV was defined as CD4 lymphocyte count <200cells/mm3 with or without symptoms of opportunistic infection. Pharyngeal, rectal and urethral swab samples were collected from all participants and all specimens were tested using previously validated nucleic acid amplification tests (NAATs) for Neisseria gonorrhoeae (NG) and Chlamydia trachomatis (CT).

Results: The overall prevalence of Neisseria gonorrhoea and Chlamydia trachomatis was 17.6 % (95%CI:14.1-18.5) and 6.2 % (95%CI:3.4-7.7) respectively with variations by anatomic site. 8.3%,7.1%, 6.4% of total samples collected were positive for pharyngeal gonorrhea, rectal, and urethral gonorrhea. 81% of rectal infections were asymptomatic and shows a positive correlation with group of patients with opportunistic infections symptoms ($r_s = 0.370$, $P < 0.001$).

In multivariate analysis, independent risk predictors for positive HIV or high Viral RNA were higher titer for pharyngeal gonorrhea (odds ratio [OR] 1.0152, 95% confidence interval [CI] 1.004–1.029, P = 0.018), higher titer for rectal gonorrhea (OR 1.006, 95% CI 1.003–1.009, P = 0.003), higher incidence of opportunistic infection (OR 1.308, 95% CI 1.019–1.821, P = 0.022).

Conclusions: In this study Horizontal transmission of STD by anatomical site seems to favor HIV acquisitions among MSM in this environ. Strategy on partner notification should be strengthened and clinics should be empowered with skills and resources to screen for STDs among homosexual men.

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Différence Dans Le Profil Des Cytokines Proinflammatoires Plasmatiques Entre Les Patients Mono ET Coinfectés Par Le VIH ET Le VHB Ainsi Que Les Témoins Sains AU Mali.

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Objectif: Le virus de l'hépatite B (VHB) n'a pas de pouvoir cytopathogène direct sur les hépatocyes mais ses complications dépendent de la réponse immunitaire de l'hote. La coinfection avec le VIH aurait une implication immunitaire importante. Etudier les différences de taux plasmatiques des différentes cytokines proinflammatoires entre les sujets mono et coinfectés par le VIH et le VHB comparés à des sujets sains s'impose.

Méthodologie: ont été inclus et appariés par âge et par sexe quatre groupes de sujets : coinfectés VIH + VHB ; monoinfectés VHB ; VIH et témoins sains recrutés dans le service des Maladies Infectieuses du Point G et chez les donneurs de sang. Le taux plasmatique des cytokines pro inflammatoires : Il17, IFNg, TNFa ; IL10 ; IL6 ; IL4 et IL2 ont été dosé par cytometric bead array sur Facs Calibur. Les taux plasmatiques moyen ont été comparées entre les groupes par le test de Friedmann (seuil de significativité p≤0,05).

Résultats: L'IL17 était significativement plus élevé chez les sujets coinfectés, puis VIH, témoins sains et hépatites B (respectivement 13,5±9,4;2,3±1,5;0,5±1,3 et 0,06±0,03 pg/ml). L'IFNg était significativement plus élevé chez les sujets coinfectés, suivis de l'hépatite B, du VIH et des témoins sains (respectivement 8,3±13,5;4,3±3,4;4,3±4,0 et 0,9±2,5pg/ml). Par contre le TNFa était significativement plus élevé chez les sujets sains que VIH, les coinfectés, les hépatites B (respectivement 58,8±268,2; 54,5±189,7;,2±13,5 et 3,2±3,2 pg/ml). L'IL10 était significativement plus élevé chez les coinfectés, suivis par les VIH, les hépatites B et les témoins sains (respectivement 24,7±135,8;4,7±7,4;1,8±3,2 et 0,7±1,6 pg/ml). L'IL6 était significativement plus élevé chez les coinfectés, suivis des témoins sains, puis les VIH et finalement les hépatites B (respectivement 615,1±2445,8;5,3±14,3;2,4±2,2 et 0,2±0,3 pg/ml). Quant à l'IL4 et l'Il2 ce sont les VIH qui avaient un taux plus élevé : l'IL4 était le plus bas en cas d'hépatite B ; l'IL2 le plus bas était observé chez les coinfectés. Il n'y avait pas de corélation entre les cytokines et la fibrose.

Conclusion: les cytokines proinflammatoires plasmatiques varie significativement selon le type d'infection. Une correlation avec les aspects anatomocliniques est nécessaire pour mieux comprendre leur implication physiopathologique.

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Facteurs de Risque ET Efficacité Des Antiviraux a Action Directe Chez Les Patients Atteints D'Hépatite C AU Service de Maladies Infectieuses ET Tropicales Du CHU-POINTG.

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Objectif: étudier la fréquence, les facteurs de risque et l'efficacité des antiviraux a action directe (AAD) chez les patients infectés par le

virus de l'hépatite C (VHC) au service des maladies infectieuses et tropicales de l'hôpital universitaire Point-G.

Méthode: Il s'agit d'une étude prospective de janvier 2019 à décembre 2021, incluant les patients externes ayant un diagnostic d'hépatite C basé sur la charge virale et traité par AAD . Leurs facteurs de risque de transmission ainsi que d'évolution vers la fibrose et l'efficacité du traitement par les AAD ont été déterminés.

Résultats: Sur 1355 patients vus en consultation externe, 48 ont été diagnostiqués pour une hépatite virale C soit une fréquence de 2,95%. Mais seulement 40 ont bénéficié d'un traitement (). Les hommes était plus touchés que les femmes sex ratio= 1,35. L'âge moyen était de 51,63±13,49ans. La majorité des patients vivaient à Bamako (84,9%). Le facteur de risque de transmission le plus important était l'hémodialyse (33,3%). Les pathologies rénales et cardiaques étaient les maladies les plus fréquemment associées respectivement 45,5% et 27,3%. La majorité (51,6 %) des patients présentait une fibrose hépatique supérieure au stade Métavir 2. La charge virale moyenne avant le traitement était de 24 000 000 ± 4 600 000 copies/ml. Tous les patients ont été traités par des AVD pangénotypique avec une majorité (72,5%) sous l'association Daclastavir/Sofosbuvir. Le taux d'échec thérapeutique était de 20,0 % sur la base d'une charge virale détectable au contrôle à six mois du début du traitement. Une bonne observance du traitement était statistiquement liée au succès thérapeutique. Nous avons également trouvé une corrélation statistiquement significative entre la charge virale et taux plasmatique de la cytokine IL6 pro-inflammatoires et le stade de la fibrose dans le foie et la virémie. La létalité était de 12,1 %.

Conclusion: L'hépatite virale C est fréquente au service des maladies infectieuses du CHU du Point G, elle se caractérise par une prise en charge tardive et pas accessible à tous. Le taux d'IL6 plasmatique est corrélé à la charge virale avant le traitement. Les patients dialysés sont souvent atteints et la létalité reste importante.

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Implementing Faith Community Initiatives (FCI) In Uganda to Address the Unmet Need for HIV Case Finding. The Experience of Uganda Protestant Medical Bureau (UPMB)

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Background: Uganda has made significant progress towards reaching the UNAIDS goal of ensuring that 95% of the 1,420,828 people living with HIV are aware of their status by 2030. However, Uganda still has a case finding gap of 128,468 (9%%). Men constitute 82% of this gap (UPHIA 2020 preliminary report).
In Uganda, 82% of the population are Christians while 14% Muslims (Uganda Population Census, 2014) who attend religious services thus in regular contact with their faith leaders. Uganda Protestant Medical Bureau (UPMB) a not-for-profit faith based Non-Government Organization with a network of 305 Private Not for Profit member facilities is leveraging the unique opportunity provided by faith communities to accelerate the uptake of optimized testing to close the HIV case finding gap.

Method: Between October to December 2021, UPMB under USAID Local Service Delivery for HIV/AIDS Activity trained and mentored 422 faith leaders at community level to reach out to people of faith with HIV Messages of Hope. Additionally, 56 of the trained faith leaders were attached to 24 selected health facilities across, 24 districts in 6 subregions of Uganda (Eastern, East Central, Lango, Acholi, Kigezi and Ankole). Faith leaders received customized

data tools and mobilized their faith communities for HIV self-testing (HIVST) and distribution of HIVST kits to eligible individuals.

Results: A total of 2,862 individuals received Messages of Hope. 3,189 HIVST kits were distributed by faith leaders, 83 clients with reactive self-tests were identified and reported to a facility for confirmatory testing, 62 were confirmed HIV positive, 53 (85%) were linked to health facilities and initiated on antiretroviral therapy (ART).

Discussion: Targeted distribution of HIVST kits by faith leaders has shown to aid identification of missing HIV cases. This indicates that people of faith constitute part of the unmet HIV case finding gap.

Lessons: Engaging faith communities can contribute to Uganda's efforts of finding the missing HIV cases. Scale up of FCI interventions provides a good opportunity to close the gap.

Conclusion: Faith Community initiatives present a unique and cost-effective channel of optimizing HIVST distribution to underserved communities hence contributing to the identification of missing HIV cases.

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Black Communities in the UK; Efficacy of HIV Services in a Time of Pandemic

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Background: Black-African communities continue to bear disproportionate burdens of UK HIV infections. They disproportionately experience disparities in HIV and broader health/wellbeing outcomes. This was potentially exacerbated during the Corona-Virus pandemic. One Voice Network determined to conduct community research into the health &social experiences of Black communities affected by HIV during this period to inform a programme of work addressing disparities through various national activities and programs.

Materials & Methods: One Voice Network(OVN) developed/ran two community surveys targeted at:

1. Community organisations serving Black communities affected by HIV
2. Community members who utilise services of these community-based organisations and reflect those most affected by HIV

Structured questionnaire was completed by 8 Black-led organisations across England. Organisations reported directly working with 24,246 service-users annually. Organisations had a collective digital reach of 49,052 through social-media.

101 Black individuals were surveyed via-Community Organisations (59.8% Female, 40.2% Male). A structured questionnaire was administered by group community-engagement leads (all attended training with OVN). Questionnaires allowed for open-ended discussion at its close. Textual material was interrogated for dominant themes utilising content analysis methods.

Results: We found that there was limited involvement of Black PLWHIV in decision making spaces with few opportunities for individuals to inform policy by sharing their experiences. There was a lack of nuanced and localised approaches for specific community subgroups. Experiences of primary care were often negative with access to information and confidentiality issues rating highly; more broadly there were unmet needs of PLWHIV particularly during the pandemic around issues of HIV information, support&care, quality of life &social isolation. Lack of gendered approach and awareness of PrEP.

Conclusions:

Needed:

- Pathways for community members to senior leadership positions necessary

- Training/resources and collaborative approach addressing lack of HIV knowledge in primary care
- Cultural competency training &collaborative approaches with local decision-makers to influence/impact local service delivery plans
- Targeted interventions, particularly during pandemic, challenging social isolation &stigma among Black-PLWHIV. Greater support &care initiatives. Awareness raising aroundU=U &new medical advances (within community&health professionals)
- Specific needs of Black women LWHIV require a gendered focus taken by both policy-makers &health professionals. Improved experience at diagnosis and focus on sexual/reproductive health rights.

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Community Dialogue: Lessons Learnt from Results Dissemination to the Community about Adolescent Sexual Activity. Experience from CHAPS Study.

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Background: CHAPS, a cross-sectional mixed methodology study, explored perceptions of event-driven oral PrEP in young people aged 13-24 years in South Africa, Uganda and Zimbabwe and collected data on sexual activity. We report proceedings of the facilitated discussion which followed results dissemination with the Youth Community Advisory Board (YCAB) in Zimbabwe.

Description: YCAB members are aged 16-25 years and drawn from research clinic catchment areas to represent young people in their community. During dissemination of study results, the YCAB discuss study findings with researchers to offer insight and contribute to results interpretation. We used the ORID framework (Objective, Reflective, Interpretive, Decisional) to explore CHAPS results, focusing on sexual activity, to find out what findings they considered most striking, the emotions elicited, their insights into the causes of the behaviours, and suggested activities in response.

Lessons Learnt: CHAPS data aligned with YCAB's personal experiences and knowledge. The YCAB were disturbed by the early age of sexual debut. They feared that, when adolescents engage in unprotected sex, they might threaten their futures by taking risks. YCAB interpreted the reasons driving adolescents to engage in sexual activities to be peer pressure, experimentation, naivety, substance/alcohol use and transactional sex. They suggested interventions to transform current Sexual Reproductive Health (SRH) programs: (1) Include both adolescents and their parents/guardians; (2) Youth experts should lead SRH programs in educational settings; (3) Provide free WIFI zones to access trusted online SRH information; (4) Use social media influencers to educate adolescents on SRH; and (5) Health facilities need non-judgmental youth zones for adolescents to access PrEP without fear. At the societal level, YCAB proposed focusing on vocational training to reduce poverty in school leavers. They encouraged multi-generational dialogue on how to support adolescents develop self-discipline and a healthy attitude towards sex, while preserving traditional values and respect for elders. YCAB highlighted how parents also need help navigating the shifting dynamics of the modern-day family.

Conclusions/next steps: YCAB involvement in results dissemination is not only good participatory practice, but it also brings important insights to data interpretation and

generates ideas for implementing study findings.

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Key Population Civil Society Organizations Are Successful at Reaching Peers with HIV Service Delivery in Zambia, October-December 2021

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Background: In sub-Saharan Africa, key populations (KPs) are disproportionately affected by the HIV pandemic while simultaneously underserved by HIV health services. Stigma and discrimination in health services have historically excluded the KP community as healthcare providers. Using the Key Population Investment Fund (KPIF), a community-based differentiated service delivery model, we engaged KP civil society organizations (CSOs) in Zambia to provide KP-centric HIV services. We describe the KPIF strategy implementation, successes, and challenges.

Methods: CIRKUITS is a University of Maryland Baltimore project funded by PEPFAR via the Centers for Disease Control and Prevention to reach KPs in Zambia with HIV services in Western, Southern, and Eastern Provinces. We held a competitive application process disseminated to the Zambia KP Consortium with ten KP-led CSO members. Three CSOs (one per province) were selected, participated in co-creation meetings and on-site scoping visits, and submitted a revised application. Following demonstration of organizational capacity, CSOs began HIV services implementation.

Lessons Learned: From October to December 2021, two KP CSOs began implementation in Western and Southern Provinces. These KP CSOs reached 1,448 individuals with HIV prevention messaging and tested 555 (38%), of whom 132 (23.8%) tested positive, and 116 (87.9%) were linked to treatment. Of those reached, 881 (60.8%) identified as female sex workers (FSWs), with 102 (12%) newly diagnosed with HIV and 89 (87.3%) linked to treatment. Among 475 (32.8%) men who have sex with men (MSM) reached, 28 tested newly positive and 26 (92.9%) were linked to treatment. Among 59 (4.1%) transgender (TG) persons reached only 1 (1.7%) tested positive and 0 (0%) were linked to ART.
Of the 423 clients that tested negative, 188 (44.4%) initiated PrEP: 96 (51.1%) FSWs, 75 (39.9%) MSM, and 11 (5.9%) TG. The KP CSO for Eastern Province had to delay implementation while CIRKUITS provided capacity development for the CSO to meet grant requirements.

Conclusions: Sub-granting KP CSOs under the KPIF model to reach KP community members is a successful strategy for reaching KPs with HIV services in Zambia. Ensuring organizational capacity development for CSOs before and during implementation is critical for program success and future scalability and sustainability.

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Community Workers' Uniforms, Do They Help or Hinder Access to Households?

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Background: Target, Accelerate and Sustain Quality Care (TASQC) for HIV epidemic control program supports 823 Community Outreach

Agents (COAs) in 4 provinces of Zimbabwe. COAs link clients in communities with HIV prevention, testing, care and treatment, viral load monitoring, retention, and other services. They wear branded T-shirts, hats and camera jackets for easy identification. Uniform branding may pose a challenge when they make home visits, for instance, attracting unwanted attention from neighbors and accidental disclosure of one's HIV status to their community. The objective was to explore COA perceptions on how the branding of their uniforms affects their reception in the community.

Method: The qualitative program evaluation was conducted in one urban (Bulawayo) and one rural (Matobo) District of Zimbabwe. Focus group discussions (FGDs) were conducted with COAs using a semi-structured guide. Triangulation was done through key informant interviews (KIIs) with community health services nurses. Data were analyzed using thematic analysis in NVIVO, exploring within and between group differences.

Results: In July 2021, 4 FGDs and 12 KIIs were conducted. On average the COAs (n=38) were aged 46, had 11 years community work experience and 29 were females.
Major differences emerged between urban and rural agents. Though both groups believed that branded uniforms may be helpful in easing access to clients' homes, and maintaining professionalism. Urban agents felt that the current branded wear which is of a bright color with blatant "ART for life" messages exposed them to aggression from clients who fear community stigmatization. For sex workers, a visit from an agent wearing branded regalia could signal an end of their profession, even though they accessed PrEP or a self-test kit.
Rural agents experience was different as their clients appreciate and even desire visits by community workers in branded wear. It aided COAs to have full visibility and reach clients they would not have ordinarily reached.

Conclusions: Community agents need branded wear and feel identification cards would legitimize their provision of community health services. Differences in the type of branding and visibility needed by agents differs by the target population and its density should be considered within community outreach programs.

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Leveraging Faith Communities to Test and Treat Men Living with HIV in Uganda

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Background: In Uganda, disproportionately fewer men living with HIV (MLHIV) than women are aware they have HIV. This is partly due to not seeking out healthcare, so providing testing services where men frequent might help MLHIV get tested and treated for HIV. Uganda's population comprises 84.4% Christians and 13.7% Muslims, so faith communities are effective venues for reaching many Ugandans. Here, we describe how national faith-based medical organizations introduced HIV testing to faith communities in Uganda; we compare results from Catholic churches with those from regional HIV testing programs to demonstrate the potential of faith community HIV programs.

Methods: In April—September 2021, Uganda's Catholic, Protestant, Muslim, and Orthodox medical bureaux conducted two-day trainings of 794 faith leaders in three regions using curriculum endorsed by the Ministry of Health. Faith leaders used sermons, free/subsidized Christian radio and television, and social media to mobilize 53,826 community members for counseling and HIV test screening. Faith leaders administered 15,578 HIV tests, including 9,101 rapid test kits. We used a two-sample proportion test to compare results from a subset (5,449 rapid tests administered by Catholic faith leaders) with HIV test data in Uganda's Electronic Health Information

System (eHMIS) from the same time period and regions.

Results: Catholic churches tested more men than women (62%; 3,378/5,449), while traditional testing programs tested fewer men (31%; 168,649/546,956). Tests in Catholic churches were more seropositive than in traditional testing programs (4.6% vs. 3.7%; OR=1.25; P=0.0005). Of the 138 men and 114 women with positive results in Catholic churches, 111 men (80%) and 106 women (93%) went to facilities and had confirmatory positive tests; 109 men (98%) and 98 women (92%) initiated treatment.

Conclusions: Faith communities can be leveraged to test and treat those who do not typically seek HIV services. Faith leaders mobilized men for HIV testing, sometimes by also offering COVID-19 vaccination and hypertension screening. They needed fewer tests than traditional programs to identify each person living with HIV and spent only 2 USD per person for one-on-one counseling and screening. Further implementation will help reveal whether faith communities can identify MLHIV at an impactful and cost-effective scale.

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Community Activities to Scale up Case Finding in the Center and East Regions of Cameroon

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Background: The Center and East regions of Cameroon are amongst the three highest HIV prevalent with 6.3% and 5.8% respectively. Decreasing hospital attendance was observed in health facilities due to the COVID 19 pandemic outbreak from April 2020. The Center for Global Health Practice and Impact (CGHPI)'s the Clinical Implementing Partner for HTS, Care and Treatment services in both regions, through its TIDE Project, strategized to devise a means of reaching the population who were terrified of going to the health facilities. The aim of this activity was to close the gaps on the first 95 by reaching the population unaware of their HIV status and unwilling to come to the health facilities.

Methods: From June 2020, facility-led teams were constituted and oriented to carryout outreach community activities in 38 health districts of both regions to boost the uptake of HIV case finding. Planning of the activity was done using HIV prevalence and risky behavior from qualitative and quantitative data in DHIS by the Districts and Community stakeholders, to target the health area for HIV testing. Facility-led teams constituted of community actors of the health district went out with a package of services for health education, screening and testing for other diseases. Documentation was done in community outreach registers and later entered into software and tables extracted for capturing this data. A quantitative descriptive study was done for the results.

Results: There was a 46% increase in the number of persons tested, wherein 120,119 persons were tested between January to June 2020 and 220,969 persons tested between July to December 2020. In the same period, there was an increased number of positives identified by 46% wherein 6,843 PLWHV were identified between January to June 2020 and 10,174 PLWHV identified between July to December 2020

Conclusion: Using facility-led community outreaches increases the number of people that could be offered HIV testing services who have barriers to visiting health facilities. The involvement of Community actors and other stakeholders in planning and implementation of community activities has proven to yield better fruits in terms of coverage and yields achieved in HIV Case finding.

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Where We Link – Linkage Rates Through Community-Based Tracking and Tracing

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Background: The Target, Accelerate and Sustain Quality Care (TASQC) for HIV epidemic control program supports 778 Community Outreach Agents (COAs) in four provinces of Zimbabwe. COAs link clients in communities with HIV prevention, testing, care and treatment, viral load monitoring, retention and for other essential health services. They are equipped with phones with the COA diary of daily services and linkage tools on open data kit (ODK). They record outcomes of the follow up visits. In the context of COVID-19; travel restrictions and skeletal healthcare workers due isolation, access to facility healthcare services for PLHIV was compromised. Therefore, COAs followed up PLHIV who missed scheduled appointments, navigated, and linked them to care. The community program tracks several elements, but the program thrust was on linkage rates for tuberculosis prevention therapy (TPT), tuberculosis (TB) sputum collection, viral load (VL) sample collection and early infant diagnosis (EID) sample collection.

Method: A quantitative program evaluation was conducted for all four TASQC supported provinces. Routine program data for PLHIV followed up for missed services from 3rd March 2021 to the 19th of January 2022 were downloaded from the central server and exported to Microsoft Excel for data cleaning and analysis. Categorical data were summarized in numbers and proportions whilst continuous variables were summarized using means and standard deviations (SD).

Results: 31910 (37% males) clients were followed up for prescribed services. 26284 (82.37%) for viral load sample collection, 5228 (16.38%) were followed up for TPT, 211 (0.66%) for EID sample collection and 187 (0.59%) for TB sputum collection. Linkage rates were 84%, 100%, 81.82% and 100% respectively.

Conclusions and Recommendations: The high linkage rates to services show that community-healthcare facility gap can successfully be bridged by COAs in ensuring PLHIV are retained in care while continuity of care is ensured in resource constrained settings. It also underscores the value of introducing virtual and technological systems in communities to enable client tracking and tracing for navigation and linkage back to the healthcare facility.

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Finding Men in Need of HIV Testing Services Who Do Not Attend Health Facilities: A Community-Representative Survey in Malawi

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Introduction: Men in sub-Saharan Africa have unmet needs for HIV testing services. Most community-based strategies target men at drinking spots, or sporting events. However, there is little evidence that the majority of men in need of HIV testing frequent these venues from a population perspective. To inform HIV outreach programs, we aimed to identify where men who had not tested for HIV and not attended a health facility in the last 12 months spend their time.

Methods: Men from 36 villages in rural Malawi completed a community-representative survey (n=1160). Inclusion criteria for the parent survey were: male; aged 15-65 years; never tested HIV-positive; and residing in a study village. We conducted a sub-analysis of men who had not attended health facilities using descriptive statistics to understand where men spent time when not working, and if they were willing to use HIV self-test kit (HIVST) in the community.

Findings: 116/1160 (10%) of men had not tested for HIV and had not attended a health facility in the last 12 months. Among those, 56% had never tested for HIV. 53% were self-employed – most worked mornings (70%) and few worked on Sundays (10%). Only 28% reported drinking alcoholic beverages in the last 30 days and 10% spent time at drinking places. The most common place men spent time outside of work (with or without friends) was home (60%, usually on Saturdays and afternoons). The most common locations for socializing with friends were markets/trading posts (22%) and seated games (22%), both usually on Saturdays/Sundays. 91% of men were willing to use HIVST in the community.

Conclusion: Reaching men in need of testing who do not attend health facilities may be most successful through targeted HIVST distribution on weekends at home, markets, trading posts and places where seated games are played.

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Strengthening Tuberculosis (TB) Case Finding through Community Outreaches in the Busoga Sub Region in Uganda during the COVID-19 Era

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Background: TASO Jinja, Family Hope Center and AIDS Information Center Jinja are the three specialized HIV clinics Busoga. These clinics provide services to 11,597 People living with HIV. During October 2020-March 2021, these clinics diagnosed 51 (9%) of the of the expected 589 tuberculosis (TB) patients (LSDA COP20 Targets). The undiagnosed TB patients remained at risk of dying of TB. Limited access due to COVID-19 related travel restrictions and health workers' knowledge gaps on TB care contributed to the sub-optimal performance.

Methodology: USAID Local Service Delivery for HIV/AIDS Activity (LSDA) supported these three specialized clinics to implement specific TB management interventions. Health workers' capacity was built through trainings and mentorships. Performance reviews were conducted. Documentation gaps were addressed through data triangulation. TB hotspots in the community were mapped and TB screening outreaches conducted. Contact tracing was conducted for the identified bacteriologically confirmed pulmonary TB patients. Satisfied TB patients, village health teams and community linkage facilitators were utilized to mobilize presumed TB patients refer them for proper assessment by qualified health workers.

Results: A total of 849 TB patients were identified and started on life-saving TB treatment between April 2021 and December 2021. This was a 16-fold increase in the number of TB patients identified when compared with the two quarters before.

Lessons: The great improvement in TB case finding is attributed to the improved access to TB screening and care services as a result of taking these services to the community, the involvement of community actors in mobilization and the improved capacity of health workers to diagnose and manage tuberculosis.

Conclusion: Building capacity of health workers in TB care, improved documentation and use of data coupled with taking TB screening and care services to the community

improved access to TB services and increased TB case finding.

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Evaluating the effects of MTV Shuga Drama Series on Beneficiaries

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Background: MTV Shuga Drama series is a Social Behavioural Change Communication material developed in Youth content and friendly used to pass information on HIV/AIDS prevention, treatment, and other SRH services across to Youth, to increase access to information, uptakes of HIV/AIDS, and SRH services and help the Youth to make an informed decision about their health and sexual behavior.

Description: Youth Network on HIV/AIDS in Nigeria, Lagos State chapter implemented the MTV Shuga Project (using MTV Drama series to drive uptake of HIV services) targeted at Youth, the project activities include Peer sessions, outreaches, film shows, Shuga festival, condom distribution and demonstration, and referral services across LGAs in Lagos State. 28,000 people were reached with HIV prevention messages through peer education, HIV testing services, and MTV Shuga Drama screening.
NYNETHA conducted focus group discussions to understand the effects of the project on target beneficiaries, 6 focus group discussions were held in a total of 78 Persons, each focus group discussion is targeted at different Populations. (The groups includes: beneficiaries, counselor testers, peer educators, and health care providers), the participants were selected randomly.

Lessons: Strategic questioning, Storytelling, scenes from the Dram and experience sharing were used to generate discussions around the activities of the project. At the different focus group discussions, the feedback from the participants shows that they have a deeper understanding of HIV transmissions, preventions, services available, and were to uptake them. issues like unfriendly health care services, access to SRH services including ARV, and stigmatization were among issues raised but well discussed and addressed
feedbacks were given by the Youth on how the project can be improved and be more effective.

Conclusions: Youth can make a significant difference in the response to HIV and AIDS once they are empowered. For meaningful change to take place in the communities such as increased knowledge of HIV and AIDS; change in behaviors, and increased utilization of services and resources, Young People must fully engage and involve in what is being planned and implemented for them. In fact, they must lead and be the actual agents of change in the community initiatives.

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Partnering with Religious and Traditional Leaders (RTL) to Improve Sexual and Reproductive Health (SRH) services in Nigeria: The Achievements So Far

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Background: Deliberate engagement with religious and traditional leaders can encourage uptake of reproductive health services and lead to smooth deployment of Sexual Reproductive Health (SRH) programs at the grass-root level. This article aims to elucidate the achievements yielded so far from programs that partnered with Religious and Traditional Leaders to improve Sexually and

Reproductive Health Services in Nigeria over the past 5 years

Methods: A review of 32 online literatures from PubMed, Google Scholar, and 14 grey literature focused on key search words by interchanging and combining keywords like Traditional leaders, Religious leaders, Sexual and Reproductive Health services in Nigeria, Family planning, Female genital mutilation, prevention of gender-based violence was carried out between August and December 2021. Only publications focused on the Nigerian context and published between December 2011 and December 2021 were analysed using themes.

Results: One-fourth of the peer-reviewed articles described SRH programs that used RTLs as impactful with more emphasis on contribution towards child spacing. Thirteen of the peer review articles emphasized the collaboration of non-governmental organizations with the Federal Ministry of Health (FMoH) and state governments for the success of RTL engagement programs. Half of all the articles mentioned at least one NGO that has used RTL as influencers for SRH services in Nigeria and eight of which directly involved RTLs as facilitators. Half of the grey literature mentioned that family planning decision made by the majority of women were influenced by religion. Two grey literatures recommend speaking engagements for SRHR advocates at community and religious meetings. One-fourth of the articles agree that future programs should prioritize ways for stepping down knowledge and resources from RTLs to male and female community members.

Conclusion: RTLs have a huge influence in promoting positive social change for more gender-equitable and healthier relationships within homes and communities. There is a need for more monitoring and evaluation of programs that engage RTLs and constant stakeholders engagement by individuals and organizations concerned about SRH in Nigeria. There is a need for a stronger political will of the Ministry of Health to use RTLs as game-changers for more SRH service uptake in Nigeria.

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Capacité de résilience des associations de PVVIH face à la pandémie de COVID-19 : l'expérience de l'association Bokk Yakaar de Fatick pour la continuité des services à domicile

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Contexte: L'arrivée de la COVID-19 au Sénégal a bouleversé le dispositif médical de la prise en charge des PVVIH. Face aux restrictions de déplacement, Bokk Yakaar s'est adaptée aux réalités de terrain en mettant en place un dispositif communautaire pour assurer la continuité des services.
L'objectif était de permettre aux PVVIH d'accéder à leurs antirétroviraux à domicile pour éviter les ruptures de traitement et de limiter les déplacements des PVVIH pour réduire les risques de contact avec le coronavirus.

Matériels et méthodes: En mars 2020, Bokk Yakaar a alerté les districts sanitaires sur la nécessité de fournir des ARV multi–mois aux PVVIH. Avec l'état d'urgence et la restriction de déplacement, l'association a mis à la disposition des sites de PEC ses motos pour l'acheminement des ARV et des kits d'hygiène dans les villages. Les bénévoles, en coordination avec les dispensateurs, identifient les patients enclavés pour leur livrer leurs médicaments. Les bénévoles formés et équipés sur la COVID-19 sensibilisent à domicile les familles. Des appels réguliers ont été aux PVVIH pour faire le suivi psychosocial à distance avec les patients sont réalisés.

Résultats: De mars à octobre 2020, l'association a pu acheminer à 203 patients leurs médicaments dans les villages (Fatick 6, Niakhar 10, Gossas 47, Dioffior 49, Passy 5 et Sokone 86). Au-delà de cette dispensation à domicile, Bokk Yakaar a appuyé les patients bloqués dans les autres localités en les référant grâce aux groupes whatsapp aux sites proches. Les dispensateurs appelaient au moins 5 PVVIH/j pour leur expliquer les mesures barrières et s'enquérir de leurs besoins psychosociaux. 517 PVVIH ont reçu des conseils à distance.
L'association a appuyé les PVVIH en kits d'hygiène et alimentaires pour faire face au confinement et lutter efficacement contre la pandémie.

Conclusion: Avec l'anticipation et le dispositif de Bokk Yakaar, les PVVIH n'ont pas eu de rupture de traitement. Cet expérience a été capitalisée, pour accélérer la stratégie de la dispensation communautaire au Sénégal. La place des PVVIH est capitale surtout en période de pandémie car elles ont démontré leur capacité de résilience face à n'importe quelle maladie grâce à l'expérience de terrain acquis.

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The High Concordance between Automated (Abbott) and Manual (Da An Gene) rRT-PCR Supports Inter-Operability for the Molecular Detection of Sars-Cov-2: Findings from the EDCTP PERFECT-Study in Cameroon

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Background: Molecular diagnosis of COVID-19 is critical to the control of this pandemic which is a major threat to global health. Several molecular tests have been validated by WHO, but would require operational evaluation in the field to ensure their interoperability in diagnosis. In order to ensure inter-operability in COVID-19 assays, we evaluated the diagnostic concordance of SARS-CoV-2 between an automated (Abbott) and a manual (DaAn Gene) real-time PCR (rRT-PCR), two commonly used assays in sub-Saharan Africa.

Methods: A comparative study was conducted on 287 nasopharyngeal specimens at the Chantal BIYA International Reference Centre (CIRCB) in Yaounde-Cameroon. Samples were tested in parallel with Abbott(detection limit: 500 copies/ml) and DaAn gene rRT-PCR (detection limit: 100 copies/ml).Concordance were evaluated by Cohen's coefficient (k, k>0.8: excellent concordance).

Results: A total of 273 participants (median age [IQR] 36 [26-46] years) and 14 EQA specimens were included. Positivity was on 30.0% (86/287) Abbott and 37.6% (108/287) DaAn Gene. Overall agreement was 82.6 %(237/287), with k=0.82 (95%CI: 0.777-0.863), indicating an excellent diagnostic agreement. Positive and negative agreement was 66.67% (72/108) and 92.18 %(165/179) respectively. Regarding viral load (VL), positive agreement was 100% for samples with high VLs (CT<20). Among 50 discordant results; 72% (36) of samples were positive with DaAn gene but negative with Abbott (median CT: 34 [IQR: 31-35]) and 28% (14) being positive with Abbott but negative to DaAn gene (median cycle number [CN]: 26 [IQR: 24 - 29]. Among positive SARS-CoV-2 cases, the mean difference in cycle threshold (CT) for the Manual and cycle number (CN) for the Automated was 6.75±0.3.

Conclusion: The excellent agreement (>80%) between the Abbott and DaAn gene rRT-PCR

platforms supports inter-operability between the two assays. Discordance occurs at low-VL, thus underscoring these tools as efficient weapons in limiting COVID-19 community transmission.

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Factors Associated with the Performance of Health Facilities in the Prevention and Control of COVID-19 Infection in the West Region of Cameroon

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Background: Since March 2020, Cameroon has been facing the Covid-19 pandemic and recorded 116,718 confirmed cases as of January 26, 2022 with a high infection rate among health personnel. In health facilities (HF), compliance with Infection Prevention and Control (IPC) recommendations is the key to protecting healthcare personnel, patients and users from COVID-19. Despite the multiple sensitizations made at the national level on the IPC, its implementation remained incomplete. The objective of this study was to identify the factors associated with the performance of HF in the West region in Covid-19 IPC.

Methodology: This was an analytical cross-sectional study carried out in 117 health facilities in the West Region of Cameroon. We included in the study all functional HF recognized by the Regional Public Health Delegation of the West, after obtaining informed consent from the manager and any non-functional HF before the occurrence of the COVID-19 pandemic was excluded. Performance was assessed using the World Health Organization COVID-19/IPC scorecard. Data were analyzed using Statistics for Social Sciences software and tables were generated using Microsoft Excel 2016 software. Factors associated with performance were determined by logistic regression using Fisher's test and P value less than 0.05 was considered statistically significant.

Results: Of the 117 health facilities assessed, 62 (53%) were public and 73 (62.4%) were integrated health centers and 35 (30%) respondents had been trained in IPC. The overall score varied between 4.8% and 88.1% with a median of 35.7% and more than two thirds of health facilities (69%) had poor performance (score<50%) in IPC. The factors associated with good performance in IPC were district medical centers (OR=10.1 [1.32; 76.87]; P=0.026), reception of funding dedicated to IPC in the HF (OR =12.2 [1.39; 107.90]; P=0.024) and the existence of an epidemiological surveillance team (OR=9.96 [2.01; 49.40]; P<0.001).

Conclusion: The low performance of HF in COVID-19 IPC seriously exposes health personnel and patients to COVID-19 infection. It is therefore essential to create a national IPC program, appoint IPC regional focal points, create IPC committees in HF and train/retrain health personnel in IPC.

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Les Associations de Lutte Contre Le Sida à L'éPreuve du COVID AU Sénégal : Une Réponse Rapide ET Efficace

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Contexte et objectifs: Les personnes âgées et/ou affectées par des maladies chroniques, dont le VIH, ont été perçues comme vulnérables dès le début de l'épidémie de Covid-19 en 2020. Au Sénégal les PVVIH ont été la cible de messages de prévention. Comment

ont-elles vécu cette situation ? Quel a été le rôle des associations ?

Méthode: En 2020, des médiatrices associatives ont mené une enquête qualitative financée par le CNLS, avec l'appui des anthropologues du CRCF. Des entretiens semi-directifs ont été menés auprès de 30 PVVIH et des responsables d'associations de Dakar et d'autres localité. Ils ont fait l'objet d'une analyse de contenu.

Résultats: La plupart de PVVIH ont eu un sentiment de vulnérabilité. Elles ont appliqué scrupuleusement les mesures de prévention. Elles ont réduit les déplacements et les activités sociales, portaient et imposaient le masque dans leur entourage.
Plus encore que le reste de la population, bon nombre de PVVIH du fait de leur précarité, ont durement vécu les répercussions sociales et économique de l'épidémie.
Certaines ont perdu leur emploi et leurs revenus, alors que les aides familiales s'amenuisaient. Les visites à l'hôpital étaient compliquées par la raréfaction des transports et les hausse de tarifs.

Les associations de PVVIH se sont immédiatement mobilisées. Elles ont par la suite reçu l'appui du CNLS et des partenaires techniques. Elles ont organisé l'acheminements des ARV à domicile, assuré l'envoi dans les régions lors de la suspension des transports inter-urbains et coordonné leurs interventions grâce à un groupe WhatsApp. Elles ont distribué des masques de protection, des solutions hydro-alcooliques et des kits alimentaires et ont apporté un appui aux personnes isolées et/ou confinées dans les centres de traitement.

Conclusion: Face à l'épidémie de Covid et à ses conséquences, la réponse des associations de PVVIH a été rapide et efficace. Les ruptures de traitement ARV ont été évitées, et certains effets socio-économique atténués.
La rapidité de la réponse est liée à leur expérience dans le VIH. Cette expérience pourrait être mise à profit par les autorités de santé pour contribuer à la réponse nationale à d'autres situations épidémiques.

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Lipid Dysfunction Levels and Their Association with COVID-19 Disease Severity among Patients Admitted at Millennium COVID-19 Care Center in Ethiopia, Horn of Africa

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Background: Current studies have presented and analyzed epidemiological, clinical and clinical laboratory features COVID-19 Patients. Studies suggests that patients with severe COVID-19 shows unregulated lipid metabolism and profile but adequate information is not available concerning the association of lipid parameter features with severity of disease its outcome in Ethiopia.

Objective: This study aims to determine the magnitude of lipid profile abnormalities and association of COVID-19 outcome among admitted patients at Millennium COVID-19 care center in Ethiopia.

Methods: A prospective observational cohort study was conducted among COVID-19 admitted patients to investigate lipid profile parameters from January 2021- June 2021. A total of 500 patients confirmed with COVID-19 infection by RT-PCR were included. Dynamic alteration in lipid profiles were recorded and tracked. Data were analyzed using SPSS version 25. P value <0.05 was considered significantly associated.

Result: The median age of the 500 study participants was 55.58+7.707 years, and from these 71.3% of patients were males. This study found that high-density Lipoprotein cholesterol (HDL-C) and Total Cholesterol levels were significantly higher in the severe and Critical disease category. The total cholesterol results showed that significantly higher 25 (5.38%) in severe infection cases than that, (17 (3.4%), 12(2.4%) and 5 (1%) in moderate, mild and critical cases consecutively (P<0.000). Whereas, patients with severe infection had slightly lower of HDL than Mild and moderate infection cases (P=0.000 and P=0.000) respectively. Moreover, a significant decrement in the level of TG was detected in severe infection cases compared to mild and moderate cases (P=0.0001). Hence, the higher TG/HDL-C ratio (3.754) was found in severe infection cases, compared with mild and moderate infection (P=0.001 and P=0.002) respectively.

Conclusion: Lipid function biomarkers like CHO, TG and LDL serum value was found elevated among severe than other patients. Lipid Metabolism biomarkers are a candidate for predicting COVID-19 disease severity in order to guide clinical care and general Public.

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Sars-Cov-2 Seroprevalence in Children Born to Women Living with HIV on Life-Long Antiretroviral Therapy (ART) in Zimbabwe: PEPFAR-PROMOTE Study

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Background: There is paucity of data on seroprevalence of SARS-CoV-2 infection in children, especially in children born to women living with HIV (WLHIV) who may be at higher risk of severe disease and mortality due to immune compromise. We retrospectively estimated SARS-CoV-2 antibody prevalence within the PEPFAR-PROMOTE observational cohort between July and October 2021 in Zimbabwe.

Methods: Children were enrolled in 2016 in the PEPFAR-PROMOTE longitudinal cohort to study long-term effects of perinatal exposure to maternal HIV and ART. Blood was collected six-monthly at scheduled visits during the 5-year study and stored in -70C conditions. Stored plasma samples from children who attended study visits during the study period and for whom consent was available were tested using 2021 EUROIMMUN qualitative antibody assay for IgG antibodies to SARS-CoV-2 spike protein. Point prevalence estimates and 95% confidence intervals (CI) were calculated by age group and sex.

Results: Plasma samples from 578 children born to 386 WLHIV were tested, of which 270 (46.7%) were male and 7 (1.2%) were living with HIV. Children were aged <2 years (predominantly being breastfed; n=74, 12.8%); 2-5 years (pre-school, n=134, 23.2%); and >5 years (mostly school-going; n=370, 64%). Almost all participants resided in high-density urban areas of Harare and Chitungwiza, Zimbabwe. The overall SARS-CoV-2 IgG seroprevalence was 47% (43–51%). Seroprevalence estimates by category were 45% (34-56%) for 0-2 years, 43% (35-52%) for 2-5 years 49% (44-54%) for >5 years, 41% (35 – 47%) for males and 51% (46 – 57%) for females. No association with age band was evident (p=0.36) in this cohort, however, seropositivity was more common among female children (p=0.03).

Conclusions: Prevalence of SARS-CoV-2 antibodies was high in this population of HIV/ART exposed urban children during the third COVID-19 wave. Further analysis is required to assess sero-concordance within

mothers and siblings and to assess associations with clinical symptom, Innovative prevention strategies are required to avoid spread of the virus in children within families and communities taking into account prevailing cultural and living conditions. The long-term consequences of these infections remain to be elucidated.

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An Assessment of Burnout and Depression among Health Care Workers Providing HIV Care during the COVID-19 Epidemic in Malawi

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Background: Burnout and depression among health care workers (HCWs) may be more common than previously reported due to anxiety and increased work pressure during the COVID-19 epidemic. We assessed the prevalence of burnout, depression and associated factors among HCWs who provide HIV care in Malawi.

Methods: In April-May 2021, between the second and third Covid-19 waves, we randomly selected up to 14 HCWs per facility to participate in an anonymous survey, stratifying by HCW cadre. Thirty PEPFAR/USAID-supported health facilities were included in the study. We used the World Health Organization Self Report Questionnaire for depression screening (a score of ≥8 indicating positive screen) and the Malslach Burnout Inventory tool for burnout screening (moderate or high burnout on Emotional Exhaustion and/or Depersonalization and/or Personal Accomplishment domains indicating positive screen). Burnout analyses excluded cadres that were not directly involved in patient care. Descriptive statistics and logistic regression models were used.

Results: We included 435 HCWs, median age 32 years (IQR 28-38), 54% female. Thirty-four percent were clinical cadres and 66% lay cadres. Prevalence of positive screen for depression was 28% and for burnout 29%. Co-prevalence of positive depression and burnout screen was 13%. Controlling for age, sex, marital status and years of work, positive depression screen was associated with working in the southern region (aOR 2.3, 95%CI 1.4, 3.6), previous confirmed or suspected COVID-19 episode (aOR: 2.2, 95%CI: 1.2, 4.2), and feeling that one would probably or definitely get COVID-19 in the next 12 months (aOR 2.8, 95%CI 1.3, 5.9). Being a clinical staff vs. lay health staff was associated with positive burnout screen (aOR 2.0 95%CI: 1.1, 3.5). Finally, screening positive for burnout was strongly associated with positive depression screen (aOR 3.2, 95%CI 1.9-5.4)

Conclusion: HCWs screened positive for burnout and depression commonly but prevalence rates were not higher than reported before the Covid-19 epidemic. Regular screening for both conditions should be encouraged given high prevalence, consequences for mental health and work performance and availability of feasible interventions for confirmed cases. More research is needed on how prevalence of burnout and depression fluctuates during and after Covid-19 waves.

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Knowledge and Perceptions Regarding the Effect of SARS-CoV-2 Infection on Mental Health of Healthcare Workers Delivering HIV Services in Zambézia Province, Mozambique

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Background: The COVID-19 pandemic has significantly affected health care services overall, and HIV service delivery in particular, in Mozambique. The purpose of this study was to assess changes in perceptions regarding risk of SARS-CoV-2 acquisition and the pandemic's effect on the mental health of health care workers (HCW) delivering HIV care in rural Mozambique over time.

Materials & Methods: A serial cross-sectional study consisting of three independent survey rounds was conducted quarterly among HCW between January - September 2021, in the three main health facilities in three districts of Zambézia Province. Structured questionnaire administered to assess risk perceptions regarding COVID-19 infection at the workplace, with participant responses being presented as the average from the three survey rounds. Screening for depression and anxiety risk was performed using the Patient Health Questionnaire (PHQ-2) and Generalized Anxiety Disorder (GAD-2) instruments. Chi-square or Fisher exact tests were used to compare participant groups' responses across rounds.

Results: Data from 182 HCW (118 [65%] female; median age 30 years [IQR 26-34]) were included. Almost all HCW had received information on SARS-CoV-2 infection (180 [97%]) and felt that they were at increased risk of infection (178 [98%]). Participants reported feeling supported by health facility personnel (140 [81%]). Over time, there was a difference in the proportions of HCW who felt uncomfortable working at their health facilities since the COVID pandemic (19 [32%] Round 1; 12 [19%] Round 2; 24 [40%] Round 3; p=0.04). A proportion of the respondents (69 [38%]) reported that they felt the pandemic was stressful. A minor proportion of HCW were categorized as being at risk for major depressive (13 [7%]) and/or anxiety disorders (11 [6%]), without differences over time.

Conclusions: Nearly all HCW reported receiving COVID-19-related information. Their perception of being at increased risk of SARS-CoV-2 acquisition may be a source of stress for some of them. However, we found that the majority of respondents were not deemed being at risk for depression or anxiety disorders. Given HCW's reported anxiety about their or a family member's SARS-CoV-2 infection, care for health providers that could include work-based counseling and support services should be considered.

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Improved Viral Load Uptake and Suppression among Transgender Persons with Implementation of Differentiated Care Adaptations during the COVID-19 Pandemic

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Background: Enforcement of COVID-19 pandemic restrictions and curfews in Kenya greatly disrupted the provision of routine HIV services and created an urgent need to adapt existing HIV service delivery models to ensure continuity of access to essential HIV services. We describe adaptations in HIV service delivery made to a Transgender HIV program implemented in Mombasa, Kenya between April 2020 and September 2020, and the impact of the adaptations on viral load uptake and suppression.

Description: In line with Ministry of Health Kenya directives for differentiated care antiretroviral therapy (ART) provision during the onset of the COVID-19 pandemic in March 2020, the program offered multi-month (>3 months) dispensing of ART to HIV positive transgender persons regardless of ART regimen, duration on ART or viral load status.

This included implementation of community ART groups with service providers who were authorized to move between restricted areas providing ART refills and viral load sample collection in the communities with the assistance of peer navigators. The program also strengthened mental health support and adherence counselling through provision of weekly telecounselling services to Transgender cohort on ART.

Lessons learned: There was improvement in viral load uptake and suppression among Transgender persons with the adaptation of community differentiated care models and weekly telecounselling support. Between October 2019 and March 2020 when 90% (26) of the cohort were dispensed to ART for 1 to 3 months and only 10% (3) were dispensed to ART for >3 months, the viral load uptake and suppression was 54% and 57% respectively. However, with adaptation of differentiated care and telecounselling entailing provision of 92% (34) of the cohort with ART for 3 to 5 months and only 8% (3) of the cohort with ART for 1 to 3 months, the viral load uptake and suppression increased to 70% and 100% respectively. Service providers felt that these interventions helped them listen more to their clients while beneficiaries appreciated not having to travel far for ART and viral load sampling services.

Conclusions: Adaptation of community differentiated care models is feasible and can be strengthened to optimize viral load uptake and suppression among Transgender persons.

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The Role of Differentiated ART Delivery in Preventing Treatment Interruptions for Persons Living With HIV/Aids During the COVID-19 Pandemic. A Case Study of Rivers State, South-Southern Nigeria.

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Background: The Coronavirus disease 2019 (COVID-19) pandemic accelerated the scale-up of various models of differentiated ART delivery and multi-month dispensing (MMD) for persons living with HIV/AIDS (PLHIVs) in Rivers State. Adolescent refill clubs, community pharmacy ART refill, community ART refill clubs, and home delivery services were options that clients could optimize depending on their individual needs. The goal of this scale-up was to prevent interruption in treatment-(IIT), decongest health facilities thereby preventing and controlling infection, and allow for prioritization of PLHIVs requiring more intensive services. This study assessed the impact of these ART delivery models on continuity of treatment in the COVID-19 pandemic.

Methodology: Mixed-method study entailing a cross-sectional analysis of data obtained from chart review of Retention and Audit Determination Tool-files generated from Electronic Medical Record (EMR) database of clients, devolved between 1st April to 30th September 2020 in the state (n=2373) and 10 focused group discussions (8 participants per focused group n=80) with patients randomly selected from the total enrolled in the various differentiated ART delivery models. No clinical contact for 28 days following the last scheduled visit was reported as IIT. STATA (v13) was used for statistical analysis, while qualitative data were evaluated using a thematic approach.

Results: Of the 2373 clients, 1077 (45.39%) were from adolescent refill clubs, 82 (3.45%)-community pharmacy ART refill, 299 (12.6%)-community ART refill clubs, 789 (33.25%) the

virtual refill, and 126 (5.31%) from home delivery services. 0.92% (n=22) were documented as IIT. 43.44% (n=1031) received 6 monthly drug refills (MMD 6) while 56.4% (n=1342) were on 3-5 monthly drug refills (MMD 3-5). Focused group discussions showed that 75% (n=60) were hesitant to access refills from the crowded facilities while 15.74% (n=16) had access to refills within their communities, unaffected by movement restrictions. <1% IIT rate for clients in this study with optimal retention, inference, deduced from the documented population that had interruptions in treatment (n=22).

Conclusion: Differentiated-ART-delivery is recommended as a standard of practice in this COVID- 19 pandemic. It addressed the barriers to continuation in treatment posed by the pandemic for PLHIVs in Rivers State.

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Higher Intensive Care Unit Consultations for COVID-19 Patients Living with HIV Compared to Those without HIV Co-infection in Uganda

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Background: Coronavirus disease-2019 (COVID-19) is the leading cause of death worldwide from a single infectious agent. Whether or not HIV infection affects clinical outcomes in patients with COVID-19 remains inconclusive. This study aimed to compare the clinical outcomes of people living with HIV (PLWH) and non-HIV-infected patients hospitalized during the second wave of the COVID-19 pandemic in Uganda.

Methods: We retrospectively retrieved data of patients with COVID-19 who were admitted to the Mulago National Referral Hospital in Uganda between April 2021 and mid-July 2021. We performed propensity-score-matching of 1:5 to compare outcomes in COVID-19 patients living with and those without HIV co-infection (controls).

Results: We included 31 PLWH and 155 non-HIV controls. The baseline characteristics were similar across groups (all p values > 0.05). PLWH had close to 3-fold higher odds of having ICU consultation compared to controls ([OR]: 2.9, 95% CI: 1.2 – 6.9, p=0.015). There was a trend towards having a severe or critical COVID-19 illness among PLWHIH compared to controls (odds ratio [OR]: 1.9, 95% CI: 0.8 – 4.7, p=0.164). Length of hospitalization was not significantly different between PLWH and non-HIV controls (6 days for vs. 7 days, p=0.184). Seven-day survival was 63% (95% CI: 42% – 78%) among PLWH and 72% (95% CI: 61% – 82%) among controls while 14-day survival was 50% (95% CI: 28% – 69%) among PLWH and 65% (95% CI: 55% – 73%) among controls (p=0.280). There was another trend towards having 1.7-fold higher odds of mortality among PLWH compared to controls ([OR]: 1.7, 95% CI: 0.8 – 3.8, p=0.181).

Conclusions: Our data suggests that PLWH may be at an increased risk of severe or critical COVID-19 illness requiring ICU consultation. Further studies with larger sample sizes are recommended.

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Perceptions Regarding Impact of COVID-19 on Access to Healthcare among Persons with HIV and Healthcare Workers Providing HIV Care in Zambézia Province, Mozambique

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Background: Since the outbreak of the COVID-19 pandemic in Mozambique, mitigation measures have been put in place, some impacting healthcare service utilization. This study aimed to assess perceptions related to COVID-19 and its impact on healthcare access among persons with HIV (PWH) and healthcare workers (HCW) providing HIV care over time.

Materials & Methods: A series of three independent survey rounds (R1-3) with conveniently selected PWH exiting health services and HCW was conducted between January-September 2021, in the main health facilities of three districts of Zambézia Province. A structured interview included questions about knowledge and perceptions regarding general and HIV-related healthcare access. Chi-square tests were used to compare participant groups' responses across rounds.

Results: Data from 900 PWH (589 [66%] female; median age 33 years [IQR 27-42]) and 182 HCW (118 [65%] female; median age 30 years [IQR 26-34]) were included. The majority of PWH and HCW perceived a change in HIV care (average 73% and 74%, respectively). Both PWH (61%, 71%, 90% [R1-3, respectively]; p-value<0.001) and HCW (78%, 77%, 95% [R1-3, respectively]; p-value=0.009) agreed that, when possible, people should avoid health facility visits. Over time, a significant proportion of HCW perceived a decrease in the patient volumes (58%, 81%, 68% [R1-3, respectively]; p-value=0.037) and reduced patient wait times (55%, 74%, 88% [R1-3, respectively]; p-value=<0.001). PWH reported little difficulty in receiving antiretroviral treatment (85%, 88%, 90% [R1-3, respectively]; p-value=0.101), however, most HCW felt that community activity interruptions adversely impacted adherence.

Conclusions: Among PWH and HCW in Zambézia, there was a general perception that care changed since the COVID-19 pandemic. Although, most patients did not perceive increased difficulty in accessing treatment services, HCW felt that interruptions in community activities did impact adherence. Tailored interventions to monitor retention of ART-treated patients at both the health facility and community levels are needed to limit COVID-19 related attrition.

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COVID-19 Vaccine Uptake among People Living with HIV/Aids in Kaduna State; Determinants of Unmet Needs

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Background: Coronavirus disease 2019 (COVID-19) has had a devastating impact around the world and efforts are being made to speed up vaccinations. Current evidence suggests that HIV increases the risk for severe COVID-19. This is particularly so among those with CD4 counts <350 cells/mm3, high viral load, recent opportunistic infection or current AIDS defining illness. COVID-19 vaccination became available to the public in Kaduna State in March 2021 and there are no safety concerns that are specific to people living with HIV (PLHIV)

Objectives: We aimed to evaluate the uptake of the COVID-19 vaccine in PLHIVs in Kaduna State and determine the barriers to uptake.

Methodology: A mixed methods study was conducted between July and August 2021 among PLHIVs aged 20 years and above. A multi-stage cluster sampling method was used to select 319 participants from five comprehensive ART sites that provides COVID-19 vaccination. Seven focused group discussions were held using a structured questionnaire. Statistical analyses were performed using STATA (v13), while qualitative data were analyzed using thematic approach.

Results: Of the 319 participants, 287 (89.97%) had not received any dose of the COVID-19 vaccine; 21 (6.58%) had received the first dose,

and 11 (3.45%) had received both doses. The overall vaccine uptake was 10.0% (n=32). 37.50% (n=12) of the participants who had taken the vaccine indicated that they had taken the vaccine due to information gotten from clinic health talks, 40.6% (n=13) based on doctor's advice, 12.5% (n=4) based on information gotten from various forms of media and 9.4% (n=3) based on information gotten from places of religious worship. The reasons for not taking the vaccine were fear in 189 (65.85%) participants, lack of information in 67 (23.34%) and disbelieve in the existence of the virus in 31 (10.80%) participants.

Conclusion: Uptake of COVID-19 vaccine among PLHIVs is still very poor with the most prevalent causes being a fear and a lack of knowledge. Improving healthcare workers' capacity to educate and disseminate the right information about the safety and efficacy of the vaccine is required to improve vaccine coverage among PLHIVs in Kaduna State.

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Challenges of Maintaining the 90-90-90 Targets Imposed by COVID-19 Social Distancing Measures in Botswana

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Background: In Botswana, 20.3% are people living with HIV (PLWH). Significant progress has been made towards the UNAIDS 90-90-90 goal, with all three targets achieved in 2018. However, COVID-19 and social distancing measures (SDMs) have the potential to impede progress within each domain, adding additional barriers to accessing testing, antiretroviral therapy (ART) and specialist consultation. Understanding how COVID-19 SDMs have impacted healthcare access for PLWH is imperative for future planning and resource allocation.

Methods: This observational, cross-sectional study was completed over a 5-week period from 17th January 2021-22 February 2021. Data were collected through a web-based survey distributed on social media as part of the International Sexual Health And REproductive Health (I-SHARE) Survey. Respondents answered questions on sexual and reproductive health and wellbeing, including access to HIV treatment and services, before and during Botswana's COVID-19 SDMs.

Results: 409 participants took part in the survey. 65 (15.9%) self-reported positive HIV status (male 20%, female 80%). 66 (16.1%) reported requiring HIV or STI testing during COVID-19 SDMs, of which 15.2% reported they were unable to access testing as a result of SDMs. Reasons for inability to access HIV/STI testing included unavailability of testing services, inability to access transport or leave the house, and long queues at health services. 24 (45.3%) PLWH reported being worried SDMs would prevent them from accessing ART and 9 (17.6%) felt SDMs made ART adherence more difficult or impossible. 17 (27.9%) PLWH reported cancellation of HIV clinics. 13 (20%) decided to delay or miss their appointments due to fears of acquiring COVID-19, lack of transport, lack of clinician availability, and long clinic queues. 5 people (10.0%) reported forced disclosure of their HIV status as a direct result of COVID-19 SDMs.

Conclusion: The study shows that COVID-19 SDMs, designed to protect the general health of the population, may disrupt HIV testing and treatment services. This could challenge maintenance of the 90-90-90 targets, potentially slowing progress in reaching the 95-95-95 goal. Health systems must ensure resilience to allow them to continue to provide equitable access to HIV prevention, testing, and ART particularly in high prevalence HIV settings such as Botswana.

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Diagnostic Performance of Reverse Transcription Loop Mediated Isothermal Amplification for the Molecular Diagnosis of SARS-CoV-2

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Background: Timely and effective diagnosis of the severe acute respiratory syndrome (SARS-CoV-2) is essential for the proper management of the ongoing COVID-19 pandemic. Increasing demands for real-time polymerase chain reaction (real-time PCR) tests especially in resource limited settings, poses the urgent need for a similar but simple, rapid and cost-effective technique such as the reverse transcription loop-mediated isothermal amplification (RT-LAMP) for the detection of SARS-CoV-2. This study assessed the diagnostic performance of RT-LAMP for the molecular diagnosis of SARS-CoV-2.

Materials and Methods: This was a cross-sectional study conducted from March 2021 to September 2021 at the Military Health Research Center (CRESAR) in Yaoundé, Cameroon. 163 nasopharyngeal samples collected from individuals attending CRESAR's COVID-19 sample collection sites in Yaoundé, were inactivated in the laboratory. RNA extracted from these samples were then tested using the real-time PCR and RT-LAMP methods for the detection of SARS-CoV-2. RT-LAMP readout was done through visual colorimetric detection and fluorescent detection. Data were analysed using Microsoft excel 2013 and R version 4.1.1 graphical user interface. Results were considered significant at a P- value ≤ 0.05.

Results: A total of 161 samples were analysed by real-time PCR and colorimetric RT-LAMP. 118 samples from this total underwent fluorimetric detection. A non-significant diagnostic sensitivity and negative predictive value (NPV) of 82% and 90% respectively were obtained by Colorimetric RT-LAMP. The diagnostic specificity and positive predictive value (PPV) of this assay were 91% and 84% respectively. Nevertheless, a perfect agreement (100%) was obtained between this assay and RT-PCR at cycle threshold ≤ 29. The fluorimetric RT-LAMP technique yielded a significantly high diagnostic sensitivity and NPV of 100% and 100% respectively. However, it scored a diagnostic specificity and PPV of 92% and 88% respectively. An almost perfect agreement (Cohen's K= 0.89) was observed between this technique and the RT-PCR assay.

Conclusions: RT-LAMP, especially the fluorimetric technique, is a rapid and sensitive assay which could serve as an alternative test to real-time PCR for the timely and reliable diagnosis of SARS-CoV-2 especially in resource limited settings and for large scale testing.

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COVID-19 Vaccination among Persons with HIV and Health Activists: Acceptability Study in Mozambique

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Background: COVID-19 vaccination campaigns in Mozambique were initiated in March 2021, with a phased implementation. This study assessed acceptability of COVID-19 vaccination among persons with HIV (PWH) and health activists supporting PWH in Zambézia

Province, Mozambique, during the first year of vaccination roll-out.

Materials and Methods: A survey was administered to PWH receiving antiretroviral therapy (ART) and activists (peer educators, mentor mothers) in two districts of Zambézia province, between August-September 2021. At the time of survey implementation, all healthcare providers (including activists) were eligible for COVID-19 vaccination, while PWH followed eligibility criteria for the general population (age- and comorbidity-dependent). Selection was done via convenience sampling. Structured questionnaires were used to assess knowledge, perceptions and acceptability of COVID-19 vaccination. Univariate analyses (Chi-square and Mann-Whitney tests) were performed.

Results: A total of 135 activists and 186 PWH on ART were surveyed. Median age was 33 years [IQR 27-41]; 244 (76%) were female; with 72 (22%) residing in rural areas. Almost all (319 [99%]) had heard of COVID-19 vaccination. A greater proportion of activists (90 [67%]) considered the vaccine safe or very safe, compared to PWH (97 [52%]) (p=0.001). Among respondents, 117 (87%) activists and 139 (75%) PWH believed they were eligible for vaccination (p=0.001). Vaccination receipt was reported by 86 (64%) activists and 72 (39%) PWH (p<0.001), of whom 65 (90%) and 146 (93%) completed (i.e., received all recommended doses), respectively (p=0.22). Most frequently reported reasons to vaccinate were: protecting self or family (activists [69%], PWH [79%]) and not wanting to be sick (activists [8%], PWH [18%]); p=0.09. Reported reasons for not being vaccinated among the respective groups of activists and PWH included: being pregnant/lactating (41%, 10%), considered not eligible (12%, 7%), long wait time (4%, 9%), not having received information (6%, 7%), not being offered (2%, 8%), currently sick/ill (6%, 6%), and geographic distance (4%, 5%); p<0.01.

Conclusions: Despite information campaigns around COVID-19 vaccination, coverage of vaccination was low, especially among activists. With increased vaccine availability and broadening of eligibility criteria, continuous health promotion may increase acceptability and coverage of COVID-19 vaccination among vulnerable groups such as healthcare providers and PWH.

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Uptake of COVID-19 Preventive Measures Among Persons Aged (13-80) Years in Wakiso, Uganda

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Background: The unprecedented spread of COVID-19 presents a serious public health concern. However, uptake of COVID-19-related preventive behaviors remains unknown. This study aimed to investigate current uptake and common reasons for suboptimal update.

Subjects and Methods: A cross sectional study was conducted in Wakiso, Uganda from April to September 2020, with the research being aged 13–80 years in the population health survey (PHS) who self-reported having done any of the COVID-19 preventive behavioral strategies during lockdown and potential reasons for low uptake of COVD-19 measures. A total of 1014 study subjects was selected for this study.

Results: Of the 1,014 persons included in the study, 897(88.46%) practiced at least 5 of 7 specific preventive strategies. Over 90% reported frequent hand washing, avoiding crowded places, wearing a mask outdoors, or social distancing. Over 60% reported always staying at home or sanitizing often. Few (<5%) reported people with COVID-19-like symptoms to authorities. Common reasons for suboptimal uptake of preventive measures

included need to work for daily living (97.1%) and not having sanitizer (90.6%).

Conclusion: There was suboptimal uptake of sanitizing and staying at home; and these were associated with sex, occupation, and age. Targeted interventions could improve uptake of these measures in future COVID19 waves or similar epidemics.

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COVID-19 Vaccine Intention and Hesitancy among HIV Research Study Staff in Southwestern Kenya

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Background: Vaccine hesitancy has been declared one of the ten most important threats to global health. COVID-19 vaccine hesitancy is exacerbated by the novelty of the virus and vaccine. COVID-19 vaccine uptake is essential in southwestern Kenya, a region disproportionately affected by HIV and other conditions that pose a significant risk for severe COVID-19 presentation.

Methods: We conducted a cross-sectional survey among 200 HIV prevention and treatment research staff in southwestern Kenya in September-November 2021. Grounded in the Health Belief Model (HBM) framework, we explored COVID-19 vaccine uptake and intent to vaccinate in this population. We conducted bivariate comparisons between these outcomes, selected individual characteristics, and HBM constructs (perceived susceptibility and severity); and used content analysis to explore verbatim responses to open-ended questions.

Results: Of 200 respondents (125 women, 73 men, 2 unknown gender), the majority (85%) had been vaccinated for COVID-19. The unvaccinated were more likely to be women (21% vs. 6% men, p=0.004) and those who expressed high perceived susceptibility to COVID-19 (24% vs.13%, p=0.041). Perceived severity of COVID-19 was not associated with vaccination status (p=0.674). Of those unvaccinated, main reasons for not vaccinating included fear of side effects/pain and delaying vaccination "to see what happens to those who have been vaccinated." The most common rumors mentioned included that the vaccine causes decreased libido, impotency, infertility, and blood clots/death; and was developed to "reduce the world population." About 27% of unvaccinated participants expressed that they do not intend to get vaccinated. Motivators to get vaccinated among all respondents included reducing risk, severity, and transmission of COVID-19; being able to socialize/live a "normal" life; and job-related mandates. Perceived facilitators to vaccine uptake included access to free vaccines and a choice of vaccine brand. Perceived barriers included insufficient public education, mistrust of facility/vaccine distributors, fear of unknown side effects, health status, and advice from medical professionals to not vaccinate.

Conclusions: The results of this study show the need for interventions addressing COVID-19 vaccine hesitancy in a highly HIV-affected region. Interventions should include community education emphasizing vaccine benefits and messages from trusted sources addressing fear of side effects and common rumors.

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Impact of the COVID-19 Pandemic and Related Restrictions on the Lives of

Young People Living with HIV in Kisumu, Kenya

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Background: Adolescents and young adults with HIV (AYAHIV) may be particularly vulnerable to the impact of the COVID-19 pandemic and associated mitigation measures which can adversely impact fragile social and economic systems. We examined the impact of the pandemic and related government mandated restrictions among AYAHIV in Kisumu, Kenya.

Methods: Between April-May 2021, a cross-sectional survey was conducted among a convenience sample of AYAHIV 18-25 years aware of their HIV status and receiving care at Jaramogi Oginga Odinga Teaching and Referral Hospital. Information on demographics, COVID-19 knowledge, protective measures, and the impact of the pandemic and related restrictions (i.e., curfews, lockdowns, school/workplace closures) on their daily lives and well-being since the start of the pandemic was collected. Responses were analyzed using descriptive statistics.

Results: Of 275 AYAHIV enrolled: median age 22 years (IQR: 19-24 years); 178 (65%) female; 222 (81%) completed some secondary education or higher; 108 (39%) lived in informal housing areas. Awareness of COVID-19 was high (99%), mean COVID-19 knowledge score was 4.32 (SD: 0.93; range 1-5) and most reported taking protective measures, including frequent handwashing (91%) and face mask use (85%). Over half (55%) reported recently going to a crowded place, including church (78%) and bars/clubs (13%). Overall, 193 (70%) felt COVID-19 and associated restrictions impacted them including affecting their daily routine (38%), views on travel/immigration (22%), and relationships (14%). Almost half (49%) reported changes in living situation; 24% living with different people, 11% moved/relocated, and 5% newly living on the street. Additionally, AYAHIV reported increased verbal arguments (30%) and physical conflict (16%) at home with 8% reporting someone having used/threatened them with a weapon, 12% experiencing physical abuse, 7% were touched in a sexual way without permission, and 5% had forced sex.

Conclusions: AYAHIV in Kenya were knowledgeable about COVID-19 and prevention practices despite inconsistent adherence. Impacts of the pandemic and related restrictions were felt across various aspects of AYAHIV's lives, including disrupted living situations and increased exposure to verbal and physical conflict, including sexual violence. Interventions are needed to address the impact and potential negative long-term effects of the pandemic on AYAHIV health and well-being.

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Mortality Outcomes in Patients Co-infected with COVID-19 and HIV in a Tertiary Facility in Ghana: A Case-Control Study

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Introduction: Co-morbidities confer a greater risk for development of severe COVID-19 with increased mortality. Literature on the effect of COVID-19 on HIV is conflicting. There is limited data from sub-Saharan Africa, an area that has a heavy HIV infection burden. We present the in-hospital and short-term post discharge mortality outcomes of COVID-19 patients with HIV compared with HIV negative controls.

Methodology: We conducted a case-control study of HIV patients admitted for COVID-19 at the COVID-19 treatment centre, Highly Infectious Isolation Unit (HIIU), from March

2020 to July 2021. The data was managed in REDCap and exported to and analysed using Stata/SE 16.0 (StataCorp 4905 Lakeway Drive College Station, Texas 77845, USA). Data on baseline demographics, patients' clinical characteristics, in-hospital outcomes, as well as outcomes averagely 7.5 months after discharge were collected for 16 HIV positive patients matched with 33 HIV negative controls using one to one propensity matching with nearest neighbour matching algorithm. Average treatment on the treated (Att) was generated by probit regression to compare survival between both groups. A p value of <0.05 was considered significant.

Results: Sixteen HIV patients were admitted at HIIU. Their median (IQR) age was 45.5 (35.5-57.0) years and over half (n=9, 56.2%) were females. Mean (±SD) viral load, available for 8 patients, was 1,295,904 (±3,453,441) copies/ml .
Common clinical symptoms among HIV patients were cough (n=13, 81.3%), breathlessness (n= 11, 68.8%), chest pain (n=6, 54.6%) and muscle pain (n=6, 54.6%). The common co-morbidities were hypertension (n=6, 37.5%), liver disease (n=3, 20%) and acute kidney injury (n=2, 13.3%). Rates of death while on admission, need for ventilatory support and mortality 7.5 months post-discharge were 37.5% (n=6), 12.5% (n=2) and 40.0% (n=2) respectively.
Survival rates were lower (Att = 0.129, p=0.709) in HIV patients compared to controls.

Conclusions: At this tertiary hospital in Ghana, this small study showed lower survival rates among HIV patients with COVID-19 relative to matched HIV negative patients with COVID-19, however, this is not statistically significant. Larger studies are needed to determine whether this applies to all HIV patients in sub-Saharan Africa, especially those who have attained sustained viral suppression.

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Maintaining Access to Essential HIV Services While Minimizing Potential Exposure to COVID-19 among Men Who Have Sex with Men (MSM) In Ghana

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Issue: Ghana experienced some disruptions in providing HIV services for MSM as a result of Covid-19. Factors such as social distancing which restricts large group outreaches; reduced demand for services because of fear of Covid-19 transmission in facilities; and reduced availability of services as providers are assisting with the pandemic response affect delivery of HIV services for MSM. Maintaining uninterrupted access to essential HIV services for MSM during the pandemic require using integrated and community-based strategies that minimizes potential risk for COVID-19 exposure.

Description: Various community-based approaches to HIV service delivery for MSM were introduced during the pandemic in 3 districts. Peer educators were trained to provide education on COVID-19 during community outreach activities. Authorization was sort for outreach workers in lockdown areas and provided with PPEs during delivery of physical outreach services.
Flexible strategies were implemented to preserve access to HIV services and promote the safety of staff and clients during the pandemic: (1) Social media platforms were used to engage peers for HTS and support PLHIVs through virtual case management; (2) HTS and treatment took place at homes and safe locations agreed by peers at their own convenience; (3) Condoms and lubricants were made available at community DICs and outlets for easy access; (4) Promotion of multi-month dispensing of ART to eliminate clinic visits.
Lessons Learned: Introduction of community-based strategies reached out to more MSM and increased HIV+ yield across the 3 districts. During the pandemic from February to April, 445 new MSM were reached and tested for HIV; 32 were diagnosed positive. After the

introduction of community-based strategies, from May to July, 634 new MSM were reached and tested; 89 were diagnosed positive.

Next Steps: CSOs can adopt tailored community-based approaches that can be integrated into HIV programs to improve results in reaching, testing and linking MSM in times of a pandemic.
Scaling up community-based approaches to HIV service delivery can help safeguard the hard-fought gains of the global HIV response. If these solutions are sustained beyond the pandemic, they may serve to modernize KP programming and position it to be more effective in our new reality.

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Quality Management Systems, a Bed Rock for Resilient Laboratory Systems in the COVID-19 Dispatch: A Taso Soroti Regional Project Experience

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Background: MOH-Uganda established the hub system in 2011 to transport samples from peripheral facilities through hubs to centralized referral laboratories. During the COVID-19 pandemic, integration of COVID-19 sample transportation into the routine sample transportation system, necessitated an assessment of the hubs to establish if they met the criteria for proper sample transportation. We conducted an assessment of 9 hubs that are implementing Quality management systems and en rolled on SLAMTA in Teso sub region to establish gaps and guide continued support

Methodology: A cross-sectional study was conducted by BRM auditors using a rapid assessment checklist in April 2020 with a dash board and remediation plan. The checklist was divided into section A (Biosafety), B (Infrastructure), C (Logistics), D (Quality assurance, records and information management) and E (Human resource management) considerations. Each section had a couple of questions and the impact exposure of each hub laboratory was automatically generated with a risk exposure score and categorized as low (< 33%), moderate (34-66%) or high (67-100%).

Results: 100% (n=7) of the hubs had an average moderate exposure level of 41% for Biosafety considerations, 14% (n=1) of the hubs did not meet infrastructural considerations, 100% of the labs had low exposure for Logistical considerations, 100% of the labs had moderate exposure level for Quality assurance, records, information management, and Human resource management. 71% (n=5) had an identified hazard of no Biosafety cabinet.

Conclusion: Laboratory hubs in Teso sub region have a moderate exposure level due to functional Quality management systems with a high identified hazard of no Biosafety cabinet in 1 facility. This could be the same across other hubs nationally. Quality management systems are therefore significant in the response to epidemics especially COVID-19.

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Voluntary Medical Male Circumcision Service Resumption after a Hard covid19 Lockdown: A Readiness Assessment of Static Service Provision Sites in Zimbabwe, 2020

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Background: Voluntary Medical Male circumcision (VMMC) has been shown to

provide reduced risk of heterosexual transmission of HIV in men by up to 60% in randomized controlled trials. The Coronavirus Disease (COVID19) pandemic resulted in national and localized lockdowns in Zimbabwe which disrupted the offering of VMMC services at service delivery points. We therefore conducted an assessment to evaluate the readiness of service delivery points to resume services in the wake of relaxation of lockdown measures between September and October 2020.

Methods: A descriptive cross-sectional study was conducted at 30 sites in 9 provinces of Zimbabwe. Static service delivery points were purposively selected for the assessment, which were inclusive of district and mission hospitals. A modified site assessment tool adapted from the Site Readiness and Risk Assessment Tool developed by Jhpiego was utilized for site resumption assessment. National VMMC/COVID19 Service Delivery Guidelines were used for observations. Epi Info® statistical software was used to analyze data.

Results: A total of 30 sites were included in the assessment (20 Government, 8 Mission and 2 Private). Seventeen facilities (57%) of facilities indicated that they had recorded COVID19 patient in the 3 months prior to the assessment. 80% of the facilities had the standardised COVID19 patient screening tools and were utilizing them. Twenty-three facilities (77%) had adequate space at the reception/waiting area which facilitated physical distancing to an average of 1.5m apart in terms of sitting space. A further 22 facilities (77%) reported having COVID19/HIV service delivery guidelines and using them to guide their service delivery. All facilities had adequate handwashing points with soap and potable water.

Conclusions: Majority of facilities assessed met the minimum requirements for VMMC service resumption in the context of COVID19 and were certified to resume.

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Risk Factors for SARS-CoV2 in a Rural General Population and a Highway Town Council in Kalungu District, South West Uganda

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Background: We undertook community surveillance of SARS-CoV-2, and coronavirus-2019 disease (COVID-19) to address questions about transmission dynamics, burden, and distribution of infection. We included a particular focus on vulnerable groups, such as people with non-communicable diseases and those living with HIV in Kalungu District, Uganda.

Methods: We conducted SARS-CoV-2 surveillance within a rural general population cohort (GPC) in Kyamulibwa sub-county and in Lukaya town council. The study population included those greater than one year. The surveillance comprised of 1) clinic surveillance involving three health facilities. population-based household surveillance of 1000 households distributed equally between the GPC and Lukaya. Monthly follow-up of those recruited from the household survey is ongoing. Demographic and clinical data are collected from study participants, and an oral and nasal pharyngeal swab and 20 milliliters (mls) of blood are collected from each participant at baseline and 5 mls monthly thereafter for those in the household survey. Malaria rapid tests, hemoglobin, KSHV, and HIV tests are performed immediately after specimen collection. SARS-CoV-2 polymerase chain reaction tests are conducted at UVRI-Labs and results are returned within 72 hours. following the Ministry of Health guidelines on result giving, isolation, contact tracing, referral, and care.

Results: Between October 2020 and October 2021, we recruited 2078 participants in the study the majority of whom are females 1333 (64.2%). The mean age of the study participants is 30.9 years (2months -90yrs). The majority of the study participants were in the age group of 18-35 years 764 (40.4%.) followed by those aged 35+ 700 (37.5%). 497/4554 (10.9%) of samples tested SARS COV-2 positive with two clear waves of infection, peaking in December 2020 and in June/July 2021. Independent risk factors for testing positive for SARS CoV-2 at the one cross-sectional survey were: being female (OR 2.5, 95% CI 1.2-5.2), HIV positive (OR 2.3, 95% CI 1.2-4.5), and having Kaposi's sarcoma-associated herpesvirus (OR 3.1, 95% CI 1.4-7.1). Having NCDs was not associated with PCR positivity.

Conclusion: Women, persons living with HIV, and individuals with KSHV infection might have an increased risk of testing PCR positive for SARS-CoV-2. More research is needed to confirm these findings.

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Impact of COVID-19 Pandemic on Turn-Around-Time of HIV Viral Load Testing Services: A Case Study of a Selected Health Facility in the Northeast, Nigeria

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The COVID-19 Pandemic has continued its devastating trend since its emergence and the negative impact is still being felt across the world. The pandemic has led to health service disruption and in some cases total collapse of services. In resource constrain settings, the situation is not different especially among PLHIV especially where declaration of lockdown and restriction of movement have affected ART provision and other essential HIV services. This study aimed at determining the effect of COVID-19 pandemic on HIV viral load (VL) testing services.

The study adopted a case study approach with a sample size of 449 PLHIV client VL history collected retrospectively from laboratory records. Qualitative approached was also adopted with 3 key informants involved in viral load sample handling interviewed.

The collected data was analyzed using STATA14 and NVIVO. The results revealed that, out of the total VL samples collected, 81% (n=363) of the collected samples were transported before the COVID-19 Pandemic and 19% (n=86) were transported during the pandemic. Furthermore, more than one-half of the client's samples, 89% (n=217) had their viral load suppressed within the period under study. The average HIV VL turn-around-time (TAT) of the study was 77days, that is 71days before COVID-19 and 83days during COVID-19. VL turnaround time increased during the Covid-19 pandemic with effective management of HIV patient during the COVID-19 pandemic.

Keywords: Covid-19 Pandemic, Viral Load, Turn-Around-Time, HIV

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Influence of Inter-Institutional Coordinated Responses to Public Health Emergencies and Disasters on the Early Response to COVID-19 in Mozambique: A Case Study

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Background: Mozambique has a higher capacity to respond to emerging infectious diseases and public health emergencies and disasters (60% overall score) compared to the WHO African region's average (44%). Yet, Mozambique's coordination score decreased in 2018-2019 (50-40%) compared to its

region's (47%-52%). We assessed the influence of previous experiences with responses to public health emergencies and disasters in the first year of coordinating the national response to COVID-19 in Mozambique (March 2020-February 2021).

Materials & Methods: We collected data using document review and individual interviews with key informants purposefully sampled from Mozambican government, bilateral and multilateral institutions, and researchers. Qualitative data analysis, conducted in ATLAS.ti 9, followed an extended case study approach, grounded on Spencer Moore and colleague's (2007) four-dimensional concept of inter-institutional coordination during public health emergencies and disasters, which expanded the seven dimensions of the "Command and Coordination" section of WHO's "National capacities review tool for a novel coronavirus (nCoV)".

Results: We interviewed 15 key informants in October 2020-February 2021. Mozambique articulated a timely response to COVID-19 (March 2020), before detecting the first SARS-CoV-2 cases. Response command was at the highest level of central government and Ministry of Health, within state of emergency and public calamity legislations. Institutionalization of multisectoral and multidisciplinary coordination mechanisms and processes to respond to natural disasters and to HIV/AIDS established around 2000, inspired the coordination of the national response to COVID-19. Yet, implementation of the response was uneven and sometimes disconnected between national and sub-national levels, and important response mechanisms such as operative emergency centers were not fully functional. Multiple health information systems (HIS) and repositories that didn't feed into the routine HIS and lack of specific public health regulations, contributed to fragmenting the response and flourishing of coordination practices grounded on institutional politics and informality.

Conclusions: Mozambique's timely coordinated response to COVID-19 was modelled onto two-decades-long responses to HIV/AIDS and to natural disasters. Yet, improvements are needed to effectively respond to public health emergencies and disasters like COVID-19, including formalizing stakeholder involvement in response decision-making mechanisms, and channeling the multiple existing HIS's and protocols to the purposes of Mozambique's National Health System.

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Les personnes âgées, des acteurs méconnus de la prévention et de la promotion de la vaccination contre le Covid.

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Contexte: Au Sénégal, l'épidémie de Covid a débuté en mars 2020. L'Etat a instauré un ensemble de mesures sanitaires.
Les personnes âgées ont été considérées comme particulièrement vulnérables au virus. Dans le cadre du projet CORAF/ARIACOV (Coronavirus Anthropo Afrique), une étude s'est intéressée au vécu et au rôle des personnes âgées par rapport à l'épidémie et à la manière dont leur entourage a composé avec leur vulnérabilité biologique.

Méthode: Enquête anthropologique basée : 1/ sur l'analyse de « journaux de l'épidémie » rédigés par dix enquêteurs sur onze sites à travers le Sénégal, de mars 2020 à décembre 2021 ; 2/ témoignages d'une quarantaine de personnes âgées vivant à Dakar et à Ziguinchor ; 3/ les informations collectées ont été mises en perspective avec les informations issues de la presse et les principales décisions de santé publique.

Résultats: Au début de la première vague les personnes âgées ont souvent investi un rôle central dans : 1/ la circulation des informations dans les ménages, et 2/ dans le rappel et l'application des mesures barrières. Leur autorité pour faire appliquer ces mesures s'est peu à peu érodée, mais eux-mêmes et leurs proches ont continué à appliquer des mesures de prévention (notamment par l'évitement des grands rassemblements). A partir de fév. 2021, avec le démarrage de la vaccination, leur méfiance s'est peu à peu estompée et a évolué vers une attitude en faveur de la vaccination ; certains ont même demandé à être vaccinés contre l'avis de leurs propres enfants, en mettant en avant leur confiance envers les professionnels de santé qu'ils connaissaient.

Conclusion: La crainte de la maladie pour eux-mêmes et leurs proches, a conduit les personnes âgées à investir un rôle d'acteur informel de la prévention, y compris de promotion de la vaccination. Ce rôle mériterait d'être pris en compte et développé. Les personnes âgées pourraient participer à la diffusion d'informations justes, pour contrer la propagation des infox.

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SARS-CoV-2 Positive Patients Display Differences in Proteome Diversity in Urine, Nasopharyngeal, Gargle Solution and Bronchoalveolar Lavage Fluid

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Background: Proteome profile changes post-severe acute respiratory syndrome coronavirus 2 (post-SARS-CoV-2) infection in different body sites of humans remains an active scientific investigation whose solutions stand a chance of providing more information on what constitutes SARS-CoV-2 pathogenesis. While proteomics has been used to understand SARS-CoV-2 pathogenesis, there are limited data about the status of proteome profile in different human body sites infected by sarscov2 virus. To bridge this gap, our study aims to profile the proteins secreted in urine, BALF, gargle solution, and nasopharyngeal and assess the proteome changes as the SARS-CoV-2 colonizes the different body sites.

Materials and methods: We downloaded the publicly available proteomic data from (https://www.ebi.ac.uk/pride/). The data we downloaded had the following identifiers: PXD019423, n=3 from Martin-Luther University Halle-Wittenberg Institute of Pharmacy Department of Pharmaceutical Chemistry & Bioanalytics Charles Tanford Protein Center in Germany. PXD018970, n=15 from Beingjing Proteome Research Centre, China. PXD022085, n=5 from Huazhong University of Science and Technology, China and PXD022889, n=18 from Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN 55905 USA. MaxQuant version 1.6.10.43 was used for the peptide spectral matching using human and SARS-CoV-2 downloaded from UniProt database (Access date 13th October 2021).

Results: The individuals infected with SARS-CoV-2 viruses displayed a different proteome diversity from the different body sites we investigated. Overally, we identified 1809 proteins across the four different sample types we compared. Urine and BALF samples have more abundant SARS-CoV-2 proteins than the other body sites we compared. Our data also demonstrated that a given body site is characterized by a unique set of proteins in SARS-CoV-2 seropositive individuals.

Conclusions: Different urine, gargle solution, nasopharyngeal, and bronchoalveolar lavage fluid have different protein diversity in individuals with confirmed Reverse Transcription-Polymerase Chain Reaction (RT-PCR) SARS-CoV-2 positive infections.

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Vaccine Uptake Study among Health Workers in Johannesburg, South Africa

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Background: Health Care Workers (HCWs) across the globe were prioritized in the SARS-Cov 2 vaccine rollout. Many had anticipated a high uptake among HCWs, as they had self-reported that they would accept vaccination for COVID-19 when available. We report on vaccine uptake among HCWs in a clinical trial in South Africa.

Method: A retrospective analysis of self-reported vaccine uptake among HCWs enrolled in a three-arm open-label COVID-19 study of the efficacy of repurposed drugs in preventing SARS-CoV-2 infection, when compared to standard personal protective equipment (PPE) only, in inner-city of Johannesburg. During study visits, HCWs were prompted to report their vaccination status of one of the Pfizer-BioNTech COVID-19 Vaccine or the JNJ-78436735 (Ad26.COV2.S). We estimated proportion of vaccine uptake, frequency of covariates and 95% Confidence interval with Clopper-Pearson method.

Results: Of the 390 HCWs (mean age = 34; SD=10; range: 19-63 years) enrolled, 217(56%) were females. A total of 123 HCWs reported to have taken at least one dose of a vaccine with uptake rate of 32% (95% CI 27% - 36%). Vaccine uptake among frontline HCWs was equally low: 21/54 (39%) nursing, 2/27 (7%) pharmacy and 4/9 (44%) laboratory. The vaccinated were older (38 vs. 33 years, p > 0.01). Over half (59%) of those vaccinated were 31-49 years of age. Males and females were not different in their reported vaccine status (41% vs. 59%, p = 0.137). Comorbidity did not affect vaccination uptake (Pearson chi2 = 4.148, p = 0.126).

Conclusion: Vaccine uptake was low among these HCWs. This is in line with the vaccine hesitancy noted so far in South Africa, which is also a global challenge.

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Viral Dynamics and Factors Favouring the Duration of COVID-19 Positivity: Evidence from the First-Three Epidemiological Waves in Cameroon

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Background: Evidence on the evolution of Coronavirus disease 2019 (COVID-19) and time for viral clearance remains limited in tropical settings. Thus, understanding the local COVID-19 epidemiological dynamics and the time to viral clearance are key indicators to set-up public health control measures for planning clinical management and for timing of isolation/confinement at community-level. Our objective was to evaluate the viral dynamics of SARS-CoV-2 infection and factors associated with positivity duration in COVID-19 cases in Cameroon.

Materials and Methods: A prospective cohort-study was conducted among people diagnosed positive to SARS-CoV-2 from the first- to the third-wave (April 2020 - October 2021) at the Chantal Biya International Reference Centre (CIRCB) in Yaoundé, Cameroon. Real-time PCR was performed on nasopharyngeal swabs using Abbott m2000sp and DA aN Gene

systems. SARS-CoV-2 positivity duration was evaluated from the first to last positive test, and viral load was estimated using PCR Ct/Cn (Cycle threshold; Cycle number) values. Epi-info version 7.0 was used for data analyses with $p<0.05$ considered statistically significant. **Results:** A total of 282 SARS-CoV-2 positive participants were enrolled, mean age 41±14 years, 62.1% male. Regarding symptoms, 15.6% (44/282) were symptomatic with cough being the most common. Overall, the median [IQR] positivity duration was 15 [9-23] days, which was similar in both waves 15 [13-24] and 14 [8-23] days respectively, p=0.80. Positivity duration was significantly associated with males (16 vs. 14 days, p=0.03) and people aged >40 years (26 vs. 18 days, p=0.02). Positivity duration was similar with/without symptoms (p=0.80), and no corelation was found with viral load (r=0.03; p=0.61). Of relevance, considering baseline (24.7±7.2Ct) and last viral load (29.3±5.9 Ct), the ΔCt (4.6±1.3) and positivity duration (15 days) revealed a kinetic in viral decay of 0.3±0.087 Ct/day.

Conclusions: Experience from the first- to the third-wave of COVID-19 pandemic in Cameroon highlights a positivity duration of about 15 days infection, supporting a viral clearance around 2 weeks for optimal confinement at community-level. However, men and/or the elderly stand at higher risk of prolonged infection. For personalised monitoring, the viral decay (0.3 Ct daily) suggests specific confinement period according to individual baseline viremia.

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The Impact of COVID-19 on the Mental Wellbeing of Health Providers: Voices from the Frontline

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Health providers (HPs) have played a crutial role in the COVID-19 pandemic response. More than 8 million confirmed COVID-19 cases and more than 160 thousand COVID-19 related deaths were recorded in Africa region according to the WHO. Although HPs have a higher risk of infection with SARS-COV-2, limited data and information is available around how COVID-19 has affected frontline health providers in terms of infection, death, and its impact on mental health.

Paediatric-Adolescent Treatment Africa (PATA), a network of frontline HPs across sub-Saharan Africa, conducted a regional survey with 157 HPs from 15 countries across South Saharan Africa to evaluate their perspective on how COVID-19 has impacted their mental health. Data were analyzed using descriptive statistics to describe central tendencies.

Twenty eight percent of respondents reported that they have been infected with COVID-19, the majority (54%) reporting that symptoms were serious but they were able to recover at home and 44% indicated they had mild COVID-19 symptoms. Of those have missed work, 24% were infected, 41% were possibly exposed to COVID-19, and 34% because they do not feel safe or protected from COVID-19.

HPs were asked to indicate their two biggest concerns about COVID-19. Respondents were mainly concerned about their own health (34%) and the health of their families and friends (30%). The majority (36%) of HPs felt that their concerns about COVID-19 had an affect on them in terms of increased level of anxiety for self or other. Factors associated with wellbeing and mental health included personally knowing people that have died of COVID-19 related causes (excluding patients) (59%), and have friends and family who have been infected with COVID-19 (41%). HPs (41%) indicated that they had experienced COVID-19 related stigma or discrimination.

The results of this survey highlights some key advocacy messages that could be taken forward to global platforms. These messages include ensuring the safety and mental well-

being of frontline HPs must be prioritised, and the voices of frontline HPs must be amplified in policymaking and decision making. Greater investment and research must be priorizited to secure low cost mental health support intervention to all HPs.

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Halting Future Pandemics by Strengthening Health Systems in Africa: a Case of Nigeria

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Background: The advent of the COVID-19 pandemic has proven the need for countries worldwide to implement strategies that promote health systems strengthening and epidemic preparedness. As many African countries are burdened by fragile healthcare systems, this paper emphasizes the need for African governments and policymakers to improve the quality of healthcare in their home countries.

Methods: A review of 30 online articles from PubMed and Google Scholar concerning health systems strengthening in Africa was carried out between December 2019 and August 2020, with more focus on the nature of healthcare in Nigeria amidst the COVID-19 pandemic. The major stress areas include COVID-19 testing, infection prevention and control, basic healthcare infrastructure, health budgetary allocation, public-private health partnerships, health workforce density, and national health insurance.

Results: Over half of the papers opined that the COVID-19 pandemic has amplified several challenges ravaging Africa's healthcare systems. Poor healthcare infrastructure, insufficient funds allocation, inadequate infection prevention and control training, shortage of health workers, and substandard health insurance have left most African countries ill-prepared to deal with the pandemic. Six of the publications emphasised that if Nigeria and many other African countries had invested sufficiently in strengthening their healthcare systems prior to the COVID-19 outbreak, their pandemic response efforts would have been more effective.

Conclusion: Health systems strengthening is necessary for every nation to ensure steady progress towards universal health coverage and global health security. By strengthening the deficient healthcare systems of Nigeria and various other African countries, their infection prevention and control measures can be greatly improved.

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Étude comparative de l'index de la Stigmatisation et de la discrimination au Sénégal : la situation persiste et se dégrade chez les populations clés d'après les 2 études de l'index stigma 1.0

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Contexte: Au Sénégal, l'épidémie de VIH est de type concentré, avec une prévalence basse de 0,5% en 2017 et élevée dans les populations clés (5,8% chez les PS, 27,6% chez MSM et 5,2% chez les UDI).
L'accès à une prise en charge des populations clés est limité par la stigmatisation/discrimination en créant des barrières à la prévention, au traitement ainsi qu'au soutien. Quatre ans après l'Index Stigma 1.0 de 2012, une mise à jour a été effectuée en 2017 au Sénégal

Methodes: Il s'agissait d'une enquête d'observation descriptive et transversale se déroulant au niveau de quatre régions au Sénégal : Dakar, Saint Louis, Kaolack et Ziguinchor
En 2012, 626 PVVIH ont été enquêtées: Dakar (N=241), Saint Louis (N=122), Ziguinchor (N=131) et Kaolack (N=132).
la même étude refaite en 2017, a touché 400 personnes dans les mêmes régions
Un questionnaire de type structuré pour l'index stigmatisation a été administré, axé sur l'information, les expériences de la stigmatisation de l'année écoulée et les exemples de stigmatisation/discrimination liées au VIH

Resultats: Sur 400 PVVIH enquêtées, 121 (30%) étaient issues des populations clés contre 124 en 2012 (20%).
Tous les HSH et PS ont vécu au moins une expérience de stigmatisation contre 80% durant la première étude.
La première crainte est d'être victime de commérages (60.2%) suivie de la peur d'être menacé verbalement (41.9%), d'être menacé physiquement (33.2%), ou agressé physiquement (32.7%). Ces craintes et peurs ont une différence à leur appartenance à une population clé (en particulier HSH). Ainsi, les personnes appartenant à une population clé craignent les commérages dans 74.4% des cas, les menaces verbales dans 64.7% des cas et les menaces ou agressions physiques dans 57.1% des cas

Conclusions: Les 2 études ont montré une évolution significative de la stigmatisation et de la discrimination envers les populations clés au niveau social et familial et sanitaire. C'est pourquoi, des actions de plaidoyer ont été renforcé pour améliorer l'environnement favorable aux populations clés.
Des sessions de renforcement des prestataires de santé et des autorités judiciaires sont été menées pour réduire la stigmatisation chez les populations clés et pour le respect des droits humains.

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La Bisexualité Masculine AU Sénégal Dans Le Contexte du VIH: Double Attirance OU Stratégie de Dissimulation ?

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Contexte: Au Sénégal, en 2021, les HSH sont victimes d'homophobie sociale et de poursuites pénales. Ils sont aussi fortement exposés au VIH, avec une prévalence de 27% versus 0,5% dans la population générale. Une partie des HSH sénégalais sont mariés ou ont des partenaires féminines. Ces comportements sont souvent considérés comme une « façade ».
Comment sont vécues ces relations ? Quelles sont les conséquences d'une éventuelle séropositivité sur les relations hétérosexuelles ?

Méthode: Une étude anthropologique a été menée de 2019 à 2021 à Dakar. Des entretiens semi-directifs ont été menés auprès de 38 HSH âgés de 19 à 45 ans. Ils ont fait l'objet d'une analyse de contenu et de la reconstitution de récits de vie.

Résultats: La plupart des HSH de l'étude ont également des relations hétérosexuelles, certains sont mariés. Les partenaires féminines constituent parfois une façade pour rassurer les familles. Souvent elles traduisent une double attirance. A partir de 30 ans, la plupart subissent une forte pression au mariage. Pour certains, le mariage hétérosexuel correspond à un souhait, pour d'autres c'est une manière de rentrer dans une « normalité » sociale. Rares sont ceux qui envisagent de dévoiler leur orientation sexuelle à leur future épouse.
Chez tous les interlocuteurs, le désir d'enfant est omniprésent. Ils le projettent généralement au sein d'un mariage hétérosexuel. Certains envisagent l'adoption

d'un enfant de la famille, lorsqu'ils n'ont pas de partenaire féminine. La séropositivité est rarement révélée, ni dans la famille ni auprès des partenaires masculins ou féminins. Les personnes qui envisagent le mariage ont le sentiment d'un dilemme entre le désir de fonder une famille et la crainte de transmettre le virus.

Conclusion: La bisexualité est parfois présentée comme une adaptation permettant de répondre à la violence sociale à l'égard de l'homosexualité. Assumée, elle peut être aussi la conséquence d'une double attirance et du désir de fonder une famille. Les bisexuels séropositifs expriment les craintes de transmettre le virus à leur (future) conjointe. Ces observations suggèrent d'adapter le dispositif sanitaire et social pour prendre en compte une bisexualité qui n'est pas toujours dévoilée et accompagner les personnes dans leur diversité.

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Monitoring and Evaluating the Disbursements of Government's Funds for the Decentralised HIV Response During the COVID-19 Pandemic

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Background: The decentralized HIV response in Ghana is the backbone of the numerous successes documented in the National HIV response. In recent times the 0.5% District Assembly Common Fund (DACF) allocated to Metropolitan Municipal and District Assemblies (MMDAs) for HIV activities has suffered erratic disbursement posing a threat to critical HIV interventions, and Ghana's Ending AIDS by 2030 agenda.

Description: The 0.5% DACF is allocated to all MMDAs every quarter of each year. Prior to the onset of the COVID-19 pandemic, Municipal and District Assemblies (MDAs) in the Eastern Region received a total of GHC 302377.73 (50,396.28 USD) for the implementation of key HIV activities. In 2020, Ghana allocated millions of dollars for the prevention, treatment, and mitigation of COVID-19. As a result allocation of funds for HIV and other developmental issues stalled. The Technical Support Unit monitored disbursements to all 33 MDAs in the Eastern Region and evaluated the utilization of the funds for the same period to ensure effective coordination and management of the HIV response at the decentralized level.

Lessons Learned:

- Funds disbursed to 33 MDAs in 2020 were 18% lower than 2019- a total of about GHC 248,204.20 (41,367.31 USD) for the Implementation of HIV activities.
- 50% of MDAs did not receive any funds during the last quarter of 2020.
- 21%of MDAs did not receive funds for the last two quarters of 2020.
- 40% of funds were used for mitigation which ensured that People Living with HIV and children with HIV in dire need were supported financially.
- Funds utilized for mitigation encouraged PLHIV to adhere to ART.
- MDAs require additional funding for HIV activities at the decentralized level.
- Monitoring of the disbursements and utilization of the funds discouraged misappropriation of funds.

Next Steps:

- Advocate for a revision of guidelines for the utilization of 0.5% DACF to ensure 50% of the fund is allocated for mitigation
- Engage policymakers to increase allocation to 1% on gross DACF amount.
- Continuous monitoring of the 0.5% allocation to MDAs to ensure adherence to guidelines.

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How Uganda Is Treating Itself Out of the HIV Epidemic. Domesticating HIV&AIDS Financing

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Background: Faced with the realities of transitioning to full ownership of, and financial responsibility for its HIV&AIDS program, the Ugandan Government has increasingly taken the responsibility to domestically mobilize and manage funds for HIV programs and specific interventions. Notable Innovative HIV&AIDS financing mechanisms underway include; increasing budget allocations to HIV treatment and mainstreaming HIV into national development processes. This analysis describes how Uganda will treat itself out of the AIDS epidemic through on its current domestic financing efforts.

Methods: In 2021, we conducted a desk review and key informant interviews to establish the extent to which Uganda's Ministries Departments and Agencies have mainstreamed HIV&AIDS into their programs and to generate sector budget allocations and expenditures to HIV. We also analyzed national budget allocations to HIV treatment and commodities from the Ministry of Finance, Planning and Economic Development (MOFPED) to the Ministry of Health (MOH) over the same period. We conducted model assumptions to generate the total coverage as a government proportion towards HIV treatment (ARVs).

Results: All 19 government sectors were analyzed. A total of 23 sector Planners, and 10 Economists were interviewed. Total HIV domestic resources were USD 97.2 Million, including; USD 10.5 Million through the HIV mainstreaming approach, and USD 79.5 Million from direct government budget allocation. A total of 7.2 Million (8%) was from other funding, including health insurance schemes (private), HIV funds through Infrastructure projects, Private Sector contributions and households. HIV interventions financed included; HIV Counseling & testing, HIV Awareness campaigns, social support, care and treatment, and policy development.
Model assumptions: Assuming 2020 level of new infection (38,000) and at 95% treatment coverage (1,289,073 persons on ART), if the Government of Uganda reprioritizes and allocates 70% of domestic funds for procurement ARVs, at an average cost of ARVs per patient at US USD 101 (inclusive of supply chain costs), the number of patients covered using domestic funding would be 674,170 (52%).

Conclusion: We conclude that with effective prioritization and allocative efficiencies, domestic financing will successfully treat Uganda out of the epidemic, covering more than half of the patients on ART up from 28%.

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Stakeholders' Perspectives on the Financial Sustainability of HIV Response in Nigeria

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Background: Transitioning from donors to government requires an understanding of the contextual factors shaping financial sustainability in low-resource settings. As this evidence is scarce in Nigeria, we assessed the perspectives of HIV response stakeholders to understand how domestic funds can be mobilised, pooled, and strategically used to pay for HIV services.

Methods: The study adopted the framework of health financing functions including revenue mobilization, pooling, and purchasing. We conducted document reviews and semi-

structured interviews with stakeholders at national and sub-national levels (n = 32) between December 2021 and January 2022. We adopted maximum variation sampling to purposively select individuals whose roles included financing in the HIV response. Data were analysed thematically using NVivo software (version 11).

Results: We found that public spending is low nationally and sub-nationally due to low resource allocation and low budget execution. Few state governments implemented the policy earmarking at least 0.5% of states' federal allocation to the HIV response. Decision-makers and budgeting staff perceive the HIV response as getting substantial external assistance. Although private sector investment has been low, the establishment of an HIV trust fund might increase private sector contribution to the HIV response. On pooling and fund management, appropriations are need-based, but releases do not reflect needs. In contrast, external assistance reflects variations in the geographic burden of HIV. Notwithstanding a national strategy for integrating HIV into social health insurance schemes, HIV services have not been prioritised by the schemes. Coverage of some HIV services in the Basic Health Care Provision Fund has not translated into practice. Users pay for some HIV services previously supported by donors. Regarding purchasing, a parallel procurement system between donors and government, and high supply-side spending undermine the financial sustainability of the HIV response. Purchasing of services for the key populations is limited by a lack of reliable estimates due to demographic shifts and stigma. Dysfunctional inter-agency relationships hinder scaling up HIV testing and treatment in primary health facilities despite its efficiency gains.

Conclusion: This study highlights the financing and governance factors that can inform the development of a financial sustainability plan for the HIV programme in Nigeria.

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Usefulness of Innovative Financing Mechanism in the Health Sector Post COVID-19 in Kenya

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The health sector in Kenya is facing challenges due to lack of enough budgetary allocation by the government. Innovative financial mechanisms can be one of the many solutions to help bridge the finance gap in the sector. The study aims at assessing the usefulness of innovative financing mechanisms in the health sector post Covid-19 in Kenya. The specific objectives of the study was to determine the effect of result-based financing, impact investment, and catalytic funding on the health sector post Covid-19 in Kenya.

The study is guided by three theories: market efficiency theory of innovation, change theory and economic theory. Secondary data was collected through desk top review methodological approach from journals articles, websites, library, and analyzed through SPSS.

The study found out that innovative financing helps the government to raise additional funds for investment in the health sector in addition to the conventional ways of funding and helps to come up with innovative ways to make use of the finances raised.

The study therefore, concludes that result based financing can be used to obtaining additional resources over what is available in the conventional markets and to create a government buffer in times of pandemic like Covid-19. It also concludes that the use of catalytic funding methods like seed funding, co-funding, pooled investment funds can bring in private, and public sector funding to help in bridging the financial gap in attainment of

universal health coverage in the health sector. In addition, impact investments help government and the investors to work together towards sustainability thus benefiting the health sector.

The study recommends that government should embrace innovative financing initiatives to facilitate the effecting of changes and enable the creation of cross-cutting solutions needed for addressing the financing challenges faced by health sectors. It also recommends the integration of the resources and expertise in the public and private sectors and thus aid in bridging of the existing development gaps in the health sector.

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Transition vers le Dolutégravir Pédiatrique (pDTG) au Sénégal : la place centrale des personnes vivant avec le VIH (PVVIH) pour faciliter l'accès aux nouvelles molécules, l'expérience du Conseil consultatif communautaire (CAB) de Bokk Yakaar de Fatick

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Contexte: Le Community Advistor Board (CAB) Sénégal, et Bokk Yakaar travaillent depuis 2017 sur la transition du Dolutégravir (DTG). Après le DTG adulte, le CAB travaille sur le Dolutégravir pédiatrique (pDTG) depuis 2021. Le but est d'appuyer pour une transition vers le pDTG et renforcer l'observance chez des enfants infectés moins de 20kg. Avec Clinton Health Access Initiative (CHAI) et AfroCab, Bokk Yakaar a mis en place des interventions au niveau national pour le passage vers le pDTG

Methodes: CAB Sénégal a rencontré le Ministère de la santé et le CNLS pour faire le plaidoyer du pDTG. Des séances de travail avec les Gestionnaires des stocks (GAS) ont permis de travailler sur l'introduction DU pDTG dans la liste des ARV pour retravailler avec le Fonds Mondial à la commande.
Un atelier de formation des mamans leaders des 14 régions a été organisé avec la DLSI.
Des missions de partage avec les Pharmacies Régionales d'Approvisionnement (PRA) ont été réalisées pour identifier les problèmes de disponibilité des ARV pédiatriques.
Le CAB a élaboré des outils sur le pDTG. Des affiches et des dépliants ont été distribués dans les sites de PEC
Des fiches d'administration conçues pour les dispensateurs des ARV pour mieux expliquer la prise du pDTG pour les enfants.
Des focus group avec les parents ont été organisés dans 20 sites de prise en charge

Resultats: Ainsi, 2 015 femmes séropositives sont renforcées sur la PEC pédiatrique du pDTG.
Les 15 mamans leaders formées ont renforcé la communication dans leur région.
95 sites de PEC ont reçu les affiches et les dépliants pour renforcer la sensibilisation sur le pDTG. Deux émissions de radio ont été organisées pour sensibiliser sur l'efficacité du pDTG et sa facilité d'administration. Onze PRA ont été visitées pour proposer des solutions sur la disponibilité et l'accessibilité des ARV pédiatriques

Conclusions: Les activités ont permis de maintenir le plaidoyer pour l'amélioration de la prise en charge pédiatrique. La formation et la sensibilisation vont renforcer l'adhésion aux ARV, pour améliorera l'observance chez les enfants infectés. Avec le pDTG la PEC pédiatrique sera renforcée et les risques de résistances réduites.

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Le Rôle Des Médiateurs Communautaire Dans la Prise en Charge Médicale Des Enfants en Milieu Rural AU

Sénégal en 2020, DéLégation de Tâches OU Glissement de Fonction ?

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Contexte et objectifs: La prise en charge décentralisée des enfants et adolescents vivant avec le VIH (EAvVIH) est intégrée, au Sénégal, dans le suivi de routine des structures de soins, disposant souvent de moins de personnel qu'à Dakar. Comment est organisée la répartition des tâches ? Quel est le rôle des différents acteurs ?

Méthode: La recherche anthropologique ETEA-VIH (« Echec Thérapeutique chez les Enfants et Adolescents vivant avec le VIH au Sénégal hors Dakar [ANRS 12421] » a été menée dans 14 hôpitaux régionaux et centres de santé. Des entretiens semi-directifs ont concerné 85 EAvVIH, 92 parents/tuteurs et 47 acteurs de santé. L'organisation des dispositifs de soins a fait l'objet d'une analyse spécifique.

Résultats: En contexte décentralisé, la prise en charge des EAvVIH repose sur un nombre réduit d'acteurs : un médecin (pédiatre dans les hôpitaux régionaux), un infirmier, un assistant social et un médiateur communautaire. Les EAvVIH ne représentent qu'une faible proportion de patients (en moyenne 20 enfants [min. 7 – max. 56]).
Les médecins cumulent de nombreuses tâches médicales et administratives, occasionnant de fréquents déplacements. Leur charge de travail, et parfois une expérience limitée du VIH, réduisent leur investissement et la possibilité d'une relation personnalisée avec ces enfants.
Dans la plupart des sites, les EAvVIH sont accueillis par l'assistant social ou le médiateur, et ne voient un médecin qu'en cas de plainte, parfois seulement une ou deux fois par an. La prise en charge se limite alors à la dispensation des ARV et au renforcement d'observance. En l'absence de l'assistant social, le médiateur assure seul les activités, y compris le renouvellement d'ordonnance.
Du fait des changement périodiques d'affectation des agents de l'état, ce sont souvent les médiateurs qui connaissent le mieux l'histoire sociale de la maladie des enfants. Les écarts d'âge et de statut occasionnent des conflits de légitimité entre médiateurs et jeunes médecins.

Conclusion: En contexte rural, la prise en charge médicale des EAvVIH est principalement portée par le service social et les médiateurs. Ils sont conduits à remplir un ensemble de missions dans une forme de délégation de tâches proche d'un glissement de fonction.

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Quantifying Rates of HIV-1 Flow between Risk Groups and Geographic Locations in Kenya: A Country-Wide Phylogenetic Study

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In Kenya, HIV-1 key populations including men having sex with men (MSM), people who inject drugs (PWID) and female sex workers (FSW) are thought to significantly contribute to HIV-1 transmission in the wider, mostly heterosexual (HET) HIV-1 transmission network. However,

clear data on HIV-1 transmission dynamics within and between these groups are limited. We aimed to empirically quantify rates of HIV-1 flow between key populations and the HET population, as well as between different geographic regions to determine HIV-1 "hotspots" and their contribution to HIV-1 transmission in Kenya. We used maximum-likelihood phylogenetic and Bayesian inference to analyse 4058 HIV-1 pol sequences (representing 0.3% of the epidemic in Kenya) sampled 1986–2019 from individuals of different risk groups and regions in Kenya. We found 89% within-risk group transmission and 11% mixing between risk groups, cyclic HIV-1 exchange between adjoining geographic provinces and strong evidence of HIV-1 dissemination from (i) West-to-East (i.e. higher-to-lower HIV-1 prevalence regions), and (ii) heterosexual-to-key populations. Low HIV-1 prevalence regions and key populations are sinks rather than major sources of HIV-1 transmission in Kenya. Our findings support the need for strengthening interventions in geographic areas with high HIV-1 prevalence (and key populations within those geographic spaces) in Kenya.

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Comparative Analysis of Facility and Community-Based Implementation Models for Index Testing Services in Akwa Ibom State: A Non-inferiority Study

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Background: HIV index case testing (ICT) has been heralded as an efficient testing strategy. To sustain the gains from ICT in identifying people at high risk of HIV, the Meeting Targets and Maintaining Epidemic Control (EpiC) project in Akwa Ibom State, Nigeria, scaled-up provision of safe and ethical ICT services using a community-service model. We compare outcomes across the service cascade for the facility- and community-based models (FBMs, CBMs) and hypothesize their noninferiority.

Methods: We reviewed data collected during ICT in facilities and the community from April 2020 through September 2021. As part of routine ICT, newly identified HIV-positive adults and those with unsuppressed viral load and no history of intimate partner violence were prioritized for HIV ICT counselling and asked to refer their sexual partners and biological children (<14 years) for HIV testing. The FBM used health care providers, while CBM used trained lay providers (i.e., community index tracers/testers) to follow clients across the ICT cascade of services. We compared acceptance rates (proportion of index that accepts ICT services), elicitation rates (ratio of the index to contacts elicited), testing rates (proportion of elicited contacts with known HIV status), and linkage rate (proportion of identified HIV-positive individuals linked to antiretroviral therapy [ART]) for both models using Mann Whitney U test in SPSS v26 at 0.05 significance level.

Results: A total of 119,650 records were reviewed: 25,807 in the FBM, 93,843 in the CBM. Overall, 119,220 (99.6%) were ages 15 years and older, while 67,696 (76.8%) were females. ICT acceptance, elicitation, testing, positivity, and linkage rates were 91.24% (23,546/25,807), 1:1.7 (40,719/23,546), 77.8% (31,678/40,719), 10.3% (2,769/26,842), and 85.1%, respectively in the FBM, vs. 77.8% (73,041/93,843), 1:1.6 (116,736/73,041), 86.5% (100,954/116,736), 27.1% (26,953/99,578), and 99.03%, respectively, in the CBM. In comparative analysis, the CBM had significantly higher testing (U;1,398, 95% CI: 0.064-0.123, p<0.01), and partners linked to ART (U;789, 95% CI: 0.110-0.162, p<0.01) than FBM. There was no difference in partner elicitation (U;3,403, 95% CI: 0.129 -0.030, p=0.201).

Conclusion: The CBM expanded the reach of ICT and could be an add-on strategy for reaching last-mile clients.

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The Association of Physical Activity and Cardiorespiratory Fitness with β-Cell Dysfunction, Insulin Resistance, and Diabetes among Adults in North Western Tanzania: A Cross-Sectional Study

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Introduction: Research on the associations of physical activity and cardiorespiratory fitness on β-cell dysfunction and insulin resistance among adults in Sub-Saharan Africa is limited. We assessed the association of objectively measured physical activity and cardiorespiratory fitness on β-cell function, insulin resistance and diabetes among HIV-infected and HIV-uninfected Tanzanian adults.

Method: In a cross-sectional study, we collected data on socio-demography, anthropometry, C-reactive protein (CRP); glucose and insulin. Physical activity energy expenditure (PAEE), sleeping heart rate (SHR), and maximum uptake of oxygen during exercise (VO2 max) were assessed using combined heart rate and accelerometer monitors. Logistic regressions were used to assess the associations between PAEE, SHR and VO2max and β-cell dysfunction, insulin resistance, pre-diabetes and diabetes.

Results: The mean age of the 272 HIV-infected ART-naive and 119 HIV-uninfected individuals was 39 (SD±10.5) years and 60% (n=235) were females. An increase of 5kj/kg/day was marginally associated with reduced risk of β-cell dysfunction (OR=0.94, 95%CI: 0.88, 1.01). Similar results with insulin resistance and diabetes; an increase of 5 kj/kg/day of PAEE was associated with reduced likelihood of insulin resistance (OR=0.89, 95%CI: 0.83, 0.96), pre-diabetes (RRR=0.88, 95%CI: 0.88, 0.94) and diabetes (RRR=0.65, 95%CI: 0.52, 0.82). An increment of 5 beats per min of SHR was associated with higher likelihood of pre-diabetes (RRR=1.11, 95%CI: 0.98, 1.25) and diabetes (RRR=1.34, 95%CI: 1.08, 1.60), whereas an increase of 5 mlO2/kg/min of VO2 max was associated with lower likelihood of pre-diabetes (OR=0.63, 95%CI: 0.48, 0.84).

Conclusion: Physical activity and cardiorespiratory fitness reduced the risk of β-cell dysfunction, insulin resistance and diabetes. Randomised controlled trials of interventions promoting physical activity are needed to try to improve β-cell function and insulin sensitivity and reduce diabetes risk.

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Coverage and Socio-Economic Inequalities in the Coverage of Cervical Cancer Screening Among Women Living with HIV in Low- And Middle-Income Countries between 2010 and 2019

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Background: Cervical cancer is the most diagnosed cancer among women living in majority of the low- and middle-income countries. Women living with HIV (WLWHIV) are at a higher risk of developing cervical

cancer and the World Health Organisation recommends that they are screened from the age of 25 years. There is need to describe inequalities in access to screening. We described the coverage of and socio-economic inequalities in cervical cancer screening among WLWHIV in LMICs.

Materials and methods: We conducted a weighted multi-country secondary data analysis of the 2010 – 2019 cross-sectional Demographic and Health Surveys (DHS) completed in Cameroon, Ivory Coast, Lesotho, Namibia, and Zimbabwe. These countries tested women for HIV and had questions on cervical cancer screening. Our analysis included WLWHIV aged 25 to 49 years. Absolute and relative socioeconomic inequalities were calculated using the Slope Index of Inequality (SII) and Concentration Index (CIX) respectively by wealth quintile and type of place of residence (urban versus rural).

Results: A total of 2,950 WLWHIV from five countries were included in this study. Across all the five countries, the proportion of women who had heard about cervical cancer ranged from 41.0% in Ivory Coast to 86.9% in Zimbabwe. The proportion of women who had ever screened for cervical cancer was highest in Namibia (35.7%) and lowest in Ivory Coast (1.8%.) The pooled estimate of the coverage of cervical cancer screening in the five countries was 16.5% [95% Confidence interval (CI): 6.1 – 27.0].
In all the countries, higher proportions in the richest wealth quintile were screened compared to those in the poorest wealth quintile. In all the countries, higher proportions of WLWHIV in the urban areas were screened compared to those in the rural areas. In all the countries except Cameroon, the coverage of screening showed pro-rich inequalities.

Conclusions: Majority of the WLWHIV had heard about cervical cancer, but a small proportion had utilized screening cervices. There exist inequalities in the utilization of cervical cancer screening by the wealth index and type of place of residence. Cervical cancer screening programs in LMICs need to reduce these inequalities among WLWHIV.

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Factors Associated with Unawareness of HIV Positive Status in Tanzania: Results from the Tanzania HIV Impact Survey, 2016-2017

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Background: The Tanzania HIV Impact Survey (THIS) 2016-2017 estimated there are 1.4 million people living with HIV (PLHIV) in the country. However, only 60.6% of PLHIV were aware of their HIV positive status. Nationally representative information on factors related to improving awareness of HIV status are limited but are critical to achieving HIV epidemic control. We aimed to assess factors associated with unawareness of HIV positive status among PLHIV.

Methods: THIS 2016-2017 was a cross-sectional nationally representative survey. Interviews were conducted to capture demographic and behavioral information. Clinical data were also collected through rapid testing to determine HIV status. ARV adjustment was conducted to correct for awareness status. The dependent variable was a dichotomous variable coded as aware or unaware of HIV positive status. Independent variables included demographic and other variables of interest. Analysis was restricted to HIV positive respondents. Univariable and multivariable regressions using generalized linear models with Poisson distribution were utilized to describe associations between the independent variables and unawareness of HIV positive status. Weighted prevalence ratios (PR) and 95% confidence intervals (95%CI) were reported.

Results: A total of 31,579 respondents aged 15 years and older were interviewed and tested for HIV, and 1,779 (4.9%) were HIV positive. Of those, 40% were unaware of HIV positive status. In multivariable models, males and young adults (15-34 years) were 34% (PR: 1.34; 95%CI: 1.17-1.53) and 65% (PR: 1.65; 95%CI: 1.49-1.53) more likely to be unaware, respectively. Also, respondents who did not report condom use (PR: 1.36; 95%CI: 1.15-1.59), those who never tested for HIV (PR: 2.73; 95%CI 2.37-3.15), and those with stigma towards PLHIV (PR: 1.53; 95%CI 1.32-1.77) were significantly more likely to be unaware in multivariable models.

Conclusion: This is the first analysis based on national representative survey data to assess factors associated with unawareness in Tanzania. With two-fifths of PLHIV unaware of their positive status, targeted and evidence-based interventions to enhance PLHIV identification focusing on young adults and men should be implemented. Additionally, efforts to target those engaged in risky behaviors and address stigma reduction should be strengthened to reach the UNAIDS 95-95-95 goals by 2030.

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Toward Achieving the 95-95-95 Targets among Key Populations in Eswatini: Results from an Integrated Biobehavioral Surveillance Survey

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Background: In 2014, the Joint United Nations Programme on HIV/AIDS (UNAIDS) launched the 95-95-95 targets to be achieved by 2030. We conducted an integrated-biobehavioral-surveillance-survey (IBBSS) in Eswatini among key populations (KPs) to quantify HIV prevalence, knowledge of HIV status, treatment uptake, and viral load (VL) knowledge and status.

Method: Between October 2020 and January 2021, FHI 360 LINKAGES project and Swaziland National AIDS Program conducted a cross-sectional-study among 416 men who have sex with men (MSM) and 676 female sex workers (FSWs) in Eswatini. Participants were recruited via respondent-driven sampling, a network-based peer-referral method designed for hard-to-reach populations. We included FSWs who reported majority of their income in the past 12 months was from sex-work and MSM who reported having had anal sex with another man in the past 12 months. All participants were ≥18year, able to provide informed consent, and willing to undergo HIV testing and viral load (VL) testing if identified HIV positive. Participants completed a survey. The study was approved by Eswatini and FHI 360 ethics committees.

Results: Most KP individuals (99% FSWs, 98% MSM) were tested before. 60.7% FSWs tested HIV positive in the study and 86% already knew their status, while 27.1% MSM tested HIV positive and 58% already knew their status. Antiretroviral therapy (ART) uptake was higher among FSWs, 97.7% (345/353), than MSM, 93.9% (63/66), while treatment-adherence was 99.7% (344/345) among FSWs and 99% (62/63) among MSM. Though 86.9% of FSWs and 87% of MSM reported previous VL testing, knowledge of VL status was low, with 33.6% of FSWs and 3.7% of MSM aware. Only 2.6% of FSWs and 1.8% of MSM reported VL suppression. However, VL testing from the study was 75% suppression for MSM and FSW but only 2.2% were aware they were suppressed.

Conclusion: Eswatini's KPs have not yet reached all 95-95-95 (80%, 97%, 94%, respectively) targets. MSM were lower in all outcomes except ART adherence, indicating a need for programs to focus on MSM outcomes. Knowledge of VL status was very low and programs should look for innovative strategies

to increase access to VL testing and improve KPs VL knowledge.

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HIV Testing Services (Hts) Among Clients 13-14 Years Old in Recent Infection Surveillance, Malawi 2019-2020

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Rapid tests for recent infection (RTRIs) and viral load (VL) testing comprise a recent infection testing algorithm (RITA) to characterize newly diagnosed HIV-1 infections as recent (≤12 months) or long-term. RTRI recent with VL≥1,000 copies/mL indicates RITA recent. Recent infection surveillance guidance recommends testing clients aged 15+. In Malawi, clients≥13 years can access HTS independently and are included in recent infection surveillance. We reviewed Malawi's recent infection data to describe newly HIV diagnosed 13-14 year-olds and their impact on recent HIV surveillance, detection, and response.

Recent infection data was pooled from 155 facilities in 11 districts implementing from April 2019-April 2020. Clients reporting ART usage, previous HIV diagnosis, or had a VL<1,000 copies/mL were excluded. Among 13-14 year-olds, we calculated proportions of RITA recent infections compared to those aged 15+, described their demographics, HTS modality, and previous testing history.

Of 15,032 newly diagnosed clients, 78 (0.5%) were 13-14 year-olds, of which one (1.3%, 95% Wilson Score CI: 0.2%, 6.9%) was RITA recent, accounting for 0.2% of all 519 RITA recent infections. Comparatively, among clients≥15 years, 3.5% (518/14,954) were RITA recent. Among 13-14 year-olds, 49 (62.8%) were female, 3 (6.1%) were pregnant, and one (2.0%) was breastfeeding at time of diagnosis. Fifty-eight (74.4%) reported no previous testing history; 20 (25.6%) reported previous negative results, of whom 18 (90.0%) reported their negative result >1 year ago. Fifty-two (66.7%) accessed HTS at voluntary counseling and testing, 12 (15.4%) at outpatient departments, 4 (5.1%) at youth clinics, and 10 (12.8%) via other modalities. Forty-two (53.8%) were diagnosed in rural settings and 49 (62.8%) at primary facilities.

Results suggest the proportion of clients aged 13-14 with recent HIV infection is unlikely to meaningfully contribute to recent HIV surveillance, detection, and response. Per self-report, clients were unlikely to access HTS prior to diagnosis and were primarily accessing testing and being diagnosed at primary care facilities. Age of sexual debut and testing consent may be considered when deciding to include younger ages in recency surveillance. Younger adolescents with recent infections, particularly those pregnant and breastfeeding, may face additional vulnerabilities and should be linked to psychosocial support.

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Gender Differentials in Syphilis Incidence by HIV status in a Prospective Rural and Urban Cohort Study in Uganda.

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Background: Information on burden and incidence of syphilis in sub-Saharan Africa in the era of antiretroviral therapy for HIV treatment and scale up of pre-exposure prophylaxis for HIV prevention is generally lacking. We analyzed the prevalence and incidence of syphilis by gender and HIV status, in a prospective rural and urban cohort study in Uganda and explore associations between syphilis and HIV status.

Materials & Methods: We analyzed longitudinal data from 4,519 people in the AMBSO Population Health Surveillance Cohort Study, for the period 2018 to 2020 in Wakiso and Hoima districts, Uganda. We collected Socio-demographic data and established HIV and syphilis status for consenting participants aged 13-80 years. Syphilis testing was done using Treponema pallidum test. Incident syphilis was stratified by HIV status, key demographics. A generalized linear regression model was performed to determine the association between syphilis, HIV and other covariates.

Results: A total of 4,519 (2,034 (45%) male, 2,485 (55%) female); was analysed mean age 30.4 years (SD=13.8)). At baseline, HIV and syphilis prevalence was 7.5% and 7%, respectively. Syphilis prevalence among People living with HIV (PLWH) was three times higher compared to HIV negatives (18% vs 6%, p<0.001). The incidence rate of syphilis at follow-up (26/1,000 persons, overall) was significantly higher among PLWH (69/1,000, 95% CI=12.9-21.6) compared to those without HIV (17/ 1,000, 95% CI=16.4-25.7). This was consistent among both males and female (male PLWH: male PLWH, (81/1,000 persons, 95% CI=36.4-180.3) vs male HIV-(18 per 1,000 persons, 95% CI=12.3-25.6); Female HIV+ (64 per 1,000 persons, 95% CI=37.4-110.8) vs female HIV- (29 per 1,000 persons). After controlling for age, sex and location, persons living with HIV were 3 times more likely to be syphilis positive (95% CI=1.9-3.6) than HIV-persons.

Conclusion: In this large population-based cohort, the prevalence and incidence of syphilis was consistently higher among PLWH, underscoring the importance of integrating routine syphilis screening, prevention education and treatment into HIV care and antenatal care services for HIV+ to prevent congenital transmission. Partner testing, notification and treatment for syphilis should also be prioritized to prevent reinfection.

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Development of an Intelligent System for the Identification of Female Sex Workers Groups at High Risk of HIV Infection in Burkina Faso.

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Context: Over the past 5 years, HIV prevalence has been steadily declining among female sex workers (FSW) in West Africa. It is therefore necessary to have simple, practical and effective methods to identify FSW most at risk in order to offer them priority prevention interventions. In this context, we have built an intelligent system as an interactive web application in using Machine Learning algorithms and Python Streamlit technology to develop an HIV risk score from FSW of the Burkina Faso bio-behavioral survey.

Methods: We used the behavioral questionnaire data from the bio-behavioral survey in key populations conducted in Burkina at the national level in 2017 among FSW, which was a descriptive and analytical cross-sectional survey. It covered all 13 administrative regions of Burkina.
This standardized questionnaire was administered to each FSW to collect

sociodemographic and behavioral characteristics and included over 50 questions. The Filter Method was used to identify the correlation between the variables and to select the least correlated and most predictive variables of HIV risk.
A Machine Learning (ML) model was built with these variables by testing 14 ML algorithms in order to have a powerful model for predicting HIV risk in FSW.
From data entered on our predictor variables in the system, it returns results on the risk of being infected by HIV or not with associated probabilities.

Results: The median age of FSW was 24 (IQR 21-29). HIV prevalence was 5.4%.
The least correlated variables most predictive of HIV risk were age, marital status ("in a relationship" =1, "not in a relationship" =0), having children ("has children" =1, "does not have children" =0), schooling ("went to modern school" = 1, "did not go to modern school" =0).
Random Forest and Decision Tree were the two best prediction algorithms with sensitivities and specificities of 78.46%; 78.63% and 73.17%; 73.21% respectively.
Our model was built with these 2 algorithms and had a sensitivity and specificity of 80.26% and 80% respectively.

Conclusion: In the context of decreasing and limited resources allocated to HIV research, our intelligent system can be used to optimize the search for HIV cases among FSW.

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Évaluation des tests de diagnostics pour la détection de l'hbsAg dans l'échantillon DBS chez les enfants nés de mère séropositive au VIH 1 au Sénégal .Déterminé AgHbs vs Microscreen Élisa et HBSAg Architect ,HBSAg qualitative.

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Introduction: Selon l'Organisation Mondiale de la Santé, le Sénégal est le pays présentant l'une des plus fortes prévalences du VHB (≥ 8%) au monde. Cependant, le diagnostic de cette maladie reste inaccessible dans certaines régions du pays. Nous avons émis l'hypothèse que l'utilisation de Dried Bloot Spots (DBS) peut être potentialisée comme dans les cas du VIH grâce à l'utilisation de tests de diagnostic rapide pour faciliter la décentralisation de la biologie du VHB.

Objectif: Le but de notre étude était d'évaluer et de comparer la sensibilité, la spécificité de trois nouveaux tests diagnostiques avec le test de référence Architect HBsAg Qualitative II® pour le diagnostic de l'HBsAg à partir d'échantillons DBS. .

Méthode: Il s'agit d'une étude rétrospective et comparative d'échantillons de DBS prélevés sur 930 patients entre juillet 2007 et novembre 2012 dans les sites décentralisés du Programme de transmission mère-enfant du VIH au Sénégal. Ces échantillons ont été soumis à la détection de l'antigène de l'hépatite B à l'aide de trois tests indépendants : le kit de test Determine HBsAg®, le kit ELISA Microscreen HBsAg® et le kit ELISA Architect HBsAg Qualitative II®.

Résultats : Les patients étaient majoritairement de sexe masculin avec 520 (56,0 %). L'utilisation du kit HBsAg ® Determine n'a montré aucune réactivité à l'HBsAg suggérant une sensibilité nulle. Cependant, nous avons trouvé une sensibilité de 43,48% [23,22 -63,74], une spécificité de 99,30% [98,34 à 100,27], une VPP de 83,33% et une VPN de 95,64% pour l'ELISA Microscreen AgHBs® négligé ELISA Qualitative Architect II HBsAg®. Inversement à la sensibilité de l'Architect II Qualitative HBsAg® vis-à-vis du Microscreen HBsAg ELISA® est de 83,33 % [62,25 à 104,42], la spécificité était de 95,64 % [93,32 à 97,96] la valeur prédictive positive était de 43,48 (VPP), et la valeur négative (VAN) est de 99,30 %.

Conclusion: ELISA Microscreen AgHBs® est le seul nouveau test qui montre des résultats intéressants sur la détection de HBsAg. Ces données et pourraient entrevoir son utilité dans le diagnostic de cette maladie sur DBS.

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Factors Associated With Non-use of ART Among HIV-Positive Men in South Africa: Findings From a 2017 Population-Based Household Survey

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Although South Africa has been a part of the World Health Organization's recommended Test and Treat program since 2016, treatment initiation and retention remain below target. In 2017, an estimated 56.3% and 65.5% of HIV-positive men and women, respectively, were on antiretroviral therapy (ART). We aimed to investigate determinants of low male use of ART in South Africa.

Utilizing data from the fifth South Africa National HIV Prevalence, Incidence, Behavior and Communication (SABSSM V) cross-sectional survey conducted in 2017, HIV-positive male records were extracted and stratified based on presence/absence of antiretroviral drugs (ARVs) detected in dried blood spot samples. Data was weighted to be representative of the national population, and a multivariate logistic regression was performed. Records with missing values were excluded and $p<0.05$ was considered significant.

A total of 6,920 males age ≥15 years were enrolled in the study, and 953 (13.8%) had a laboratory confirmed HIV-positive result. Among those HIV-positive, 810 had a known ARV test result: 470 (58%) had ARVs detected, and 340 (42%) did not have ARVs detected. Adjusting for age (and other known covariates), non-use of ART in males was associated with high alcohol use (AOR=4.15, 95%CI: 1.13-15.25, p=0.03), being a widower compared to being unmarried (AOR=7.28, 95%CI: 1.59-33.38, p=0.01), and having drug-resistant HIV (AOR=26.17, 95%CI: 12.90-53.08, p<0.001). Increased age (AOR=0.63, 95%CI: 0.44-0.91, p=0.01), residence in rural tribal localities compared to urban localities (AOR=0.39, 95%CI: 0.19-0.79, p=0.01), being too sick/disabled to work (AOR=0.02, 95%CI: 0.00-0.29, p<0.001), or having a co-morbidity such as tuberculosis or diabetes (AOR=0.07, 95%CI: 0.03-0.16, p<0.001) were negatively associated with ART non-use.

Young HIV-positive men, particularly those with high alcohol use, should be targeted for HIV programming at a greater scale to reach the UNAIDS 95-95-95 targets by 2030. Exposure to a health facility, whether by previous illness or co-morbidity, increases the likelihood of being on ART. Identifying interventions that are effective at linking these men to ART and continuing to improve knowledge about HIV treatment will help reduce the national burden of disease and enable South Africa, a country with disproportional burden of infection, to finally reach epidemiological control.

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Stigma in Youth With HIV Is Associated With Depression, School Dropout and Adult Clinic Attendance

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Introduction: Few studies have looked at the risk factors and outcomes of HIV stigma among youth with HIV (YWHIV) in sub-Saharan Africa.

Methods: YWHIV in nine Western Kenya facilities were enrolled in an observational cohort in 2019-2020. Participants completed an enrollment survey assessing their sociodemographics, HIV history, adherence, depression (PHQ-9), exposure to physical, emotional and sexual violence and HIV stigma (10-item scale by Wright 2007). Correlates of overall HIV stigma (overall score: 10-50) were assessed using generalized linear models. We report mean differences (MD) adjusted for age and gender, and bootstrapped 95% confidence intervals (95%CI) and p values accounting for clustering by facility.

Results: Of 1,011 YWHIV (aged 15-24), 59% were 15-19 years old, 69% were female, 22% had dropped out of school, and 59% received care in adolescent/youth clinics. Twenty-one percent had missed ≥2 days' medication, and 64% reported ever having sex. Eighteen percent had mild depressive symptoms, while 3% had moderate/severe symptoms; 28% experienced physical violence, 18% emotional violence and 7% sexual violence. The median (interquartile range) overall stigma score was 25 (21-29).
Compared to YWHIV receiving care in adolescent/youth clinics, those in general/adult HIV clinics had higher stigma scores (MD: 1.58 [95%CI: 0.13-3.04], p=0.042). YWHIV who had dropped out of school had higher stigma scores compared to those in school (2.56 [0.81-4.31], p=0.016), as was those ever in a sexual relationship (2.59 [1.43-3.73], p=0.004). YWHIV who had missed ≥2 days' medication had higher stigma scores compared to those fully adherent (2.16 [0.92-3.41], p=0.011). Those with mild, and moderate/severe depression had higher stigma scores (3.37 [2.57-4.17], p<0.001 and 7.08 [1.32-12.84], p=0.028) compared to those with no depression. YWHIV who experienced any violence before the last 6 months, and within the last 6 months had higher stigma scores compared to those with no experience of violence (2.51 [-0.12-5.13], p=0.058 and 2.91 [1.38-4.44], p=0.002).

Conclusions: This study identified intrapersonal, interpersonal and structural factors to consider when developing HIV stigma interventions for YWHIV. This includes exposure to violence, sexual relationships, and service points in facilities. Possible outcomes targeted by these interventions may include depression, adherence and keeping YWHIV in school.

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Correlates of Recent Infection Among Persons Newly Diagnosed With HIV in Nigeria, March 2020–September 2021

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Background: In 2020, Nigeria implemented HIV-1 recent infection surveillance to identify sub-populations where transmission may be high to accelerate progress towards epidemic control. We examined correlates of recent infection to identify characteristics that can help inform where and among whom case finding and prevention efforts should be intensified.

Materials & Methods: We used data collected on individuals ≥15 years, newly diagnosed with HIV, who tested for recent infection using the Recent Infection Testing Algorithm (RITA). RITA combines a rapid test for recent infection

(RTRI) assay with viral load testing. Persons who test recent on the RTRI and have a VL ≥ 1000 copies/mL are classified as RITA recent, which likely indicates infection within the last twelve months. We conducted univariate and stepwise backward multivariable logistic regression to determine adjusted odds ratios (aORs) of recent infection by socio-demographic and geographic characteristics.

Results: Of 27,792 newly diagnosed clients tested on the RITA from 223 facilities, 660 (2.4%) had a RITA recent infection. In adjusted models, being a man (aOR=1.2; 95% CI=1.0–1.5) or pregnant woman (aOR=1.7; 95%CI=1.1–2.5) vs non-pregnant woman; aged 15-24 years (aOR=2.1; 95% CI 1.2–3.5) vs ≥55 years; single (aOR=1.3; 95% CI=1.1–1.7) vs married; being counseled as a couple (aOR=2.1; 95% CI=1.2–3.6) vs individually; HIV tested at a key population (KP) facility (aOR=1.3; 95% CI=1.1–1.7) vs non-KP facility; testing HIV negative (self-report) <12 months ago (aOR=1.5; 95% CI=1.2–1.8) vs not; and tested within their state of residence (aOR=1.8; 95% CI=1.1–3.2) vs out of state of residence, had a higher odds of being RITA recent.

Conclusion: Recent infection surveillance can distinguish new infections among newly diagnosed individuals and spotlight sub-populations that may be part of high transmission clusters. Strategies, such as recent infection surveillance to identify populations and geographic areas to target HIV prevention and care interventions may accelerate epidemic control.

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High-Risk HPV Infection in Women Living With HIV: Experiences From a Zimbabwean HIV Cohort

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Introduction: Cervical cancer (CC) is preventable yet remains the most common gynaecological cancer in Zimbabwe. Persistent infection with high-risk human papillomavirus (hrHPV) has been established as the necessary cause of CC. High prevalence rates of HPV have been described in women living with HIV (WLHIV) in sub-Saharan Africa, but there is limited data from Zimbabwe. The 2021 WHO guidelines for the screening of cervical pre-cancer and cancer recommend the detection of HPV DNA as the primary test. This study was conducted to describe the HPV prevalence and type distribution in an urban Zimbabwean cohort.

Methodology: 2708 women were screened for hrHPV infection between January and December 2021. Data analysis of women with a positive hrHPV test included the type, associated risk factors and clinical diagnosis of cervical disease. The prevalence of hrHPV and type were calculated, and the chi square test was used to assess the relationship between type and clinical diagnosis. Predictors of HPV infection were analysed using logistic regression.

Results: The median age was 45 years (interquartile range [IQR] 37-52). 1433 (53%, 95% CI 51-55) were positive for HPV. The hrHPV types 58 (11.4%), 35 (10.3%) and 52 (10.1%) were most prevalent, followed by 16 (9.3%) and 18 (8.3%). The prevalence rates of other types (68, 56, 33, 51, 45) varied between 5 and 7%. 56 women had confirmed histological diagnosis of cervical precancer and 9 cancer. In women with precancer, type 52 was the most common, 15/56 (27%), and type 16 in women with CC, 7/9 (78%). In multivariable analysis, women with a detectable HIV viral load (>=50 copies/ml), were more likely to have hrHPV infection (aOR1.8, 95%CI 1.4-2.5).

Conclusions: The high prevalence of hrHPV in this cohort highlights the necessity of CC screening in WLHIV. Optimal HIV disease control is important in CC prevention, and primary prevention of HPV infection through vaccination programmes is highly

recommended if the goal of elimination of CC in Zimbabwe is to be attained.

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Trends in Recent HIV-1 Infection Among New Diagnoses in Eswatini and Rwanda, 2019–2021

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Background: As countries progress towards achieving 95% of people living with HIV (PLHIV) aware of their HIV status, new PLHIV diagnoses should comprise more recent and fewer long-term infections. We assessed trends in the proportion of recent HIV infections over time in Eswatini and Rwanda.

Methods: We utilized surveillance data from health facilities reporting ≥1 new PLHIV diagnoses that were tested for recent infection (i.e., acquired HIV <12 months ago) using the recent infection testing algorithm (RITA) each quarter. We fit linear regression models using generalized estimating equations with robust variances to estimate the average change in the proportion recent within each facility by quarter during the period of analysis. Subgroup analyses examined results by age (<30 and ≥30 years old), by sex, and by COVID-19 period.

Results: In Eswatini, the proportion RITA recent decreased from 7.6% to 3.0% during July 1, 2019–June 30, 2021. On average, the proportion RITA recent decreased by 0.85 (95% CI: 0.80–0.91) each quarter, overall. Significant decreases were observed in the pre–COVID-19 period (0.85; 0.73–1.00) but not in the during COVID-19 period (1.00; 0.9–1.12). In subgroup analyses, a significant decline was observed among females (overall [0.87; 0.83–0.92] and pre–COVID-19 [0.85; 0.73–1.00]), those <30 years (overall [0.88; 0.83–0.93] and pre–COVID-19 [0.79; 0.68–0.91]), and those ≥30 years (overall [0.86; 0.76–0.99]). In contrast, in Rwanda the proportion RITA recent remained stable (April–Sept 2019 quarter: 6.3% to April–June 2021 quarter: 4.6%); no independent effect of quarterly calendar time on the proportion RITA recent by age, sex or COVID-19 period was observed.

Conclusions: These declining or stagnant trends over the past two years may suggest lack of progress in identifying PLHIV early in their infection. Recency surveillance can help assess and inform testing interventions to reach and sustain epidemic control.

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Elevated Blood Glucose Among People Living With HIV Initiated on and Transitioning to Dolutegravir-Based Antiretroviral Therapy in Uganda, 2020–2021

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Background: Uganda scaled up tenofovir, lamivudine, and dolutegravir (TLD) as first- and second-line antiretroviral therapy (ART) in 2019. Thereafter, the National Drug Authority received reports of elevated blood glucose among patients receiving TLD. We evaluated development of elevated blood glucose among patients initiated on (ART-naïve) and

transitioned to (ART-experienced) TLD to determine incidence and associated factors.

Methods: We conducted a prospective cohort evaluation at six regionally representative Ministry of Health-designated, PEPFAR-supported sentinel pharmacovigilance sites. Patients initiated on or transitioned to TLD during August 2020–September 2021 had random blood glucose measured using onsite glucometers at baseline and follow-up of 3, 6, 9, or 12 months. Elevated blood glucose was defined as ≥6.44 mmol/L. Data, including adverse events, were obtained from electronic medical records. Cox proportional hazards were used for survival analysis and incidence per 100 person-years. Associated factors were determined using 95% confidence intervals (CIs); p-values <0.05 were considered significant.

Results: Among 9,089 evaluated patients, 7,666 (84.3%) with normal baseline glucose measurement were included. Among 503 ART-naïve patients, 315 (62.6%) were women, median age was 33 years (range = 28–41). Among 7,163 ART-experienced patients, 5,769 (80.5%) were women, median age was 39 years (range = 32–46). Overall, 21.5% (1,652/7,666) developed elevated blood glucose (ART-naive = 24.7% [124/503]; ART-experienced = 21.3% [1,528/7,163]). Incidence of elevated blood glucose among ART-naïve and -experienced patients was 0.072 and 0.048 per 100 person-years, respectively. Age, sex, body mass index, and previous ART regimen were not associated with development of elevated blood glucose. A total of 3% (230/7,666) of patients reported other adverse events, with joint pain being the most common (46/230 [20%]).

Conclusion: In contrast to early warnings, our evaluation reassuringly found that incidence of elevated blood glucose, including severe and life-threatening hyperglycemia, was low and similar among ART-naïve and -experienced patients initiating TLD. Nonetheless, as more patients receive TLD in Uganda and elsewhere, mild to severe adverse events can be monitored through active pharmacovigilance and special investigations.

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Hypertension Care Cascade Among HIV-Positive and Negative Adults in Zambia and Zimbabwe

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Background: Arterial hypertension (HTN) is an important risk factor of cardiovascular disease, and two-thirds of its burden is in low-and-middle-income countries (LMICs). Data on the HTN care continuum among people living with HIV(PLWH) in sub-Saharan Africa is limited. We determined the HTN care cascade (prevalence, awareness, treatment, and control) among PLWH and HIV-negative adults in Southern Africa.

Methods: Newly diagnosed PLWH and HIV-negative adults ≥30 years were consecutively enrolled from 3 urban primary care clinics in Zambia and Zimbabwe between August 2019 and December 2021. Participants underwent yearly clinical and laboratory examinations using WHO standardized assessments, and HTN was measured using the OMRON automated blood pressure cuff with the average of 3 readings taken 5 minutes apart. We defined HTN using the 2020 International Society for Hypertension guidelines as an elevated blood pressure (BP) reading of systolic BP ≥ 140mmHg and/or diastolic BP ≥90 mmHg at 2-consecutive visits or any documented report of antihypertensive treatment. We calculated age-standardized prevalence estimates for HTN. We calculated

proportions for the care cascade where the numerator at each previous step was the denominator of the next step. Determinants of HTN diagnosis were analysed using logistic regression and participants with complete HTN data including two readings on consecutive visits were assessed.

Results: We included 363 adults with a median age of 40 years (interquartile range [IQR] 34-47), of whom 232 (64%) were female and 140 (39%) PLWH. The crude prevalence estimate of HTN was 21.6% (95% CI, 17.4-26.1) and age standardized estimates were 30.6% (95%CI, 25.9- 35.6). Among 78 participants with HTN, 55 (71%) were previously aware of the diagnosis and 48 (62%) were on antihypertensive medication. Among those treated, 29 (60%) had uncontrolled HTN. In multivariable analysis age ≥50 years [aOR] 3.4, 95% CI 1.8-6.3), and being overweight/obese [aOR] 3.5, 95% CI 1.2-9.8) were associated with HTN diagnosis. HIV infection was not associated with HTN (aOR,1.0 95% CI 0.6-1.8).

Conclusions: We showed a high prevalence of uncontrolled HTN among adults in urban Zambia and Zimbabwe. The HTN cascade findings show gaps in diagnosis and management of HTN which need to be improved.

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Optimizing HIV Case Finding through Screening and Testing Non-patients at Outpatient Department (OPD): A Pilot Case from Kombewa County Referral Hospital (KCRH) in Kisumu, Kenya

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Background: The 2018 Kenya Population-based HIV Impact Assessment estimates Kisumu county's HIV prevalence in western Kenya at 17.5%, while the national prevalence is 4.9%. Recently, Kenya has adopted innovative testing strategies, including targeted provider-initiated counseling and testing (PITC); yet over 20% of Kenyans are unaware of their HIV-positive status. Convenient and people-centered approaches are needed to facilitate greater uptake of HIV testing services (HTS) and enhance case identification.

Methods: Trained expert clients at OPD waiting areas in Kombewa County Referral Hospital (KCRH) in Kisumu County conducted short HIV educational sessions to encourage relatives and friends accompanying patients (referred to as non-patients) to test for HIV. Consenting non-patients were escorted to a private room for eligibility screening. If eligible, an HTS provider conducted the test using the national HIV diagnosis algorithm and connected those tested to either prevention or treatment services, depending on their result.

Results: Between October 2020 to September 2021, 1,699 non-patients screened for HTS, including 397 males and 1,302 females, and 256 (15%) were eligible for testing (90 males, 166 females). The majority of non-patients (245) consented and were tested resulting in the identification of 25 new positive cases (9 males, 16 females), representing a 10% yield. Testing of non-patients accounted for 33% of total newly identified positives at KCRH by PITC and 15% of total positives diagnosed through all testing modalities. Linkage to treatment was 88% (8 males and 14 females), and providers are now following up on the three unlinked individuals. All those who tested HIV-negative were offered prevention services.

Conclusions: Screening and testing non-patients at health facilities is an additional opportunity to identify people living with HIV (PLHIV) unaware of their status, particularly those who might not seek health services

otherwise. The intervention was highly acceptable at KCRH, and Kisumu County is planning expansion to other facilities in the region. HIV programs should consider offering HIV testing to non-patients, particularly in areas with high numbers of undiagnosed PLHIV. This approach can be further refined to target subpopulations of interest, such as men or young adults, more likely to be undiagnosed.

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Unprotected Sexual Intercourse Under the Influence of Alcohol Among Female Sex Worker (Fsw)

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Background: The relationship between alcohol use and sexual activity is complex, with empirical data pointing to both causal relationships and common causes of both activities, depending on location and population. According to studies, drinking raises the risk of risky sexual conduct by linking alcohol use to multiple and casual partners, as well as less consistent condom use. FSW, like other high-risk groups, are HIV-positive and act as a bridge between them and the general population. Alcohol's cognitive effects, on the other hand, have been shown to influence decision-making and lead to riskier sexual activity decisions. This study examines the sexual behavior of female sex workers (FSWs) when under the influence of alcohol.

Method: Biological and behavioral data from the 2020 Nigeria IBBSS, which included 4974 FSW, were sorted and analyzed using Microsoft Excel and STATA 13, respectively. The relationship between sexual intercourse while under the influence of alcohol and HIV prevalence among FSW was determined for different types of sexual partners. Bivariate analysis was utilized to analyze a link between variables using a statistical significance (p-value) of 0.05.

Results: According to the findings, 1180, 172, and 139 FSW had unprotected intercourse with their regular, casual partners, and clients, respectively. According to the findings, 35%, 18%, and 33% of people had sexual intercourse while under the influence of alcohol with regular, casual, and client partners, respectively. Sero prevalence among FSW who had sexual intercourse under the influence of alcohol was 16 percent (p = 0.001), 35 percent (p = 0.000), and 24 percent (p= 0.066) among regular, casual, and client partners, respectively.

Conclusion: FSW who engaged in unprotected sexual intercourse with regular and casual partners while under the influence of alcohol exhibited a strong association with HIV prevalence. As a result, alcohol intake has an impact on FSW's high HIV risk. This highlights the need for more interventions aimed at reducing HIV transmission among FSW who drink alcohol.

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HIV Status Awareness and Prevalence Among High-Risk Adults Screened for Enrolment in a Vaccine Site Preparedness Study in Kisumu, Kenya

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Introduction: Kenya has a mixed HIV epidemic with geographic and population variations. Despite declining HIV infections globally and in Kenya, parts of Western Kenya still report high

prevalence and incidence rates. We evaluated HIV prevalence to inform development of strategic and targeted HIV prevention interventions.

Methodology: Male and female participants between 18–35 years old were recruited from the general, sex worker, and fisher folk communities in Kisumu County. All participants were screened for HIV as part of eligibility assessment for a prospective HIV incidence cohort. Questionnaires were administered to assess HIV risk behaviors. Participants who tested positive for HIV were disaggregated into two groups based on their prior knowledge of their HIV status; previously- diagnosed and newly-diagnosed. In separate analyses by prior knowledge, robust Poisson regression was used to estimate prevalence ratios (PRs) and 95% confidence intervals (95% CIs) for factors potentially associated with a positive HIV test in each group. Participants without HIV were the comparator group for both analyses.

Results: Of 1063 participants screened for HIV, 542 (51%) were females and the median age was 25 years (interquartile range [IQR]: 22, 29). The overall HIV prevalence was 18.4%. People living with HIV(PLWH) were more likely than those without HIV to be female (73% vs. 46%, p<0.001) and were older (median (29, [IQR 26-31] vs 24[IQR 21-28] years, p<0.0001). Among PLWH, 78(39.8%) were newly-diagnosed. After adjusting for other variables, previously-diagnosed HIV seropositivity was significantly higher among females than males (PR 2.71, 95%CI 1.56-4.69), but there was no observed sex difference in HIV prevalence amongst the newly-diagnosed (PR 1.05, 95%CI 0.65-1.69). HIV prevalence increased with age, both for previously-diagnosed (compared to 18-24 years, 25-29 years PR 2.57 [95%CI 1.4-4.73], 30+years PR 3.31, [CI 1.78-6.13]) and newly-diagnosed (25-29 years PR 3.69 [95%CI 1.81-7.51], 30+ years PR 5.68 [95%CI 2.62-12.31]).

Conclusion: The higher prevalence of previously-diagnosed HIV in female participants may reflect an increased likelihood of HIV testing through more touch points with the healthcare system. The findings highlight the need of implementing prevention strategies without sex stratification given the similar prevalence of newly–diagnosed HIV infection for both males and females.

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High Prevalence of Multimorbidity and NCD Risk Factors in South African Adolescents and Youth Living With HIV: Implications For

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Background: Adolescents and youth living with HIV (AYLHIV) face an elevated non-communicable disease (NCD) risk resulting from HIV, psychosocial challenges, and the complications of antiretroviral therapy (ART).

Objectives: This study aimed to investigate the prevalence of common NCDs and their risk factors among AYLHIV in urban Cape Town, South Africa, in order to inform an integrated approach to NCD screening and prevention in AYLHIV.

Methods: We conducted a cross-sectional study in six primary care facilities in Cape Town between March 2019 and January 2020. We collected socio-demographic information, measured dietary intake, physical activity and nutritional knowledge. We also screened for pre-existing and previously unidentified NCDs and modifiable risk factors in 92 adolescents and youth receiving treatment for HIV in primary care settings using self-report and objective measures. Differences between sexes and age groups were compared using parametric and non-parametric statistical tests.

Results: Three out of four participants were female, and the median age was 20.5 years

(IQR 18.9- 22.9). More than a quarter were not in education, employment, or training, and 44% were multidimensionally poor. Five percent of participants had measured hypertension, and 37% had central obesity. AYLHIV self-reported high levels of household food insecurity (70%), low daily fruit and vegetable consumption (28% and 52% respectively), high refined sugar and sugar-sweetened beverage intake (31% and 29% daily intake), regularly skipping breakfast (42%), low nutritional knowledge (37% average score) and insufficient weekly physical activity levels (31%). A third (30%) were current smokers, and 24% engaged in binge drinking.

Conclusion: Our findings of a high prevalence of NCDs and risk factors in AYLHIV highlight the importance of NCD risk screening as part of HIV care for AYLHIV. Such integrated approaches are needed to achieve the dual purpose of improving outcomes through early diagnosis of pre-existing NCDs as well as the prevention of NCD multimorbidity in AYLHIV. This study further demonstrates the need for early intervention on the social, environmental, and economic determinants of NCDs targeting adolescents and youth.

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Family Index Testing as a Strategy for Intensified Case Finding Amongst Pediatrics and Adolescents in 7 States of Nigeria

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Background: In Nigeria, Pediatrics and Adolescents are considered priority population, representing 0.2% prevalence amongst children 0-14years. Nigeria has the highest number of children and adolescents aged 0-19 years living with HIV in West and Central Africa, estimated at 190,000 in 2020.Strategic case finding amongst this group is imperative to achieve epidemic control and towards meeting the UNAIDS first 95 goal by 2030. Optimized family index testing was used as a strategy for case identification amongst biological children (aged 0-19years) of people living with HIV on treatment in 7 states of Nigeria in a CDC funded program implemented by APIN public health Initiatives.

Materials & Methods: Trained community counsellor testers were dedicated to systematically follow a line list of People living with HIV (PLHIV) of childbearing age enrolled on treatment 444 Facilities in 7 APIN supported states. The Testers systematically followed the line list to contact the PLHIV to elicit their biological children between the ages of 0-19 years. The children were tested for HIV in their preferred location (Facility or community) towards increasing case identification amongst pediatrics and Adolescents.

Results: A total of 53,352 ART Clients of Childbearing age were line-listed. They were identified and contacted for elicitation. A total of 5,838 biological children were elicited from them from August to December 2021. A total of 15,053 biological children were elicited (1:3 Adult/child elicitation ratio); 92%(13,806) of these children were tracked and tested out of which 296 of them tested positive, 99% (295) of which were linked to treatment in APIN supported facilities, giving a total yield of 2%. The data was disaggregated by age bands and the highest yield was amongst the age band<5 years (2.8%) and the lowest amongst age band 10-14 years (1.5%)

Conclusion: Family Index testing as a strategy for increased case identification amongst pediatrics and adolescents should be explored for bridging the gap amongst this underserved population.

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"I Was Scared Dating… Who Would Take Me With My Status?"- Living With HIV in the UTT Era in Johannesburg, South Africa

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Background: Despite South Africa's rollout of Universal Test-and-Treat (UTT) in 2016, many people living with HIV (PLHIV) still experience gaps in ART uptake, adherence, and retention. We sought to understand how PLHIV perceive their HIV status in the UTT era, if there are any challenges, and how their experiences differ from individuals diagnosed with HIV at earlier stages of the epidemic

Methods: As part of an ongoing randomized controlled trial, in May 2021, we conducted in-depth interviews with 27 adult (≥18 years) PLHIV referred by HIV counsellors at three peri-urban primary healthcare clinics and three focus group discussions (N = 27) with PLHIV recruited by snowball sampling through civil society organisations in Johannesburg, South Africa. Interviews and focus group discussion were audio-recorded, transcribed verbatim, translated to English, and analysed thematically.

Results: Despite HIV and ART knowledge being more ubiquitous and ART more accessible, patients still reported feelings of guilt and shame and challenges with accepting their HIV diagnosis. Some of the self-stigma patients reported was related to transmissibility. Many participants associated their diagnosis with their own reckless or irresponsible behaviour, with some expressing a desire to identify the person who infected them, i.e. someone else to blame. Participants also expressed fears of transmitting HIV to others. There was a sense of "HIV prevention altruism" as participants felt the responsibility to protect their loved ones. They seemed to perceive themselves as a threat to other people and avoided sexual relationships or chose relationships with other PLHIV to avoid the anxiety of potentially infecting others. They considered whether to risk rejection, avoid relationships, or avoid disclosure and felt they had limited options. Further, fears and anxieties of rejection persisted despite being on HIV treatment, leading to adherence challenges due to perceived risk of unintended disclosure. Additionally, knowledge of treatment-as-prevention, i.e. that ART leading to viral suppression eliminates risk of transmission, was low.

Conclusion: Despite the normalization of HIV within communities, transmission-related self-stigma persists. Disseminating information on treatment-as prevention could reduce the psychological burdens of HIV including self/internal stigma, encourage disclosure, and remove barriers to HIV testing, treatment uptake, and adherence.

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Patient Losses From HIV Care Across HIV Treatment Guideline Periods Between 2016 and 2020 in South Africa

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Background: South Africa's move to universal HIV test and treat (UTT) and same-day initiation (SDI) of antiretroviral therapy (ART) improved treatment uptake with hopes of also reducing patient losses from care.

Methods: We included all patients diagnosed with HIV at public-sector health facilities in 2015-2019 and represented on the TIER.net clinical database in participating provinces (six of nine) in South Africa. Patients were followed up from the date of HIV diagnosis to 12 months. We computed the share of patients lost to follow up (LTFU) at 12 months in HIV care, defined as not having visited the clinic between months six and 12 post-HIV diagnosis. We also assessed trends in patients' retention time in the first 12 months on ART, stratifying by province.

Results: We analyzed data on 2,392,668 patients entering care. Figure 1 shows the time trend in LTFU patients at 12 months after diagnosis and the time spent in care during the study period. The proportion of patients becoming LTFU remained steady from 37.1 % in 2016 to 38.8% in 2020, ranging from 30.7% in Mpumalanga to 42.1% in Limpopo. The North-West province (NW) experienced an increase from 35.0% in 2016 to 42.9% in 2020. Gauteng and Limpopo provinces had LTFU rates consistently over 40% during the study period. Over 90% of patients in the TIER.Net database had started ART by 12 months, making these on-ART losses. However, time to LTFU gradually rose from a median of 30.5 days (IQR: 30.5-148.5) at the 2016 endpoint to 92 days (IQR: 7-158.0) in 2020, with some variability across provinces.

Discussion: Patient losses from care have remained high despite treatment guideline changes, but patients are remaining in care longer under the new treatment guidelines. These data call for further examination of the key determinants of this change to inform program improvements.

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Holding Down the Virtual Front-Line for HIV Clients During COVID 19 Era: A Call Center for Art Retention

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Background: Lighthouse Trust, a WHO recognized center of excellence (CoE), established a call center in August 2020 to enhance retention and client experience across all the five Lighthouse COEs and other supported facilities. This free telehealth service, is used by clients for remote health provider-patient consultation (telemedicine), communicating to the facility when they transfer or miss scheduled clinic appointment dates, and giving feedback for service improvement.

Methods: The call center, which operates with a toll-free number, can access both On-net and Off-net calls. It has an Interactive Voice Recording which elaborates the various Lighthouse services such as HTS, ART, STI, youth-friendly services, GBV and COVID19 enables clients to have access to information during and after work hours.
The call center has dedicated call operators who provide a range of over-the-phone services among which include answering client questions and addressing their complaints, as well as providing guidance for certain Lighthouse integrated HIV services. The call operators also work to ensure that there is timely documentation, referral and reporting of cases, transfers and missed appointments.

Results: From September 2020-September 2021, there were 1,481 calls. Most callers were ages 25+ (56%) and 15-24 (43%), and the majority (71%) were men. About 912 (62%) callers were from non-COE facilities, and 548 (37%) COE clients. Overall, we received calls from 29 districts, but most came from Lilongwe (24%) and Blantyre (15%). HTS (41%)was the preeminent reason for calling followed by 'Other reason-not listed' (29%) , ART (24%) and COVID 19 (4%). Some calls, though minimal, were for nutrition, GBV, adolescent care, PrEP and service complaints. There were 73 callers for missed appointments, of which 52% came from men. The top reason for missing an appointment was for traveling out of town. In

total, 49 calls were directly referred to a clinician for telehealth care.

Conclusion: Despite the service recipients targeting Lighthouse supported facilities, calls were received from across the country showing the need for more HIV mobile health services in Malawi. Majority of callers are men, indicating that this is an effective way of engaging men and retaining them in care.

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Professionalization of Lay Health Cadres: Replacing Volunteer Expert Clients With Fully Employed Patients Supporters in Malawi

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Background: Expert Clients (ECs) have played important roles in HIV treatment programs in sub-Saharan Africa, successfully providing peer support, health education and counseling at community and health facility level. However, increasing workload and complex tasks available for lay cadres in HIV services caused challenges for ECs because they are part-time volunteers and often have low education level. During the first Covid-19 wave in April 2020, ECs were suspended from work due to increased risk of severe Covid-19 disease. We describe how our program transitioned to a new lay health cadre named Patient Supporters (PS).

Materials and methods: Partners in Hope is a PEPFAR/USAID-funded Malawian non-governmental organization with Christian background, supporting HIV services for ~22% of the ART population in Malawi. In October 2020, we introduced PS as a new, formally employed lay cadre. Unlike for ECs, PS selection was independent from HIV status and required completion of secondary school. After a one-week training, PS took over former EC tasks. In addition, PS were deployed as advanced counselors and case managers for clients with high risk of loss to follow-up. After the transition to PS, the volume of community tracing of clients who missed appointments increased: mean tracing was 1,727/month by ECs during Oct 2019-Sep 2020 vs. 5,595/month by PS during Nov 2020-June 2021. This represents a 52% increase when corrected for available full-time equivalent of each cadre. PS achieved a higher percentage of good tracing outcomes, i.e. the percentage of Alive/Back-To-Care/Transferred-Out. This was a mean of 85% by PS during Nov 2020-June 2021 vs. a mean of 79% by ECs during Oct 2019-Sep 2020.

Results: PS have a formal contract that provides employment assurances, contributes to motivation to work and it establishes adherence to specific organizational policies and performance expectations. With higher background education and full-time employment, PS expanded quantity and quality of EC tasks and were able to add more complicated services, including advanced counseling.

Conclusions: After successfully introducing PS as a new lay cadre, next steps will be standardization of job title and job descriptions across PEPFAR implementing partners and ultimately, transition to employment under Ministry of Health.

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Healthcare Providers' Knowledge Of, Attitudes Towards, and Experience With HIV-1 Recency Testing and Index Testing in Rwanda, July – December 2021

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Background: Rwanda has implemented recency testing and partner/index testing since 2018 as part of a national case-based surveillance (CBS) program. Recent infection testing results are returned to clients. To assess implementation fidelity and identify program weaknesses, we administered a survey during July–December 2021 assessing providers' knowledge, attitudes, and experience with CBS.

Methods: Research assistants interviewed 176 providers with ≥3 months experience implementing CBS and recent infection testing from 60 facilities in all five provinces of Rwanda. The number of facilities selected per province was proportional to recent infection volume. Sites with the largest total number of recent infections were selected. Descriptive statistics were summarized in R.

Results: Of 176 providers, 109 (62%) were nurses, 64 (36%) were social workers, 2 (1%) were clinical mentors, and 1 (1%) identified as other; 137 (78%) had ≥1 year of experience providing recency and index testing. While most providers, 155 (88%), felt equipped to enroll eligible clients into the CBS program, 99 (56%), noted that other responsibilities prevent them from approaching eligible clients at least some of the time. Nearly all felt capable of explaining CBS to a patient, 171 (97%), and capable of eliciting contacts from index clients, 171 (97%). However, 61 (35%) reported not having what they needed to screen for IPV. More than half, 100 (57%), of providers thought receiving any recency testing result increased the risk of IPV. Providers thought that the disclosure of a recent infection result could increase a client's risk of judgement, 71 (40%); being treated differently, 74 (42%); and IPV, 84 (48%).

Conclusions: Concerns around the risk of negative consequences, including IPV, are mixed among providers implementing HIV-1 recent infection and index testing. Not all providers feel equipped to screen for IPV, highlighting opportunities to capacitate providers to implement safe and ethical index testing services.

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PATA Comprehensive Package of Care Tool for HIV Treatment and Care For Children and Adolescents

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Background: The PATA comprehensive package of care matrix is a policy and service delivery review tool outlining the key elements of a paediatric and adolescent comprehensive package of care (CPC) for the HIV management of children and adolescents, as described by PATA. This tool is informed by the UNICEF service delivery framework (SDF) and is set against eight key principles and commitments within national policy and strategic frameworks and a 15-point service delivery package of care applicable across the HIV treatment cascade.

Materials & Methods: The PATA CPC tool aimed to refine and simplify current matrixes and tools and was based on the review of multiple agency documents such as the WHO, UNICEF SDF, and literature on the delivery of HIV comprehensive care package for children and adolescents. The tool was applied in Mozambique and Uganda under the Breakthrough Project (BP), supporting quality improvement (QI) processes and QI measures.

Results: Using the tool, it was established that frameworks and policies in BP countries covered all eight areas. Other broad commitments for an effective HIV response

were towards health system strengthening national demand creation with a communication strategy, strategic information and health management systems strengthening, and promoting service integration whilst recognising the importance of investing in and working in partnership with the community.
The 15-points in the service delivery package of care is not always detailed sufficiently for scale-up, with limited directive or guidance being provided, and in some instances, key service delivery areas were absent. In our review, Mozambique scored 11 out of 15 and Uganda 13 out of 15. Areas identified as having less clarity or largely absent, related to scaling up POC technologies, digital HMS for linkage, tracking and tracing with nurse-initiated ART, and task-shifting not sufficiently documented.

Conclusions: These sets of standards allow for rapid gap analysis and monitoring relative progress across the region/country. This simplified matrix based on the UNICEF SDF has been applied across PATA focal countries to simplify, distill, group, and prioritise measures that can be tracked across countries and timeframes and can be linked to the support of QIP at facility level.

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Perceptions of Older People Living With HIV Towards Alcohol Consumption and Haart Adherence in Southwestern Uganda

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Introduction/Background: While the global burden of alcohol consumption is 2.3 billion people drinking alcohol, Uganda has a heavy episodic drinking prevalence of 56.6% for age groups of 15 years and above. Alcohol consumption is associated with reduced HAART adherence. This is likely to worsen treatment outcomes among HIV/AIDs patients. However, among the older HIV/AIDs population in most LMICs, the impact of alcohol on HAART adherence is not known. This study explored the perceptions of older persons living with HIV/AIDs towards alcohol consumption and HAART adherence in Southwestern Uganda.

Methodology: A Phenomenological study design was employed among 38 purposively selected older persons living with HIV/AIDs enrolled in care in health facilities in Southwestern Uganda. A total of 6 focus group discussions were held at the selected Health Centers, Data was collected using audio recorders and notebooks for file notes, and data were then transcribed, coded, and categorized into themes. Thematic analysis was used to give meaning to the information given by the participants.

Results: All participants who consumed alcohol were men (10 of the 38). Some of the participants perceived alcohol to be beneficial in providing nutrients, increasing sexual libido, and relieving stress. Many of the participants also mentioned that alcohol increase the virulence of HIV in addition to causing other diseases like liver disease reduced the effectiveness of ART and caused the consumers to miss taking pills.

Conclusion/Recommendations: Alcohol consumption is common among older patients living with HIV/AIDs and is associated with non-adherence to HAART. There is a need for the incorporation of counseling on the effects of alcohol in the care patients receive from HIV care facilities.

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Strengthening Community Structures Improves Service Delivery for Children and Adolescents Living With HIV

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Background: According to Ministry of Health, Uganda (2019 MoH PMTCT Report), HIV services for children and adolescents living with HIV (CALHIV) lag behind those of adults. The quality of services received by CALHIV determines their treatment outcomes, thus providing all the services they are eligible leads to improved treatment outcomes. The USAID funded Local Service Delivery for HIV/AIDS Activity (LSDA) implemented interventions to strengthen community structures in order to improve service delivery for CALHIV along the HIV continuum of care. We describe lessons learnt in improving service delivery for CALHIV.

Description: Between October 2021 through January 2022, ten health facilities were supported by LSDA to implement a community Quality Improvement (QI) collaborative. Health facilities in collaboration with Community Based Organisations, implemented a modified Community Client Led Antiretroviral Delivery model (MCCLAD) where CALHIV living in a particular village were attached to a Community Health Worker (CHW). CALHIV were scheduled to receive services in the community, followed-up and contacted by CHW's to ensure they received all the services they were eligible for. CALHIV with a suppressed viral load were followed-up monthly while those with an unsuppressed viral load weekly. Services offered were tracked weekly using a reporting template and data entered into the national QI database.

Lessons: The percentage of CALHIV scheduled for contact with a CHW improved from 49% (start of October 2021) to 100% in the 3rd week of January 2022 while that of CALHIV with an unsuppressed viral load improved from 33% to 100%. The percentage of CALHIV with a suppressed viral load scheduled for contact with a CHW and attached to a CHW averaged 96% while that of CALHIV with an unsuppressed averaged 91%. The percentage of CALHIV with a suppressed viral load scheduled for a contact, attached to a CHW and received all services averaged 92.7% while that of CALHIV with an unsuppressed viral load averaged 93% over the period.

Recommendations: Attaching CALHIV to a CHW enabled them receive services they are eligible for in the community. Deliberate efforts should be made to strengthen health facility community collaborations so as to improve treatment outcomes for CALHIV.

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Ambitious HIV Treatment Targets, Viral Suppression, and Health Information System Readiness in Maputo, Mozambique

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Introduction: In 2016, Mozambique started implementing the 'test and treat' approach to meet the 90-90-90 ambitious HIV treatment targets by 2020. We describe challenges to reporting to on the third HIV treatment target (viral suppression) at a health facility in Maputo.

Methods: Data collection occurred from September 2016 through February 2017, through participant observation, ethnographic interviewing, and review of clinical registries of all patients who provided samples for viral load testing over three months (September-November 2016) at a public health facility with international NGO technical and logistical support, in Maputo, Mozambique. We conducted quantitative analysis in Stata 13 and qualitative analysis in ATLAS.ti 8.

Results: Of the 362 samples sent for viral load counting at the reference laboratory from September through November 2016, only

43.6% (n=158) received results within 3-6 months (by February 2017), 16.9% (n=61) of the results were available in the NGO electronic-based patient tracking system (e-PTS); 2.8% (n=10) and 2.2% had missing patient ID's and duplicate names. Patient IDs of 15.7% (n=57) and patient names of 5.0% (n=18) in the public health system's paper-based laboratory registry did not match with the e-PTS. The health facility implemented registry protocols before receiving registries from the national level (system's capacity); disconnections between paper-based and electronic-based registries remained at the facility (organizational capacity); and laboratory staff had not developed competencies to manage viral load registries and communications (individual competencies).

Conclusions: These findings demonstrate that a health facility in Mozambique was not ready to timely and reliably use viral load results to support decision-making for clinical care for most HIV patients. This unreadiness was shaped by system's, organizational, and individual level challenges that compounded chronic routine HIV data quality issues in Mozambique. This suggests that even if viral suppression was achieved, this health facility could not reliably report it. This was the case across nearly half (n=9/21) of Eastern and Southern African countries that were unable to report on viral load suppression to UNAIDS before 2020. This calls for the need to make appropriate investments in public health information systems, so they can timely and reliably report on global HIV response goals.

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Performance Assessment – An Approach to Achieving HIV Epidemic Control in Nigeria

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Background: In Nigeria, several HIV programs have been designed and implemented without an end of project assessment. The National Agency for the Control of AIDS (NACA) embraced Performance Assessment to address this gap and improve effectiveness and efficiency of HIV programmes in Nigeria.

Methods: In the last quarter of 2021, Performance Assessment was carried out in twelve (12) HIV comprehensive sites (two (2) per geopolitical zone of the country). A pre-tested checklist with sections addressing different thematic areas was administered to the healthcare workers in each of the service delivery point (SDP) in the facilities.

Results: The findings of the assessment revealed that despite the existence of current Planned Preventive Maintenance (PPM) contracts, the status of functional laboratory equipment was not satisfactory thereby limiting the ability to effectively monitor clients.
Delays in specimen handling and return of test results with an average turn-around time ranging between one to three months due to network structure of laboratories and facilities caused critical delays in confirming HIV infection and commencement of life-saving HIV treatment and care.
Inaccurate quantification of antiretroviral (ARV) drugs and other commodities were sometimes in excess of the requirements thereby resulting in expired drugs and other commodities.
The adoption of the test and treat strategy contributed to increased uptake of HIV treatment services and number of People Living with HIV (PLHIV) initiated on antiretroviral therapy (ART). Despite quality and coverage of treatment service, the findings of the assessment revealed barriers that have continued to hinder adherence, retention in care and achievement of the third (3rd) 95.

Conclusions: The challenges facing PLHIV on treatment adherence and the current less than optimal viral suppression rate require effective coordination and continuous performance assessment of HIV programmme implementation to achieve results and for greater impact.

The adoption of the mechanisms put in place for strengthening identified gaps will serve as a panacea to past poor performance, limit wastage, improve service delivery and hasten progress towards achieving HIV epidemic control in Nigeria.

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What About Pregnant Women Screened HIV Positive in Informal Health Centers in Cameroon?

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Background: Despite the struggle of the Cameroonian Ministry of Public Health against informal health centers (IHCs) because of their illegitimacy, IHCs are booming in Cameroon and are utilized by a large part of the population. Most of these IHCs have antenatal care services (ANC) and screen pregnant women for HIV. However, no data is available on the prospect of those screened HIV positive tough HIV transmission from mother to child remains the main cause of HIV in children. This study aimed at firstly, assessing the initiation of Antiretroviral therapy (ART) in pregnant women screened HIV positive in IHCs and their ART retention at 3 months post-initiation. Secondly, identifying associated factors to ART non-initiation in this population.

Methods: From January 2018 to June 2020, we carried out a cohort study of pregnant women attending their first ANC and screened HIV positive at IHCs in the cities of Douala and Ebolowa in Cameroon. Consenting participants were interviewed at two points: at least 1 week after delivery of HIV result and 3 months later, using standardized questionnaires. The data collected were entered into Kobo collect and analyzed in SPSS V23.0 software. Logistic regression was used to identify associated factors to ART non initiation.

Results: A total of 182 HIV infected pregnant women were enrolled in the study. The median age at enrollment was 30 years (IQR, 24-34) and the median gestational age at first ANC was 25 weeks of amenorrhea (IQR, 19-31). At the first ANC, 91% (166/182) were naïve of ART. Among them, only 45% (74/166) initiated ART during the study follow up period. Of those who started ART, 65% (48/74) continued with the treatment 3 months post ART initiation. Pregnant women screened HIV positive in IHCs referring women to HIV Care Unit (HCU) for follow-up were more likely (aOR = 11.6, 95%CI: 3.33-40.69, p<0.001) to not initiate ART compared to those screened in IHCs who did onsite HIV care follow-up.

Conclusions: Since the majority of pregnant women diagnosed HIV positive in IHCs are referred to HCU for ART initiation, more attention should be paid to ensure their arrival at the HCUs.

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Assessing HIV/Aids Performance Management at Service Delivery Points: Needed Bold Steps Towards Strengthening Quality of Service Delivery Systems in Nigeria?

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Background and justification: The Performance Management division of National Agency for the Control of AIDS (NACA), which is the apex institution responsible for all HIV/AIDS activities in Nigeria, was established in 2018. The division's core mandate is to monitor and periodically review HIV/AIDS performance management at service delivery points (SDPS) supported by Ministries,

Departments and Agencies (MDAs), States, Donors, IPs, Grants & Civil Society and provide feedback necessary for improvement. The service delivery points (SDPs) in Nigeria are the entry points for assessing all HIV thematic areas and cross-cutting issues. This SDP assessment addresses issues of quality of services delivered in facilities and beyond to strengthen HIV/AIDS performance management.

Methods and materials: The method of assessing SDPs is the Performance Management Mission (PMM) a process engaged in to review the performance of stakeholders' activities, track, monitor and generate useful feedback using the SDP checklist. The PMM was conducted in the 36 +1 States of Nigeria at different phases (2019-2021). SDP assessments starts with an entry meeting in each state with a team of 4 persons from NACA to discuss objectives and modalities of the visit with representatives of all HIV stakeholders present in the state. Selected SDPs, the number and type are agreed upon and visit commences immediately after the meeting. An exit meeting is held with the stakeholders to discuss findings and immediate resolution of identified gaps. Performance improvement plan (PIP) is drawn for knotty and unresolved SDP challenges with time frame and responsible persons to follow through to a closure.

Results: In 2019, 2020 and 2021, 83, 111 and 35 SDPs were assessed. Notable quality issues identified included: Partial adherence to the HIV treatment and prevention guidelines, inadequate mentor mothers in SDPs and delayed turn-around time for DBS and viral load samples. With follow up visits and corrective actions, these challenges and more were mitigated.

Conclusion: Routine assessments of SDPs to improve HIV/AIDS performance management, is an important prototype that drives and ingrains efficiency and effectiveness in health systems. This model is indeed the needed bold step to strengthen quality of service delivery in health systems in Nigeria.

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Strategies for Improving Viral Suppression Among Children in Akwa Ibom, Nigeria: A Before and After Study

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Background: One global AIDS target is for 90% of people receiving antiretroviral therapy (ART) to have HIV-RNA viral suppression (VS). However, VS among children 0–14 years is only 84% in Akwa Ibom State, Nigeria, compared to 93% among adults living with HIV in the state. We describe the implementation of an individualized viral load (VL) strategy and assess its effect on VS after six months of implementation.

Method: The Meeting Targets and Maintaining Epidemic Control (EPIC) project's quality assurance/quality improvement team monitors quality across HIV/AIDS thematic areas. EpiC collaborated with the state pediatric task force supporting pediatric ART management to address VS. An individualized care plan using the assess-implement-evaluate model was developed. In the assessment phase, the health needs of HIV-positive children on ART up to six months and with unsuppressed VL (≥1,000copies/ml) were reviewed across 49 facilities. Evidence-based practices were identified and implemented from January through July 2021 to address those needs. During the evaluation phase, we assessed ART optimization in terms of regimen (dose, frequency, refills), access to appropriate care and support services (opportunistic infection [OI] prophylaxis, family/social support for disclosure and adherence), enhanced adherence counseling (EAC), and post-EAC VL monitoring. Multivariable logistic regression was used to analyze for demographic and clinical factors associated

with post-EAC VL suppression (<1,000copies/ml) using SPSS v26 at <0.05 significance levels.

Results: Of the 312 children enrolled, median [IQR] age was seven years (IQR 4–10 years), 50.6% (156/312) males, median [IQR] duration on ART was 19 months (IQR 12–44 months), and 154 (49.4%) were on combination zidovudine-lamivudine-lopinavir/ritonavir. We observed significant improvements from baseline in uptake of OI prophylaxis (p=<0.001)], access to family/social support for disclosure (p=<0.001) and adherence (p=<0.001), multimonth drug dispensing (p=<0.001), and transitioning to appropriate regimen (p=<0.001); 98.1%, 94.9%, and 94.1% completed one, two, and three EAC sessions, respectively. Post-EAC VL testing uptake was 92.3% (264/288), and VS among those tested was 91.3% (241/264). VS post-EAC was significantly lower among males (p=0.012) and in primary health care facilities (p=0.031).

Conclusion: Our strategies ensured viral re-suppression. Implementing holistic, client-focused interventions can significantly affect virologic outcomes.

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Continuing Medical Education in HIV/TB Care in Malawi Using Tele-Mentoring in the COVID 19 Pandemic

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Background: Malawi's ART program uses a largely programmatic approach. Nevertheless, complex cases require clinical expertise which is not widely available. Medical education ART providers, ideally with the option to discuss cases is therefore of importance. Especially since the advent of the COVID-19, the use of tele-mentoring has become even more relevant. We describe a program using a virtual training platform (ECHO) at Lighthouse clinic in Lilongwe to provide training in HIV and TB care. Session structure and curriculum are described and attendance assessed. Costs to the institution as well as to the participants are estimated.

Description: ECHO was piloted at Lighthouse Trust (LH) in 10/2018 with 25 pilot sessions. The main LH clinic was established as hub site and other LH clinics were equipped as spoke sites. The ECHO facilitator and an IT officer were trained to operate and conduct video conferences. The pilot demonstrated the feasibility of the ECHO model in Malawi, and assisted HCWs to provide improved care to patients. However, the attendance dwindled after the pilot project period and ECHO was eventually stopped in 11/2019. It resumed in 4/2020 in the advent of the COVID pandemic.

Results: Fifty-five ECHO sessions were conducted between Apr 2020 and Oct 2021. Participation ranged from 30-115 (average 60 participants/session). One to three clinical cases were discussed per session. Capital costs for the video-conferencing system were approximately 5000 US$ per site. Operational costs were 65 US$/session; thus, an average cost of 1.1 US$ per trainee per session was calculated. The data volume required to connect externally to one full ECHO session was equivalent to an amount of 1.2 US$. While airtime for most participants (57%) was provided by their institution, 23% paid intermittently and 20% reportedly always paid for themselves.

Conclusions: While the capital costs seem substantial, the operational costs are low and compare favorably to costs of other trainings conducted in our setting, which are estimated at 7- 15 US$ per hour and participant. The Lighthouse ECHO is a sustainable model to CME in Malawi's HIV care community at low operational cost.

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Evaluation of Mentor Mothers Model Supporting PMTCT Services in Zambia

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Background: m2m delivers clinical and non-clinical complementary care and support services through it's Mentor Mother Model, a widely supported, evidence-based peer intervention that ensures that mother-baby pairs access the full cascade of RMNCH/PMTCT services. Under this project, m2m employed and trained a total of 212 mothers living with HIV as Mentor Mothers to work alongside doctors and nurses in 34 facilities and their community catchment areas.

Methodology: A retrospective data analysis from site in Zambia from 2018 – April, 2021 using a data extraction sheet with a focus on PMTCT and early infant diagnosis (EID) indicators of all clients enrolled on m2m App 1 facility based platform. The information analysed through Stata, R or Python with a reported descriptive and narrative in relation to the selected indicators.

Results: Significant improvement of the health staff-client ratio and improved Prevention of Mother to Child transmission (PMTCT) outcomes. Year on year increase in the number and proportion of enrolled HIV positive ANC clients on ART from 288 (51%) in 2018, to 1376 (106%) in 2021, with an overall 34, 338 enrolled by Mentor Mothers received m2m's facility-based peer support and consistently recorded an ART initiation among PBFW of above 96% across all sites

Conclusion: The evaluation notes used by MMM remains highly acceptable and relevant to Zambia's PMTCT interventions and outcomes. The model has consistently recorded an ART initiation among PBFW and HEI of above 96%. This has resulted in better outcomes for both mother and HEIs. The likelihood of sustaining key project activities, systems and practices remains high with capacity building and technical support services to implement key lessons gained from this peer-led model.

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Advancing Integration of Cervical Cancer Screening and Treatment in Faith-Based Health Facilities in Uganda

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Background: Cervical cancer is the most common cause of cancer death among African women, and the HIV epidemic intensifies this burden. Cervical cancer incidence is six-fold greater among women with HIV infection than the general population. In Uganda, a study found that uptake of screening among women living with HIV (WLHIV) was 30.3%; those who had never been screened cited lack of information (29.6%) and no time (25.5%) as the main reasons for declining screening. Uganda Episcopal Conference (UEC)—with support of Infectious Diseases Institute (IDI) in Kampala, Rakai Health Sciences Program (RHSP) in Masaka region, and the Ministry of Health (MOH)—integrated and scaled up cervical cancer screening and treatment of pre-cancerous lesions in 20 health facilities.

Materials and methods: A training targeting health workers from 20 health facilities was conducted using the MOH's strict selection procedure. A total of 64 health workers were selected and trained on visual inspection with acetic acid (VIA) screening and treatment of pre-cancerous lesions with thermocoagulation. All trainees were followed up with mentorship and supervision to ensure

they mastered the skills and were able to provide quality service. All facilities were supplied with equipment, supplies, and thermocoagulators; all implemented the service/intervention.

Results: During March—October 2021, 6,539 WLHIV were screened for cervical cancer using VIA, of which 103 (1.6%) were positive for precancerous lesions eligible for ablative therapy and 40 (0.6%) were referred due to suspected cancer. Of the 103, 56 (54%) were treated with thermocoagulation the same day. Challenges such as stock-out of supplies, interruption in HIV treatment, delayed supply of thermocoagulators, delayed training, and poor documentation due to lack of registers affected screening uptake initially, but these issues have been addressed.

Conclusion: Cervical cancer screening was successfully integrated into HIV programming in 20 health facilities on a large scale, indicating that screening and same-day treatment of cervical cancer are feasible in faith-based facilities serving WLHIV. This intervention might reduce cervical cancer mortality among WLHIV who do not know about or make time for cervical cancer screening.

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Engaging and Keeping Men in HIV Care: Tracing Outcomes of Men Lost-To-Follow-up at 20 Health Facilities in Malawi

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Background: It is essential that men living with HIV engage and be retained in HIV care. In the context of recruitment for two randomized trials focused on men's re-engagement in care in Malawi, we analyzed the outcomes of men reported as lost-to-follow-up and reasons for disengagement.

Methods: We conducted medical chart reviews at 20 health facilities to identify men who disengaged from care between August 2020-November 2021. We defined three categories of disengagement: never initiated ART; initiated but never returned for care; and defaulted (≥1 follow-up appointment and >28days late for last appointment). Up to three attempts were made to trace individuals and ascertain health outcomes. Those alive and confirmed as disengaged completed a survey focused on sociodemographic characteristics and barriers to care. We report descriptive statistics.

Results: Medical chart reviews identified 1,303 men who were disengaged from care (Table). 1004/1,377 (52%) were successfully traced – median number of tracing attempts was 2 (IQR:1-2). Common reasons for failed tracing were inaccurate residential details, moved outside facility catchment area, and temporary travelled. Of those successfully traced, 416 (61%) were confirmed as disengaged from care, and most of those had been on ART for some time but defaulted from care (88%). 219 (32%) of those traced were alive on ART (either poor documentation at study site or silent transfer). Men confirmed as disengaged were median 39-years old (IQR:35-46), had a median time since ART initiation of 2.5-years (IQR:2.1-3.0) and median time outside of care was 40-days (IQR:25-52). Disengaged men were highly mobile (32% n=133), anticipated stigma/discrimination from community members due to status disclosure (73% n=304), and had not disclosed their HIV status to anyone besides their spouse (41% n=171).

Conclusion: Among men traced, over a quarter who were documented as disengaged from care were actually active in care. Improved documentation across facilities is needed so

tracing efforts can focus on men most in need. Strategies to address travel and fear of stigma and limited social support may be required.

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Data Quality Assurance: Prioritising the Assessment of Data Management Systems and Accurate HIV Data Reporting of Health Facilities and Civil Society Organisations in the Eastern Region of Ghana

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Background: Accurate HIV Data reporting is crucial to HIV programming and policy development. It is the bedrock of Ghana's agenda to End AIDS by 2030. Prioritizing Data Quality Audit is imperative to understanding the link between health data management systems and the accuracy of HIV Data reported for strategic information.

Description: Data Quality Audit involves a trace and verification exercise carried out at randomly selected health facilities. The process cross-checks the accuracy of data reported along the reporting lines by re-counting all reported figures from their source documents. In 2021, the Technical Support Unit of the Ghana AIDS Commission undertook a Data Quality Audit exercise to assess data management systems and the accuracy of HIV reported data from January-September, 2021. The exercise covered 14 health facilities, and two Civil Society Organisations implementing Key Population interventions. A Verification Factor (VF) was used to determine if the data was under/overreported or accurate. A VF over 100% indicates an underreporting as more information was found at the site than was reported. A VF below 100% indicated an over-reporting as fewer data was found at the time of the audit than was reported. A VF of 100% represents accurate reporting.

Lessons Learned.

- 3 health facilities and 2 CSOs with functioning data management systems (100%) reported accurate data in all four health indicators and 2 KP indicators.
- 4 health facilities with partly functioning data management systems (50%) reported accurate data in only two indicators.
- 4 health facilities with poorly functioning data management systems (less than 50%) reported accurate data in only 1 indicator.
- 3 health facilities with no functioning data management system reported inaccurate data on all four indicators.
- It's a cost-effective way of providing training on data reporting since on-site training is provided for key staff.
- Provides leverage to address weaknesses in decentralized and national HIV reporting channels.
- Ensures effective programming of the HIV response.

Next Steps

- Advocate for routine data quality audits throughout the year.
- Train all key staff at health facilities in up-to-date HIV reporting systems and data management.

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HIV Self-Testing: A Cross-Sectional Survey Conducted Among Students at Tertiary Institution, Johannesburg, South Africa During 2020

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Background: In 2016, South Africa adopted HIV self-testing as part of a supplementary strategy

in national HIV testing services toward ending HIV/AIDS epidemic in 2030 as a public health threat.
Despite growing acceptance and the willingness toward the use of HIVST, it is not yet full explored in South Africa. This study aims to determine knowledge, attitudes, and practices for HIVST among students aged 18 to 29 years from the University of the Witwatersrand, Johannesburg South Africa, 2020.

Materials and Methods: An online cross-sectional self-administered survey was used to collect data from the 1st January 2020 to 31 June 2020.Chi-squared test was used to determine the relative contribution between categorical variables and the HIVST. Univariate and multivariate logistic regression was performed to analyse the association between categorical variables with HIVST at a confidence interval of 95% and a p-value of ≤0.2 and ≤0.05 respectively.

Results: A total of n=227 students were included in this analysis, more than half were females and between the ages of 20 and 25 years old. The majority were aware of HIVST; however, only 15% reported previously having access to HIVST at the time of this survey. Older students enrolled in sixth year of study aged 20 to 29 were nine times more likely to be aware of HIVST (aOR: 9.7; 95% CI: 0.8 – 120.4) and three times more likely (aOR: 3; 95% CI:0.4 - 22) to have had access to HIVST compared to the second-year students and other lower levels of studying.

Conclusion: These findings suggest that HIVST awareness was generally high in this population. Higher HIVST awareness and access among older students from advanced years of study may indicate that knowledge of HIV including HIVST improves with experience. However, of concern is the existence of those who were unaware of HIVST, as well as the extremely low levels of those who had previously used HIVST, which should be addressed in South Africa. The desire to confirm the results is essential because this would result in linkage to care; critical in treating, monitoring, and management of HIV-infected individuals towards achieving UNAIDS targets by 2030.

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Epidemiology of Human Papillomavirus Genotypes and Prevalence of Cervical Precancerous Lesions Among Women Living With HIV: Results From a Pilot Cervical Cancer Screening Program in Uganda

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Background: There is lack of data on distribution of human papillomavirus (HPV) genotypes among women living with HIV (WLHIV) in Uganda. Yet, WLHIV are more likely to be infected with human papillomavirus (HPV) and to have persistent HPV progressing to cervical pre-cancer and/or invasive cervical cancer compared to HIV negative women. Information on epidemiology of high-risk HPV (hrHPV) infections and prevalence of specific HPV genotypes is very vital in mounting an effective response to the growing challenge of cervical cancer in Uganda.

Methods: A pilot cervical cancer screening program was conducted between September and April 2021. HPV testing using self-collected vaginal samples was offered to WLHIV aged 25-49 attending antiretroviral clinics in 10 high-volume hospitals. HPV+ women were referred for Visual Inspection with Acetic acid (VIA) triage, and those having precancerous or cancerous lesions were treated with cryotherapy, thermocoagulation, LEEP or referred for further management. Data was collected from hospital registers to determine the distribution of HPV genotypes and

prevalence of cervical precancerous lesions among HPV positive WLHIV.

Results: Across the 10 pilot sites, 6,611 WLHIV were offered screening and 6,012 (91%) had a valid result. HPV positivity rate was 30% (1,817). Of the HPV+ women, 214 (12%) were HPV16 positive, 187 (20%) were HPV 18/45 and 1,203 (66%) had other hrHPV genotypes as a pooled result including HPV 31, 33, 35, 39, 51, 52, 56, 58, 59, 66 and 68. 213 (12%) of the women had multiple infections with hrHPV genotypes.
823 (45%) of the HPV+ women were effectively linked to care and triaged with VIA and 173 (21%) were found with precancerous lesions, of whom 137 (79%) were treated as appropriate. Fourteen women were found to be suspicious of cancer and referred for further management.

Conclusion: HrHPV infections are common among WLHIV, including HPV16 and HPV18 that cause majority of cervical cancer. A significant proportion of women have infections that progress to cervical pre-cancer. HPV+ WLHIV found to have no lesions need to be proactively followed-up to ensure that non-regressive infections are appropriately managed. Cervical cancer efforts need to intensify screening among WLHIV.

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Could Infant Art Affects Hepatitis B Vaccine Specific Antibody Subclass Profile of Vertically HIV Infected Children?

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Background: Paediatric immunisation had been relevant in reducing the widespread of Hepatitis B virus, as an outcome of the induction of hepatitis B surface antigen specific-IgG antibodies (anti-HBs). Studies revealed alteration effects of memory B cells during antiretroviral therapy (ART) in HIV infected persons. We aimed at assessing anti-HBs response profile with respect to ART regimens currently used in children.

Methodology: We undertook a cross-sectional multicentric study from December 2014 to March 2016 in four medical heath facilities in and around Yaoundé. Participants were regularly vaccinated children aged between 4 months and 5 years, born to HIV-infected mothers. An adapted and optimized home-made ELISA was used to evaluate specific IgM, IgG, as well as the different IgG subclass (IgG1, IgG2, IgG3 and IgG4) anti-HBs responses levels among children; as well as BioELISA® Biohit kit used to determine the response rate.

Results: From the overall 104 participants, the five groups identified in this study were made up of 44 uninfected and unexposed (HUx) children; 60 HIV-exposed and infected children subdivided into ART regimen subgroups, including 15 ABC-3TC-EFV/NVP (ART-R1), 19 ABC-3TC-LPV/r (ART-R2), 21 AZT-3TC-NVP (ART-R3) and 5 AZT-3TC-LPV/r (ART-R4). This study showed that vaccine protective response in children treated with ART under regimens R1, R2, R3 and R4 was 25%, 38%, 51% and 75%, respectively. These protective response rates were significantly lower ($p<0.0001$) in children under R1, R2 and R3 than the control group (92%). When comparing anti-HBs specific IgM and IgG response medians; IgM response levels in both control and ARV treated children were similar, whereas R1 ($p=0.0045$), R2 ($p=0.0016$), and R4 ($p<0.0001$) showed significantly lower AUs than that of children in the control group. Anti-HBs IgG subclass profile pattern in the control was IgG3≈IgG1≈IgG4>IgG2. However, IgG3≈IgG1≈IgG4> profile pattern was

estimated for children submitted to R1, R2 and R4, while the profile pattern of IgG3>IgG1≈IgG4≈IgG2 in those treated with R3.

Conclusion: Overall, there was reduced protective rate in children following ART compared with their control peers. However, only AZT-3TC-NVP (R3) had the most prominent IgG response level, with its specific IgG subclass profile.

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Scale-up of Tuberculosis Preventive Therapy Among People Living with HIV in Uganda: Initiation, Completion, and TB Disease Notification Rates, April 2017–September 2021

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Introduction: Tuberculosis (TB) is a leading cause of death globally, with 1.5 million deaths in 2020, including 214,000 among people living with HIV (PLHIV). TB preventive therapy (TPT) completion lowers incidence and mortality. In 2016, Uganda, a WHO-designated TB high-burden country, began expanding TPT among PLHIV. We describe TPT scale-up between 2017–2021 to guide continued expansion.

Methods: We analyzed aggregated patient data from PEPFAR DATIM to describe quarterly and semiannual trends of reported TPT initiation and completion, and TB disease among PLHIV receiving PEPFAR-supported antiretroviral treatment (ART) during April 2017–September 2021. TPT initiation was defined as receiving prophylactic isoniazid (INH) with pyridoxine (semiannually), TPT completion rate as the proportion of those without ≥2 consecutive months of interruption among all who initiated TPT 6 months prior (semiannually), and TB disease notification rate as number of clinically and/or bacteriologically confirmed cases reported among PLHIV on ART (quarterly). Using R version 4.1.2, we conducted descriptive analyses by age group, sex, and district. Temporal trends were described using time series plots.

Results: As of September 2021, a total of 1,266,588 PLHIV were on ART. TPT initiations increased from 18,394 during April–September 2017 to 122,969 in April–September 2021. TPT completion rates increased from 28.6% (5,264/18,394) during April–September 2017 to 92.1% (113,296/122,969) in April–September 2021. On average across all semiannual periods, TPT completion rates were higher among PLHIV aged ≥15 years (median [interquartile range] = 86.1% [71.1–88.3%]) compared to those aged <15 years (median = 85.6% [63.9–86.7%]), and similar by sex (men = 86.5% [65.6–91.6%]; women = 86.2% [69.6–88.6%]). The overall average district TPT completion rate was 75.5% (63.6–95.7%), with the highest rate in Lango region (82%) and lowest in the Teso region (66%). TB disease notification rates decreased from 59 per 100,000 persons during April–September 2017 to 47 per 100,000 persons during July–September 2021.

Conclusion: In 4 years, Uganda achieved high and increasing TPT completion rates among PLHIV; followed by a decline in TB notification rates. Ensuring all PLHIV complete TPT will likely require additional people-centered services, including scale-up of 3-month courses of TPT.

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Hepatitis B Virus Sub-genotype A1 Evolutionary Dynamics in Botswana

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Background: Hepatitis B virus (HBV) infection is a major global health problem. Botswana has an intermediate HBV prevalence of 3.1–10 %. The predominant genotypes are A, D and E with a prevalence of 80%, 18.6% and 1.4%, respectively. No studies have investigated the origins and evolutionary history of the HBV genotypes in Botswana. We sought to investigate the Time to Most Common Recent Ancestor (tMRCA) and spread of the predominant HBV subgenotype, A1 (HBV/A1) in the population of Botswana. We also aimed to determine the diversity of HBV/A1 open reading frames (ORFs) in Botswana HBV sequences.

Method: A retrospective study was conducted utilizing 24 near-full length HBV sequences sequenced in Botswana from 2009 and retrieved from NCBI sequence database. Additional 130 HBV near full-length sequences were included as references. Bayesian coalescent analyses were used to study the population dynamics of the 154 HBV/A1 sequences. The temporal signal was estimated through the root-to-tip method using node density in tempEST. Correlation coefficient was used to indicate the amount of variation in genetic distance explained by sampling time and used as a measure of the clockliness of the data. Skyline plots were used to estimate the effective HBV infections in Botswana population over time. Botswana sequences were partitioned into 7 HBV ORFs and used to calculate nucleotide diversity based on pairwise distances analysis implemented in MEGA.

Results: We estimated the tMRCA of HBV/A1 to be 1959 (1920–1980), 95% Highest Posterior Density (HPD) in Botswana. Skyline plot analysis showed an increase in the size of the HBV/A1 infected population around 1985 and 1990 which is over the last ~30–40 years. Pre-core region had highest median diversity of 1 (IQR, 0.0115–1) and the surface region was relatively conserved with median diversity of 0.0075 (IQR, 0.0029–0.0135) p <0.01.

Conclusion: Study provides baseline subgenotype-based phylodynamic information by predicting the tMRCA of HBV/A1 sequences revealing the evolutionary dynamics of HBV/A1 thus aiding in theoretical, clinical prevention and treatment of HBV/A1 in Botswana. Statistically significant mean diversity was observed between the different HBV/A1 ORFs that should be taken into consideration in future treatments and vaccine designs of HBV/A1.

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High Prevalence of Self-Reported Symptoms of Sexually Transmitted Infections Among Female Sex Workers in Togo in 2021

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Background: In sub-Saharan Africa, where the overlapping epidemics of Sexually Transmitted Infection (STI) and HIV are concentrated among key populations, Female Sex Workers (FSW) are highly vulnerable. Based on STI syndromic treatment approach, the aim of this study was to assess the prevalence of self-

reported STI symptoms among FSW in Togo in 2021.

Materials and Methods: A cross-sectional study was completed in June 2021 among FSW in two cities of Togo: Lomé, the capital city in the South and Kara in the North. A snowball sampling method was used and initial seeds were identified in collaboration with local FSW organizations. After consent, a standardized questionnaire was administered by trained research staff to collect information on STI. A multivariate logistic regression model was used to identify factors associated with self-reported STI.

Results: A total of 447 FSW, (300 in Lomé) were enrolled in this study. Median age was 30 ([Interquartile range: 24 -38]) and median weekly number of clients was 5. Consistent condom use with clients was reported by 85.9% (n= 384). More than half indicated having a partner (58.8%; n=263) and 31.5% indicated using condoms with their partner during last sexual intercourse. STI symptoms in the previous 12 months were reported by 191 FSW (42.7%), among whom 116 (60.7%) sought medical care. The most common reported symptoms were abnormal vaginal discharge (n=78; 67.2%) and vaginal itching (n=68; 58.6%). Current STI symptoms (at the time of the survey) were reported by 88 FSW (19.7%). In multivariable logistic regression, STI self-report in the previous 12 months was associated with having more than 15 clients in the previous week (aOR= 2.15; 95% CI= [1.13 – 4.05]) and being victim of violence (physical, emotional or sexual) (aOR = 1.60; 95% CI: [1.06 -2.42]). Being 35 years old and older (aOR= 0.58; 95% CI: [0.35 – 0.97]) and living in the capital city (aOR= 0.62; 95% CI: [0.40 - 0.95] were protective of STI self-report.

Conclusions: STI burden among FSW in Togo is high. Additional strategies are needed at the policy, structural and social levels in order to curb this trend.

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Evaluating two tuberculosis preventive therapy treatment modalities in an HIV treatment program: 3HP versus 6H

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Background: Tuberculosis preventive treatment (TPT) can reduce the risk of individuals developing Tuberculosis (TB) by treating latent tuberculosis infection (LTBI). This study was conducted to evaluate completion rates for 2 different TPT modalities in HIV infected patients.

Methods: This was a retrospective cohort study conducted at Newlands Clinic, Harare, Zimbabwe. Patients were either receiving 6 months of daily isoniazid (6H) or 3 months of weekly rifapentine/isoniazid (3HP) for LTBI treatment. Routinely collected patient level data, for patients receiving TPT was abstracted from an electronic medical record. Descriptive statistics were used to evaluate the data. A marginal structural model analysis using inverse probability weight estimators to assess the causal relationship between prophylaxis regimen (6H or 3HP) and completion of treatment was conducted.

Results: A total of 502 patients received 3HP whilst 1672 patients received 6H. All patients were HIV infected. The median ages for patients receiving 3HP and 6H were 37 (IQR: 22-49) and 24 (IQR: 16-46) years respectively. One hundred and eighty (35.9%) and 774 (46.3%) participants on 3HP and 6H respectively were male. Discontinuation rates were 3.4% for 3HP and 5.7% for 6H. Of the discontinuations in the 3HP arm 7(1.6%) were caused by an adverse reactions (2 developed a rash, 2 developed nausea and vomiting, 1 developed facial oedema, 1 developed

impaired renal function and 1 of the adverse reactions was undocumented) and one discontinued as a result of a drug interaction. Of the 95 discontinuations in the 6H arm, 64(3.8%) were as a result of an adverse reaction (AR) or drug interaction. The median time to discontinuation was 10 (IQR = 4 - 15) and 2 (IQR = 0 - 6) weeks on 6H and 3HP respectively. In a marginal structural model analysis regression analysis between treatment regimen and completion of treatment, using 6H result in lower completion of treatment compared to isoniazid alone (RR=0.974, CI: 0.957 - 0.991, p < 0.003).

Conclusions: Completion rates were higher with 3HP compared to 6H. Use of 3HP had better retention in TPT whilst having less toxicity.

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HPV Prevalence and Risk Factors in HIV-Negative and HIV-Positive South Africa Adolescent Girls: Results From the Hope Study

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Background: Women living with HIV (WLH) experience high rates of Oncogenic (HR-HPV) infection, pre-cancerous lesions and cancer. Prevention strategies rely on HPV vaccination and cervical cancer screening.

Methods: From June to December 2019, we surveyed adolescent girls aged 17-18 years at 18 sentinel clinics in four South African provinces (Gauteng, Mpumalanga, Free State, and Northwest) as part of an HPV vaccine impact study. This age group were ineligible for the vaccination programme in 2014. Eligible participants completed a self-administered demographic and risk factor questionnaire, underwent HIV counselling and rapid testing, and provided a self-collected vaginal swab for HPV testing using SeeGene Anyplex™ II HPV28 assay.

Results: Of 770 respondents, 636 had ever had vaginal sex. Of those, median age of sexual debut was 16 (IQR 16-17 years), 6% (25) reported sexual debut <15 years, 75% (480) reported 2+ lifetime sex partners. Of the 770, 30% (232) were HIV positive. Adolescent WLH were more likely to have had sex <=15 years (13% vs 4%), and less likely to be on contraception (72% vs 81%); 91% (217) were on anti-retroviral treatment (ART) (median duration ART 23.6 (6.3-83.5 months).

HR-HPV was detected in 59% (376) of AGYW; with higher rates observed in adolescent WLH compared to their HIV negative peers (68% vs 56 % P=0.002). Vaccine-specific type HPV 16/18 prevalence was two-fold higher in WLH (compared to HIV negative girls (31% vs. 19%; [OR] 1.90, 95% CI: 1.28-2.83). HR-HPV types associated with vaccine cross-protection including HPV 33 (8% vs 2% p=0.000), 35 (17% vs 11% p=0.021), 52 (20% vs 11%; p=0.001), and 58 (18% vs 8%; P=0.000) were also more common in WLH, except for HPV31 (11% vs 7% P=0.056).

Conclusion: HR-HPV infection is common in young WLH in South Africa. These data highlight the importance of high HPV vaccination coverage in populations with high HIV prevalence, as well the potential value of early and sustained ART initiation in ensuring clearance of infection and prevention of cervical cancer. The data also highlights the need for cervical cancer screening among WLH, particularly those that may have missed out on the vaccination program.

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Accelerating TB Case Finding Using Determine TB-Lam Among HIV-Positive Patients in the West Region, Cameroon

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Background: Conventional Tuberculosis diagnostics tests like sputum microscopy and GeneXpert are with low sensitivity and specificity in HIV patients with advanced disease and especially children. Determine TM TB Lateral Flow Urine Lipoarabinomannan (LF-LAM) assay is a test with improved sensitivity in detecting TB in severely ill HIV infected individuals, especially with CD4 count <100cells/µL. We compared the case identification rate of TB_LAM with conventional TB investigations and the feasibility of using TB_LAM in resource-limited settings.

Methods: Prospective cross-sectional study was carried out in 2 PEPFAR supported health facilities with traditional investigating platforms that received LF_LAM test kits from the CHECK TB program. Over 15months, all PLWHIA who were TB suspected were first investigated with sputum and/or GeneXpert and then also with Urine TB_LAM assay simultaneously. The client's information was captured using electronic software (DAMA). Self-interviews to assess the staff acceptability and feasibility on the use of TB-LAM was done using a questionnaire.

Results: Out of the 375 clients investigated, most were male (63%) with a majority of clients aged between 30-39years. Most patients had TB-LAM positive results compared to when they did a sputum-based test: 66/357 (18%) Vs 23/357 (6%) with a 65% (43 clients) missed opportunity for TB diagnosis if only traditional TB investigations were used. When using TB_LAM assay to diagnose TB, the odd increase more than four times when compared with traditional TB diagnostic methods (AOR = 4.35; 95% CI: 2.69, 7.04). The median TAT in minutes was 35 (IQR 28-40). Laboratory staff were able to carry out other activities simultaneously with a TB-LAM investigation and clinicians appreciated the ease in specimen collection.

Conclusion and Recommendations: Two-thirds of those with active TB who were missed with the conventional diagnostic methods were identified, thereby reducing TB spread and averting morbidity and mortality associated with poor case findings. The ease to perform the test coupled with the short TAT permitted same-day initiation on TB treatment for LAM positive patients. In constraint settings, TB_LAM assay should be used to support the clinical judgment and initiate TB treatment to avert morbidity and mortality while preventing community spread.

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Seroprevalence of Hepatitis B Virus And/or Hepatitis C Virus Infections Among People Living With Human Immunodeficiency Virus in Africa: A Systematic Review and Meta-Analysis

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Human Immunodeficiency Virus (HIV) and hepatotropic viruses (mainly hepatitis B virus and hepatitis C virus) share the same transmissions routes. The resulting co-infections (HIV with HBV and/or HCV) have become a major public health problem in the world, particularly in Africa where these three viruses are endemic. Indeed, these co-infections lead to significant morbidity and mortality through bidirectional effects. We performed a systematic review with meta-analysis to provide data on the epidemiology of HIV co-infected with HBV and/or HCV in Africa, and to assess the impact of these co-infections on the life expectancy of People Living with the Human Immunodeficiency Virus (PLHIV), thus making our contribution to improving their management.

We conducted a systematic review with published articles on PubMed, Web of Science, African Journal Online, and African Index Medicus up to February 2021. Manual searches of references from retrieved articles and grey literature were also performed. The meta-analysis was performed using a random-effects model. Sources of heterogeneity were investigated using subgroup analysis; funnel plot and Egger test were performed to assess the publication bias.

Of the 5999 articles retrieved from the databases, 226 studies met all the inclusion criteria. The overall HBV fatality rate estimate was 4.4% (95% CI; 0.7-10.3). The overall seroprevalence of HBV, HCV, and HBV/HCV co-infection with HIV were 10.2% [95% CI= 9.3-11.1], 4.4% [95% CI= 3.7-5.1], and 0.9% [95% CI= 0.4-1.5] respectively. The pooled seroprevalences of current HBV (HBsAg) infection, current HBV (HBeAg) infectivity, and acute HBV (HBsAg + IgM anti−HBc) infection among PLHIV were 10.3% [95% CI= 9.3-11.3]; 7.8% [95% CI= 5.1-10.9] and 3.7% [95% CI= 0.1-11.1] respectively. Based on HBV-DNA and HCV-RNA detection, the seroprevalence of HBV and HCV co-infection with HIV were 17.2% [95% CI=11.5-23.7], and 4.1% [95% CI= 1.3-8.2] respectively. Subgroup analysis showed a substantial heterogeneity.

HBV case fatality rate in the PLHIV was 4.4%. The HBV, HCV, and HBV/HCV co-infection seroprevalence with HIV were 10.2%; 4.4%; and 0.9% respectively. We emphasize that very few studies in Africa report data on the case fatality rate due to HBV/HCV co-infection in PLHIV. Future studies should focus on this area.

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Genotype Distribution of Human Papillomavirus in Ethiopia: A Systematic Review

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Background: Cervical cancer which is etiologically associated with infection by high-risk Human papillomaviruses (HR-HPVs) is one of the leading causes of cancer-related deaths in Ethiopia and globally. To develop efficient vaccination and HPV-based cervical cancer screening approaches, data on genotype distribution of HPVs is vital. Hence, the study was aimed to review HPV genotype distribution in Ethiopia.

Methods: Research articles were systematically searched using comprehensive search strings from PubMed/Medline and SCOPUS. Besides, Google Scholar was searched manually for grey literature. The last search was conducted on 18 August 2021. The first two au¬thors independently appraised the stud¬ies for scientific quality and extracted the data using Excel sheet. The pooled HPV genotype distribution was presented with descriptive statistics.

Results: We have included ten studies that were reported from different parts of the country during 2005 and 2019. These studies included 3,633 women presented with different kinds of cervical abnormalities, from whom 29 different HPV genotypes with a sum

of 1,926 sequences were reported. The proportion of high-risk, possible/probable high-risk and low-risk HPVs were at 1,493 (77.5%), 182 (9.4%) and 195 (10.1%), respectively. Of the reported genotypes, the top five were HPV 16 (37.3%; 95%CI: 35.2.1-39.5%), HPV 52 (6.8%; 95%CI: 5.8-8.0%), HPV 35 (4.8%; 95%CI: 3.9-5.8%), HPV 18 (4.4%; 95%CI: 3.5-5.3%) and HPV 56 (3.9%: 95%CI: 3.1-4.9%). Some of other HR-HPV groups include HPV 31 (3.8%), HPV 45 (3.5%), HPV 58 (3.1%), HPV 59(2.3%), and HPV 68 (2.3%). Among the high-risk types, the combined prevalence of HPV 16/18 was at 53.7% (95%CI: 51.2-56.3%). HPV 11 (2.7%: 95%CI: 2.1-3.5%), HPV 42 (2.1%: 95%CI: 1.5-2.8%) and HPV 6 (2.1%: 95%CI: 1.4-2.7%) were the most common low-risk HPV types.

Conclusions: We noted that the proportion of HR-HPV types was higher and HPV 16 in particular, but also HPV 52 and 35, warrant special attention in Ethiopian's vaccination and HPV-based cervical screening program. Additional data from other parts of the country where there is no previous report are needed to better map the national HPV genotypes distribution of Ethiopia.

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Early Culture Conversion Among People With HIV and Drug Resistant TB in Uganda

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Background: Culture conversion is useful in evaluating the efficacy of drug resistant tuberculosis (DRTB) regimens. We determined associations of early (≤ 2 months) culture conversion among people with HIV (PWH) and DRTB in Uganda. We further compared the frequency of early culture conversion among PWH and people without HIV.

Methods: This was a countrywide retrospective cohort of people with DRTB at 16 centres in Uganda between 2013 - 2019. Data were abstracted from treatment files and unit DRTB registers. Monthly sputum cultures were performed using the Lowenstein-Jensen medium. The month of culture conversion was the first of two months with consecutive negative sputum cultures following a positive baseline culture. Associations of early culture conversion were determined using logistic regression analysis.

Results: There were 664 people with DRTB and a positive baseline culture; of whom 353 (53.4%) were PWH. Among the PWH, 225 (63.7%) were male, 331 (94.3%) were on antiretroviral therapy and the median (interquartile range, IQR) age was 36.0 (30.0 – 43.0) years. Early culture conversion was observed among 226 PWH (64.0%, 95% confidence interval (CI) 58.9 – 68.9%). In a multivariable model, a DRTB treatment regimen of >5 drugs was associated with early culture conversion among PWH (adjusted odds ratio (aOR) = 3.82, 95% CI 1.06 – 13.82, p = 0.041). Cure and overall treatment success were observed among 232 (65.7%) and 269 (76.2%) PWH respectively. However, early culture conversion was neither associated with cure (odds ratio (OR) = 0.97, 95% CI 0.61 – 1.54, p = 0.901) nor overall treatment success (OR = 1.29, 95% CI 0.78 – 2.13, p = 0.326) among PWH. The frequency of early culture conversion was higher among PWH than people without HIV (226 (64.0%) vs. 177 (56.9%), p = 0.061) although this was not statistically significant. Early culture conversion was not associated with cure or treatment success among people without HIV as well.

Conclusion: Majority of PWH and DRTB achieve early culture conversion. However early culture conversion does not predict cure or treatment success. Moreover, it may require ≥6 drugs to achieve early culture conversion.

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Genotypic Diversity of Human Papillomavirus Infection in Women in Cameroon and Implications for Vaccination Strategy

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Background: Several high-risk human papillomavirus (HR-HPV) genotypes are present worldwide but the epidemiology of these genotypes remains poorly understood in Cameroon. This study aimed to describe the distribution of HR-HPV genotypes circulating in Cameroon for a better vaccination strategy by identifying risk factors associated with this infection.

Methods: A cross-sectional study was conducted among women attending the Yaounde gynaecological-obstetric hospital and the Laquintinie hospital in Douala between June 2020 and May 2021. Analyses were performed at the Chantal BIYA International Reference Centre on cervico-vaginal samples. Detection of HR-HPV was performed by real-time PCR. A logistic regression model was used to identify factors independently associated with HR-HPV positivity; with P<0.05 considered statistically significant.

Results: A total of 364 women with a median age (interquartile range, IQR) of 41 (34-50) years were recruited and analysed. With a HR-HPV positivity rate of 21.43% (78/364; confidence interval [CI]: 17.21-25.64). Compared with negative participants, those positive were younger (37 [30-47] vs 42 [34-50], P=0.002) and had a higher proportion of women who smoked (54.5% vs 45.5%, P=0.005) and those who had more than 2 cumulative sexual partners at the same time in their lives (27.0% vs 11.3%, P=0.001). Of the 78 infected participants, 12 HR-HPV genotypes were identified with: 18(31.7%), 16(20.6%), 39(17.5%), 58(14.3%), 66(9.5%), 59(7.9%), 35 and 52(both 6.3%), 33 and 45(3.2%), and 56 and 68(1.6%). Thus, the efficacy of the non-ovalent and quadrivalent vaccines would be 71.4% and 49.2% respectively in preventing HR-HPV infections in this population. Regarding risk factors for HR-HPV positivity, age, smoking and having had multiple sexual partners at the same time in their lifetime were significantly associated in the univariate model; but after adjustment, being a smoker (aOR [95% CI]: 6.926 [1.880-25.521]) was the only factor independently associated with positivity.

Conclusion: Only smoking was associated with HR-HPV positivity in a setting dominated by oncogenic genotypes other than 16 and 18. The genotypic diversity of HR-HPV argues for the adoption of a non-ovalent vaccine in young adolescent girls in Cameroon.

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Descriptive Analysis of Diagnosis and Management of Tuberculosis in an Outpatient Cohort of People Living With HIV in Zimbabwe

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Introduction: Tuberculosis (TB) remains one of the leading causes of death among people living with HIV (PLHIV). TB-preventive therapy (TPT) greatly reduces the risk of mortality and is recommended as an integral part of routine care of PLHIV. Despite effective treatment and

prevention, gaps in integrated HIV and TB care remain.

Methods: A retrospective review of routinely collected patient data from electronic medical records was conducted. All patients with a TB diagnosis between January 2021 and December 2021 attending a large outpatient HIV clinic in Zimbabwe were included. Clinical and demographic data of eligible patients were collected. Data was summarized using descriptive statistics.

Results: A total of 88/6994 active patients were diagnosed with TB. 45% were female with a median age of 34(IQR 23-43). At TB diagnosis 34% (30/88) were ART naïve with a median CD4 count of 112 cells/mm3, 13% (12/88) were diagnosed within 12 weeks of starting ART. 53% of cases were on ART > 12 weeks at TB diagnosis, of whom 47% (22/47) had VL<20 copies/ml and median CD4 count of 280 cell/mm3. (IQR 94-428). TB diagnosis was made on sputum PCR in 20% (18), TB urinary LAM in 14% (12), 49% (43) on CXR, 2% (3) on other imaging, 2% histologically confirmed TB, 7% of diagnoses were based on clinical presentation. 52% had a sputum PCR done, 61% had TB urinary LAM done and 64% had imaging done. Pulmonary TB was diagnosed in 70% (62/88) of patients, 27% (24/88) had extrapulmonary TB and 3 patients had TB meningitis. Only 14% (12/88) of patients had received TPT prior to TB diagnosis. 39% of patients completed treatment, 43% currently remain on treatment,14% died and 4% were later diagnosed with lymphoma and discontinued TB treatment.

Conclusion: TB associated mortality remains high, despite effective TB treatment and access to ART. Lymphoma is an important differential diagnosis, more than one investigation may be required to confirm TB. To reduce TB associated morbidity and mortality, patients should be monitored closely for TB IRIS after initiation of ART and TPT should be prioritized in PLHIV on ART in long term care.

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Profil de Mutation Sur L'AntigèNE de Surface (Aghbs) Du Virus de L'Hépatite B Chez Des Patients Infectés Par Le Vih Sous Traitements à Abidjan (Côte D'Ivoire)

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Objectif: L'objectif de ce travail est de caractériser les mutations sur l'AgHBs du VHB chez des patients infectés par le VIH sous traitement.

Matériels et méthodes: La population étudiée était constituée de patients infectés par le VIH et co-infectés avec le VHB suivis au Centre Intégré de Recherches Biocliniques d'Abidjan (CIRBA) de 2016 à 2018. Ils étaient sous traitement avec une charge virale plasmatique du VHB supérieure à 20 UI/mL. Les tests génotypiques de résistance sur les gènes de la transcriptase inverse (TI) et de surface (S) du VHB ont été réalisés avec le séquenceur Genetic Analyser 3130 (Applied Biosystem, Courtaboeuf, France). L'analyse des séquences et l'interprétation des mutations ont été réalisées grâce au logiciel en ligne HIV-GRADE (http://www.hiv-grade.de/hbv_grade/deployed/grade.pl?program=hbvalg).

Résultats: A partir d'une cohorte de 300 patients, 44 ont été inclus dans l'étude (15%). Le taux de séquences nucléos(t)idiques générées était de 68% (n = 30/44). L'analyse phylogénétique a permis d'identifier les génotypes E 73% (22/30), A 17% (5/30) et D 10% (3/30). La fréquence des mutations d'échappement immunitaire (MEI) sur l'AgHBs était de 30 % (10/30). Les mutations incriminées étaient : sC121Y, sG130N, sG145K, sK141E, sL109I, sP127T, sT126N, avec une fréquence respective de 3% (1/30) et sM133L

10% (3/30). La fréquence des mutations d'échappement vaccinale (MEV) sur l'AgHBs était de 20% (6/30). Les mutations incriminées étaient : sE164G, sE164D et sW196L avec une fréquence respective de 3% (1/30) et sI195M 10% (3/30). La fréquence des souches du VHB présentant des mutations de résistance aux Inhibiteurs Nucléosidiques de la Transcriptase Inverse (INTI) associées aux potentielles mutations d'échappement vaccinal (ADAPVEM) étaient de 13% (4/30).

Conclusion: La présente étude a fourni des données importantes sur le mécanisme d'échappement du VHB aux systèmes immunitaires, aux tests sérologiques et à la vaccination anti-VHB en Côte-d'Ivoire. Ce travail montre ainsi la nécessité d'accès à des tests génotypiques de résistance pour améliorer le suivi des patients.

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Cryptococcal Antigenemia and Its Predictors Among HIV Infected Patients in Resource-Limited Settings: A Systematic Review

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Background: Cryptococcosis is an opportunistic fungal infection that primarily affects people with advanced HIV/AIDS and is an important cause of morbidity and mortality around the globe. By far the most common presentation of the disease is cryptococcal meningitis (CM), which leads to an estimated 15-20% of all HIV-related deaths worldwide, 75% of which are in sub-Saharan Africa. However, to the best of our knowledge, there is quite limited reviewed data on the epidemiology of cryptococcal antigenemia in a large HIV-infected population in resource-limited settings.

Methods: Articles published in English irrespective of the time of publication were systematically searched using comprehensive search strings from PubMed/Medline and SCOPUS. In addition, Google Scholar and Google databases were searched manually for grey literature. Two reviewers independently assessed study eligibility, extracted data, and assessed the risk of bias. The pooled prevalence of cryptococcal antigenemia was also determined with a 95% confidence interval (CI).

Result: Among 2941 potential citations, we have included 22 studies with a total of 8,338 HIV-positive individuals. The studies were reported in ten different countries during the year (2007-2018). Most of the articles reported the mean CD4 count of the participants <100 cells/µl. The pooled prevalence of cryptococcal antigenemia at different CD4 counts and ART statuses was at 8% (95%CI: 6-10%) (ranged between 1.7% and 33%). Body mass index (BMI) <18.5kg/m2, CD4 count <100 cells, presenting with headache and male gender were reported by two or more articles as important predictors of cryptococcal antigenemia.

Conclusions: Implementing a targeted screening of HIV patients with low BMI, CD4 count <100 cells, having headache and males; and treatment for the asymptomatic cryptococcal disease should be considered. Additional data is needed to better define the epidemiology of cryptococcal antigenemia and its predictors in resource-limited settings in order to design prevention, diagnosis, and treatment strategies.

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HIV Infection and Risk of COVID-19 Death in Sub-Saharan Africa. A Meta-Analysis

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Background: Little is known about COVID-19 outcomes among People living with HIV in sub-Saharan Africa. The goal of this meta-analysis was to determine the relationship between HIV infection and the risk of coronavirus disease 2019 (COVID-19) mortality in Sub-Saharan African countries.

Methods: From December 1, 2019 to December 31, 2021, we systematically retrieved papers from PubMed, Google Scholar, Europe PMC, and EMBase. Studies from Niger, the Democratic Republic of the Congo, Uganda, Kenya, and South Africa are all represented in this meta-analysis. The quality of the included studies was assessed using the Newcastle–Ottawa Scale (NOS). To quantify heterogeneity, the Cochran Q test and I2 statistics were used. The odds ratio (OR) and 95% confidence intervals (CI) were calculated and plotted as forest plots. The Egger test and the funnel plot were used to look for potential publication bias. The review manager version 5.4 was utilized to analyze all the statistical data.

Results: Through computerized searches, a total of 560 records were found. Six papers were finally included in this review. In total, 7208 COVID-19 patients with HIV infection and 53073 COVID-19 patients without HIV infection were included. Among COVID-19 patients with HIV, the mortality rate was 10.90% (786/7208). According to one study, those living with HIV have a greater risk of COVID-19 death than those who do not have HIV. According to five studies, there was no link between HIV infection and COVID-19 mortality risk. The OR effect size ranged from 0.03 to 10.27 in the various investigations. There was no substantial heterogeneity among the six studies (Q=2.92, p 0.71; I2=0%). In this meta-analysis, the overall effect size (OR) was 1.13 (95% CI 1.04–1.23). The funnel plot analysis revealed symmetry among the research considered. The Egger test revealed that there was no publication bias (t = 0.56, P =0.586).

Conclusion: This meta-analysis found a link between HIV infection and the probability of death from the COVID-19. Those with HIV co-infection should be treated as a priority group during COVID-19 clinical treatment to reduce death risk.

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Integrating 3HP-Based Tuberculosis Preventive Treatment (TPT) Into Zimbabwe's Fast Track HIV Model: Aligning TPT and HIV Visits, Multi-Month Dispensing, and Telephone Follow-up Is Feasible and Acceptable

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Background: Tuberculosis causes one-third of HIV-related deaths worldwide, making TB preventive treatment (TPT) a critical element of HIV programs. Approximately 15% of people living with HIV (PLHIV) on antiretroviral therapy (ART) in Zimbabwe are enrolled in the Fast Track (FT) differentiated service delivery model, which includes multi-month dispensing (MMD) of ART and quarterly health facility (HF) visits. We assessed the feasibility and acceptability of utilizing FT to deliver 3HP (three months of once-weekly rifapentine and isoniazid) for TPT by aligning TPT and HIV visits, providing MMD of 3HP, and using phone-based monitoring and adherence support.

Methods: We recruited a purposive sample of 50 PLHIV enrolled in FT at a high-volume HF in urban Zimbabwe. At enrollment, participants provided written informed consent, were seen by a HF-based provider, completed a baseline survey, and received counseling, education, and a three-month supply of 3HP and vitamin

B6. A study nurse called participants at weeks two, four, and eight to assess and support adherence and monitor side effects. When participants returned for their routine three-month FT visit, they completed another survey and study staff conducted a structured medical record review.

Results: Participants were enrolled between April and June 2021 and followed through September 2021 and were in FT for a median of 1.83 years (IQR 0.75,2.67); median age=32 years (IQR 24,41); 50% were female. Forty-eight participants (96%) completed 3HP in 12 weeks; one completed in 16 weeks, and one stopped due to jaundice. Most participants (94%) reported always or almost always taking 3HP correctly. All reported they were very satisfied with the counseling, education, support, and quality of care they received from providers. Almost all (98%) said they would recommend it to other PLHIV. Challenges reported include pill burden (12%) and tolerability (24%), but none had difficulty with phone-based counseling or wished for additional HF-based visits.

Conclusions: Using the FT model to deliver 3HP was feasible and acceptable to participants. Some reported tolerability challenges but 98% completed 3HP and all appreciated the efficiency of aligning TPT and HIV HF visits, MMD, and phone-based counseling. Scaling up this approach could expand TPT coverage in Zimbabwe.

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Effectiveness Of Safe Harm Reduction Spaces for Women Who Use Drugs Living With HIV and Viral Hepatitis Co-infections In Lagos, Nigeria

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Background: Current information findings from the World Health Organization WHO states that viral hepatitis B, C&D is a deadly contagious virus which has more virulence and devastating complications than HIV .However, there is no national prevalence study on Hep B&C in Nigeria conducted till date due to criminalization of PWID and WUDs safe spaces and hindering advocacy for access to treatment support.

Aim of study is to reduce impact of inadequate access to Viral hepatitis treatment services amongst Women Who Use Drugs(WUDs) living with HIV through strengthening local capacity of WUDs community-led services to promote safe healthy spaces.

Description of model of care: Using success gained from our harm reduction community awareness program for Women who use and inject drugs in Lagos state- Nigeria in Between Jan 2021- Sept 2021, NNPUD /EHRAAI trained and engaged the services of 10 WUDs_LHIV /HBV role models from the 10 alloted districts. They were trained in community based harm reduction and encouraged to form 10 support groups of 11 WUDs_LHIV/HBV each (110 in total). They were serviced with lists (phone numbers, locations) of defaulters.
Their activities on a weekly basis included:
- Linkages of WUD_LHIV and sexual/injecting partners to peer support groups for effective messaging on viral hepatitis;
- Escort services to HIV/Viral Hepatitis treatment department in the health facilities to reduce stigma;
-Scaling up of Condom/Lubricants/Needle/Syringes Distribution;
- Home based support services.

Effectiveness: At the end of the 9months:
90% of 110 WUD_LHIV/HBV clients reached willingly allowed their sexual partners to access HIV/Viral Hepatitis testing & treatment if identified HIV positive.
90% of 110WUD_LHIV/HBV clients reached willingly re-enrolled into HIV/Viral Hepatitis Treatment .

90% of 110WUD_LHIV/HBV clients on HIV /Hepatitis Treatment reached achieved Viral suppression.
90% of 110WUD_LHIV/HBV clients reached are knowledgeable in HIV/Viral Hepatitis Treatment Adherence Literacy.

Conclusion: NNPUD and its member organizations will be advocating for effective treatment access by promoting community-led organizing of affected community in Nigeria.

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A Case Study of Clinical TB Screening of Pregnant Women Living with HIV (WLHIV) in Plateau State Specialist Hospital, Jos North, Plateau State, Nigeria

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Introduction: Nigeria's TB prevalence is ranked as the sixth highest globally and first in Africa. HIV pregnant women still remain a high-risk population for TB, with a mortality rate of as high as 40 percent. As a standard, all pregnant women with positive HIV status are clinically screened for TB. The study aimed to describe clinical TB screening outcomes among pregnant women living with HIV in Plateau State.

Method: A case based retrospective study, included all pregnant women with positive HIV status for 1st Antenatal care (ANC) at Plateau State Specialist Hospital (PSSH), clinically screened for TB using the TB screening forms by well-trained Health Care Workers (HCW), from October 2020 to March 2021. Data was abstracted from TB screening forms and registers and analyzed presented using frequency tables.

Results: Eight hundred and sixty four pregnant women had their first ANC (HIV negative- 819 and HIV positive- 45) within the review period. One presumptive TB case was identified among the HIV positive pregnant women cohort which gave a TB presumptive yield of 2.2%. The client was duly referred for gene Xpert evaluation and result turned out negative Micro Tuberculosis Bacilli (MTB).

Conclusion and recommendation: The study showed low clinical TB screening yield among Women Living with HIV (WLHIV). More effective screening and diagnostic tools such as TB-LAM may be explored for HIV positive pregnant women on 1st ANC to increase TB case finding among WLHIV.

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Prevalence of Genital Chlamydia Infection Among Women of Reproductive Age Attending Outpatient Clinics at Kisumu County Referral Hospital, Kisumu, Kenya, 2021

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Background: Chlamydia trachomatis is one of the most prevalent bacterial sexually transmitted infections (STIs) in the world. Genital Chlamydia infection is undetectable because it is asymptomatic. The disease is not well characterized among women, 18 to 49 years old, in a Kenyan population. Patients infected with Chlamydia trachomatis are up to five times more likely to become infected with Human Immunodeficiency Virus (HIV) and Human Papilloma Virus (HPV) if exposed (CDC, 2019).

Methods: This is a cross-sectional study that was conducted among women attending outpatient clinics at Kisumu County Referral

Hospital, Kenya. A total of 385 women met the eligibility criteria, and filled the electronic questionnaire after consenting. The women then provided vaginal swab samples which were tested for Chlamydia trachomatis using Chlamydia rapid diagnostic test kit.

Results: A total of 29 (7.5%) patients tested positive for the disease, and they were given medication. Out of 385 participants, 65.2% were 18-25 years, with a prevalence of 5.7%. The majority (99.7%) of women preferred self vaginal swab collection to collection by the health worker (0.3%). Multiple sexual partners, coinfection with other STIs, and upper tract infections were independently associated with genital Chlamydia infection. Nearly all participants (92%) had no explicit knowledge of the effects of Chlamydia.

Conclusions: The overall prevalence of genital Chlamydia trachomatis in the study was within the estimates of previous studies. However, the study populations and screening methods vary. There is a considerable gap in current awareness about genital Chlamydia infection, and therefore there is a need for patient and community education. Multiple sexual partners, marital status, education and history of other STIs are significant predisposing risk factors. The majority of women preferred self vaginal swab collection.

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Prevalence of Cryptococcal Antigenemia and Associated Factors among HIV/AIDS Patients on Second-Line Antiretroviral Therapy at Two Hospitals in Western Oromia, Ethiopia

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Background: Cryptococcosis is a public health important infectious disease globally. HIV infection is the main risk factor, accounting for 95% of cases in the middle- and low-income countries and 80% of cases in high-income countries. The main aim of the study was to assess the prevalence and associated risk factors of Cryptococcal antigenemia (CrAg) among HIV Positive Patients on second-line ART Therapy at Ambo General Hospital and Nekemte Referral Hospital, Western Oromia, Ethiopia.

Materials and Methods: The Hospital-based Cross-sectional study was conducted from September 1, 2017, to October 30, 2017. Whole blood was tested for CrAg using Cryptococcal lateral flow assay (Immuno-Mycologics, Norman, OK, USA) according to the manufacturer's instructions. Then the collected data was analyzed using SPSS version 20 software. Binary logistic regression models were applied to assess the association between predictors and outcome variables at 95% CI.

Result: Among the study participants, 115(62.8%) were females, 64(35%) were in 29-38 age group and 97(53%) were married, 169(92.3%) lived with HIV for >67 months since diagnosed for HIV, 124(67.8%) stayed on 2nd line ART for an average of 30 months. The overall prevalence of Cryptococcal Antigenemia infections among HIV-infected patients on 2nd line ART was 7.7%. Among Cryptococcus infected participants, being male [AOR, 95% CI: 4.78(1.14, 20.1)], poor adherence to ART [AOR, 95% CI: 0.12(0.03, 0.4)], occupational exposures to contaminated soil [AOR, 95% CI: 6.81(1.38, 33.4)], having non-separated house from hens or chickens [AOR, 95% CI: 0.06(0.01, 0.51)], CD4 T cell/µL<100 counts [AOR, 95% CI: 6.57(1.9, 23.3)] and viral load>1000 copies/mL [AOR, 95% CI: 11.7(2.4, 57.8)] were significant predictors of cryptococcal antigenemia.

Conclusion: The prevalence of Cryptococcal Antigenemia was significantly high. Being

male, occupations that exposure to contaminated soil with avian droppings, CD4 T cell/µL<100 and viral load >1000 copies/mL were significant predictors of cryptococcal antigenemia. Therefore, public health measures, adherence to ART and early treatment are recommended.

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Tuberculosis and HIV Testing Among Patients with Presumptive Tuberculosis: Results of a Pilot in Zambézia Province Mozambique

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Background: Mozambique has a high tuberculosis (TB) burden in terms of incident cases and HIV/TB co-infected persons. Individuals who present with at least one sign or symptom suggestive of underling TB during standardized screening, should undergo TB and HIV testing as part of national provider-initiated HIV testing and counseling (PITC) guidelines. Due to the lack of a specific instrument for case identification, a new registration form was designed by the Provincial Health Directorate with clinical partner support, to track persons through the TB and HIV testing cascade. We describe the testing coverage results during the pilot in the Alto Molócuè Rural Hospital (AMRH) in Zambézia province.

Methods: Retrospective, descriptive analysis was performed among adults (≥15 years of age) and children (0-14 years of age) with presumptive TB registered at AMRH using the new tool between July 2018 and November 2019.

Results: Data from 704 (78%) adults and 201 (22%) children with presumptive TB were included. TB diagnostic testing was requested for 643 (91%) adults and 154 (77%) children. The majority of TB diagnostic testing (601 [93%] adults, 122 [79%] children) was done using GeneXpert, with a positivity rate of 6% (n=39) among adults and 5% (n=8) among children. A final positive TB diagnosis (laboratory and/or clinical) was given to 73 (10%) adults and 19 (9%) children. Previously known HIV-positive status was registered among 133 (19%) adults and 16 (8%) children, 321 (46%) adults and 123 (61%) children had an unknown or HIV-negative serostatus, and prior serostatus information was missing for 250 (36%) adults and 62 (31%) children. Of the 571 adults and 185 children with unknown, non-recorded or HIV-negative status at registration, 266 (47%) adults and 144 (78%) children underwent HIV testing, with positivity rates of 12% and 3%, respectively.

Conclusions: The results of this assessment demonstrate the usefulness of this novel tool used in all service delivery points for identifying individuals with presumptive TB, and tracking them through the testing cascade and registering TB/HIV diagnoses. Systematic capture of HIV and TB counseling and testing results among persons with presumptive TB can thus help reduce missed testing and treatment opportunities.

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Séroprévalence Des Hépatites B ET C Chez Les Donneurs de Sang AU CNTS de Conakry de 2007 à 2011

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L'objectif de notre recherche était de contribuer à l'étude de la séroprévalence des hépatites B et C chez les donneurs de sang au

Centre Nationale de Transfusion Sanguine de Conakry (CNTS) en République de Guinée.

Méthodes: Il s'agissait d'une étude rétrospective de type descriptif allant de janvier 2007 à décembre 2011. Pendant cette période nous avons tiré d'une manière aléatoire simple 970 fiches de donneurs de sang, dont les 77,10% représentaient les donneurs familiaux et les 22,90% les donneurs volontaires. Les variables sociodémographiques étudiés étaient : Le sexe, l'âge et la profession.

Résultats: Nos constats sont les suivants : La fréquence de l'hépatite B chez les donneurs de sang était de 9,9 % avec un IC : [8,1% - 12,0%], le sexe masculin dominait avec un sexe ratio de 5,7% soit une prévalence au VHB de 10,4% contre 7,1% pour le sexe féminin ; l'intervalle d'âge la plus atteinte par le VHB était de 20 à 29ans soit une prévalence de 11,1%. La fréquence de l'hépatite C était de 0,5% avec un IC : [0,2% - 1,3%] dont une prévalence de 0,6% pour le sexe masculin et 0% pour le sexe féminin ; l'intervalle d'âge la plus atteinte par le VHC était des moins de 20ans soit une prévalence de 4,2%. Un seul cas de coïnfection du VHB au VHC avait été détecté. Il n'existait aucune différence significative entre les fréquences observées au sein des deux types de donneurs : volontaire (n= 222 ; VHB += 6,3% ; VHC+ = 0,9%) et familiaux (n= 748 ; VHB+ = 11% ; VHC+= 0,4%).

Conclusion: Les résultats confirment une endémicité de l'infection par le virus de l'hépatite B à Conakry et donnent une idée de la circulation du virus de l'hépatite C.

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Co-infection VIH / Hépatites B et C chez les Personnes vivant avec le VIH : Cas des Patients de l'Hôpital Laquintinie de Douala-Cameroun

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Introduction: Le VIH/SIDA demeure une urgence sanitaire majeure à laquelle aucune région du monde n'échappe et qui apporte mort et souffrance à des millions de gens. Les co-infections VIH et les virus d'hépatites B (VHB) et C (VHC) sont fréquentes, car ces trois virus partageant des modes de transmission communs.

Matériels et méthodes: Une étude descriptive et transversale a été conduite pendant trois mois à l'Hôpital du jour de l'Hôpital Laquintinie de Douala (HLD). Nous avons prélevé de façon aléatoire le sang veineux de 200 patients après l'obtention du consentement éclairé et le remplissage du questionnaire. Le dépistage de l'AgHBs, de l'AcHCV, réalisé par méthode immuno-chromatographique (DiaSPot) de sensibilités et spécificités relatives à 99% et 98%. Les données ont été traitées par SPSS version 20.0.

Résultats: Globalement, nous avons obtenu 2.5% pour le HVB, 3.5% pour le HCV et 2% de co-infection (VIH/HVB/HVC).

- Les hommes étaient plus atteint avec 3.37% pour l'hépatite B, 5.61% pour l'hépatite C et 2.24% de co-infection.
- Les tranches d'âge la plus touchée : > 45 ans pour le HBV avec 3.44 %, [25 – 35[pour le HCV avec une prévalence de 7.69% et [25 – 35[pour la coïnfection avec une prévalence de 7.69%.
- Les personnes ayants les connaissances sur les hépatites sont les plus atteints par le HBV avec 2.65 % ; alors que la prévalence du HCV et de la coïnfection est plus élevé chez les personnes n'ayant pas de connaissance sur les hépatites soit respectivement 5.74% et 3.44%.
- L'utilisation du préservatif : les personnes n'utilisant pas toujours le

préservatif lors des rapports sexuels sont plus co-infectées avec 3.52% de prévalence.

- L'utilisation des objets tranchants : Les personnes n'ayant pas leurs objets tranchants personnels sont plus co-infectées avec un pourcentage de 2.22%.
- Le nombre de partenaires sexuels : Les personnes ayant un seul partenaire sexuel ont une prévalence de 3.33 %

Conclusion: Les co-infections entre ces trois virus (VIH/HVB/HVC) sont importantes dans cette population d'étude. D'où la nécessité de développer de nouvelles stratégies préventives et effectives aussi bien pour les multi et mono partenaires.

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Prevalence and Co- Infection of Toxoplasma Gondii and Human Immunodeficiency Virus (HIV) Infection Among Women of Child-Bearing Age in Osun State Nigeria

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This study assessed the epidemiology of T. gondii and HIV and their co-infection infection in women of child-bearing age in communities in Osun State, Nigeria.

Sera were analyzed for the presence of IgG and IgM antibodies against T. gondii by commercially available ELISA kit and the detection of HIV was done using (Determine) an IC test. Blood groups of the donors was done using commercially prepared Anti sera A, B, AB and anti D.

The overall prevalence of T. gondii among the women of child-bearing age in study was 74.2%, HIV was 2.6% and co-infection was 1.5%. The prevalence of T. gondii infection was significantly higher (P= 0.001) among Islam (85.9%) than in Christian (68.2%) while HIV (2.7%) in Christianity and co-infection (2.3%) was higher among Islam. The highest prevalence of T. gondii (83.6%) was recorded in women with primary education (p =0.037) while HIV infection of 2.9% and co-infection of 1.8% was recorded in secondary education.

The highest prevalence of T. gondii (78.5%) was recorded in women in rural area (p=0.016), HIV (4.5%) (p= 0.045) while co-infection (3.2%) (p=0.025) was higher in peri-urban area. The highest prevalence of 84.0% of T. gondii and HIV infection of 7.7% in house wives and co-infection of 3.3% was recorded in trading.

The highest prevalence of T. gondii infection of (100.0%) was recorded in women with blood group AB negative, HIV infection of (6.3%) in women with blood group B negative and O negative each and co- infection 6.3% in blood group B negative.

The highest prevalence of 77.1% of T. gondii was recorded in women with one miscarriage and HIV infection of 5.7% in women with one miscarriage .The highest prevalence of 100.0% of T. gondii and 2.7% of HIV infection and co-infection 1.6% was recorded in women with no pregnancy.

The study concluded that there was high prevalence of T. gondii infection and also implicates HIV and co-infection of both in the studied population. Hence, there is the need for health education and create awareness of the diseases and its transmission to women of reproductive age group.

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Introduction de la Prophylaxie PRéexposition (Prep) Orale Comme Outil de PRévention Contre Le Vih Auprès Des MSM Encadrés Par L'ONG SOUTOURA Sur Le Projet Epic AU Mali

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Contexte: Pour diversifier l'offre de services de prévention aux populations clés, la cellule sectorielle de lutte contre le Sida, la tuberculose et les hépatites (CSLSTBH) avec l'assistance technique et financière du projet EpiC a mis en place les lignes directrices de la mise en œuvre de la PrEP au Mali en août 2021. SOUTOURA à travers le projet EpiC a introduit l'offre de service de la PreP comme outil supplémentaire de prévention auprès des MSM.

Description: En septembre 2021, SOUTOURA a commencé l'introduction des services de PrEP au niveau de trois cliniques communautaires : Bamako, Bougouni et Niono. Les pairs éducateurs et navigateurs formés créent la demande de services au niveau de la communauté, réfèrent les clients à la clinique et assurent la rétention des clients sous PrEP.

Leçons apprises: De septembre à Novembre 2021, un total de 256 (60%) des 425 MSM dépistés négatifs ont été évalués pour la mise sous PreP avec respectivement 125 MSM (49%) âgés de 18 à 24 ans et 131 âgés de 25 ans et plus (51%). 201 (79%) MSM évalués étaient éligibles à la PrEP avec respectivement 100 MSM âgés de 18 à 24 ans et 101 MSM âgés de 25 ans et plus. Le taux d'acceptation de la PrEP était de 70% mais légèrement plus élevé chez les 18 à 24 ans avec un taux de 77% contre 63% chez les 25 ans et plus. 100% (141) des MSM ayant accepté ont été initiés à la PrEP. 78% (110) des MSM ont opté pour la PrEP à la demande contre 22% (31) qui ont opté pour une PrEP continue. Parmi les MSM qui prenaient régulièrement la PreP, 14 ont fait leur test de dépistage du VIH au cours de leur troisième visite médicale et 100% (14/14) ont reçu un résultat négatif au VIH .

Conclusion: Au Mali, la phase d'introduction de la PreP orale a montré à suffisance qu'elle est très bien acceptée par les MSM et qu'elle apporte une protection maximale contre le VIH (100% de taux de négativité au VIH).

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Strategies to Improve Prep Uptake Among Women Receiving ANC Services at Tondoro Health Centre, Namibia

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Background: Women are at substantially increased risk of HIV acquisition during pregnancy and post-partum periods, with possible onward transmission to their babies. PrEP is highly effective in preventing HIV. The Namibian HIV prevention guidelines recommend PrEP be offered to all HIV negative pregnant and breastfeeding women (PBFW) at risk. Much is still to be learnt, however, on how to effectively integrate PrEP in routine antenatal care (ANC) and postnatal care.

Methods: A quality improvement (QI) project was conducted over a 12-month period to increase PrEP uptake among pregnant women at Tondoro Health Centre. A facility-based QI committee conducted a root cause analysis identifying multiple contributors to low PrEP uptake including health care worker (HCW)

reluctance to initiate PrEP, staff rotation, PrEP being only offered at the ART clinic, knowledge gaps on PrEP priority populations and service delivery, and client refusals. The committee developed, tested, and either adopted, adapted, or abandoned change ideas using plan, do, study, act (PDSA) cycles. Routine program data were used to describe PrEP uptake, defined as initiations among women attending ANC.

Results: Key change ideas that were adopted included sensitisation of all staff about PBFW being a priority population for PrEP implementation, scaling PrEP integration in the ANC clinic through capacity building of HCWs, PrEP orientation of new staff who rotated to the primary health care clinic, and health education to clients about PrEP at the clinic waiting area and during HIV testing and clinical consultation.
Between October 2020 and September 2021, a total of 322 women attended ANC, of whom 42 (13%) were known HIV-positive and three (0.9%) were newly diagnosed HIV-positive. Among the 277 women who tested HIV-negative, 227 (82%) initiated PrEP, at a monthly average of 19. In comparison, no pregnant women had been initiated on PrEP in September 2020.

Conclusion: Regular sensitisation and continuous health education of HCWs on PrEP as a pivotal HIV prevention tool for PBFW as well as commitment and teamwork among the staff were key in improving PrEP uptake among pregnant women at Tondoro Health Centre. Facilities facing similar challenges could adopt these strategies to improve PrEP uptake.

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A Qualitative Inquiry on Potential Barriers to Provision and Use of the Prep Ring in Kenya

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Background: Although Kenya has made great strides in controlling the HIV epidemic among some populations, women and key populations such as female sex workers (FSWs) continue to be disproportionately affected. New long-acting HIV prevention methods in the pipeline, such as the dapivirine vaginal ring (PrEP ring), may help reach these key communities. LVCT Health engaged stakeholders to understand potential barriers to the provision and use of the PrEP ring.

Methods: From May to July 2021, we held one-on-one and group dialogues with HIV prevention service clients (18 young women aged 18-29 years and 17 FSWs aged 21-42 years) and 22 HIV and Family Planning (FP) healthcare providers (HCPs) selected from LVCT Health programs or affiliated public facilities in the Nairobi and Lake regions. Conversations were audio-recorded and thematic analysis was conducted using a two-step rapid analysis process.

Results: Young women and FSWs described misconceptions about the PrEP ring, including worries that it may fall out, get stuck, or disappear into the body. Young women predicted difficulties in self-insertion and removal of the ring and wondered whether use during sexual intercourse could be discreet. FSWs and HCPs were concerned about the ring's lower efficacy compared to that of oral PrEP. HIV prevention providers were also worried that some women may face challenges practicing good hygiene during insertion and may get infections as a result. FP health providers expressed misconceptions, including that the PrEP ring should be contraindicated for women with multiple sexual partners to reduce the risk of recurrent sexually transmitted infections. They also had misconceptions about side effects, fearing that ring use would cause a long-term increase in vaginal discharge, which would negatively affect the sexual activities health of users.

Conclusions: PrEP ring education efforts in Kenya should proactively address multiple

reported misconceptions and incorporate product demonstrations of this important addition to the HIV prevention methods basket. Early education of HCPs on the new method and training in practical counseling skills will be key to community understanding and acceptance of the PrEP ring and will enable providers to support users to make informed choices based on their needs and lifestyles.

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Comparative Analysis of Microparticle Based Smart Microbicide Vaginal Gels Targeting the Point of Heterosexual Intercourse Designed for Pre-exposure of HIV-1 in Women

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Background: The quest for effective HIV microbicide prevention tools targeting the virus at the point of heterosexual intercourse has led to the development of smart vaginal gels of diverse mechanism of action using novel drug delivery techniques. This study aimed to formulate and compare the rheological properties, safety and efficacy of vaginal gels designed for pre-exposure prophylaxis of HIV-1.

Methods: Microparticles of the antiretroviral drugs maraviroc and tenofovir were formulated using ionic gelation technique and designed to respond to a triggered release in the presence of the enzyme component of the male seminal fluid.
The microparticles were incorporated into a pluronic based thermosensitive gel and a hybrid bigel. The gels were analyzed for various rheological parameters, safety, and efficacy.

Results: The thermosensitive gel and bigel had viscosity values of 991 mOsm/kg and 628 mOsm/kg respectively. The osmolality values of both gels were below 1000 mOsm/kg, with a lower osmolality value recorded for the bigel, indicating a lower tendency for vaginal mucosa damage and epithelial stripping, compared to the thermosensitive gel. The pH values of both gels were acidic (5.83 and 3.65 respectively). There was an adequate release of tenofovir and maraviroc from the thermosensitive and bigels, with no significant difference in their release profile. Tenofovir release followed Higuchi model kinetics from the thermosensitive and bigel and maraviroc, followed a zero-order kinetics order release from both gels, however the presence of acid phosphatase enzyme altered the release profile. In comparing the efficacy of the bigel with the thermosensitive gel, the former appears to have a better potency, as demonstrated in its achieving a lower maximum effective dose(0.1µg/mL) than that of the thermosensitive gel(1.0 µg/mL). This might be attributed to the fact that bigels accommodate both lipophilic and hydrophilic drugs simultaneously and might allow better release, in comparison to the thermosensitive gel that will favor the release of hydrophilic drugs better than lipophilic drugs.

Conclusion: The thermosensitive and bigel had different rheological properties and effective doses however, the formulation properties are within acceptable ranges. The safety and efficacy profiles of the two smart gels shows promising results as potential microbicide candidates.

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Predictors of Adherence to Pre-exposure Prophylaxis Among Female Sex Workers in South-Western Nigeria

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Pre-exposure prophylaxis (PrEP) is an element of biomedical interventions of HIV prevention. The level of protection is strongly correlated to PrEP drug adherence. In Nigeria, the prevalence of HIV among female sex workers (FSW) is 15.5%. The 2020 integrated biological and behavioral surveillance survey did not report on PrEP adherence among FSW. This study therefore assessed the level of adherence to PrEP and its predictors among FSW in South-Western Nigeri

The study was cross sectional analytical in design and was conducted in 2021. Study population were brothel-based FSW at Gambari Ogbomoso and Lagos, Nigeria. A total of 156 FSW participated in the study. Data was collected using interviewer-administered semi-structured questionnaire and analyzed using IBM SPSS.

One hundred and forty-nine properly completed questionnaires were analyzed. Ninety nine respondents (66.4%) have been working for more than 5years as a FSW and 65(43.6%) had initiation of sex work before 18 years of age. Respondents' sexual behavior showed that 55 (36.9%) of total respondents had consistent use of condom. One hundred and thirty-four respondents (89.9%) had good knowledge of PrEP, 97 (65.1%) had good attitude towards PrEP while 111 (74.5%) had good perception of risk of HIV infection. One hundred and thirty-two (88.6%) reported to be taking PrEP and 119 (79.9%) had good adherence to PrEP. Predictors of adherence to PrEP were educational status, monthly income and duration of sex work. It was found that educated sex workers were 2.67 times more likely to adhere to PrEP (OR=2.67, 95% CI=1.280-5.591, p=0.019). Those whose average monthly income was more than #10,000 were 1.65 times more likely to adhere to PrEP (OR=1.65, 95% CI=0.674-4.042, p=0.0275 while those who have spent more than 5years in sex work were 77% times less likely to adhere to PrEP (OR=0.23,95% CI=0.012-4.629, p=0.343).

The level of adherence to PrEP is considerably high and underscores a positive effect of the efforts of the Government of Nigeria in controlling HIV as a threat by 2030. Further studies would be useful to understand the behavioral factors associated with low adherence to PrEP among FSW who have spent more than 5 years in sex work.

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PrEP Pill, Ring, or Jab? End-User Perspectives Regarding the Introduction of Long-Acting HIV Prevention Methods in South Africa

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Background: Although the uptake of oral pre-exposure prophylaxis (PrEP) has increased in South Africa, unmet HIV prevention needs remain, especially for women and other vulnerable populations. The advent of new long-acting methods, such as the dapivirine vaginal ring (ring) and long-acting injectable cabotegravir (CAB-LA), may increase PrEP uptake and use. In-depth, consistent engagement with potential end-users is critical to ensuring successful product introduction.

Materials & Methods: Individual and group conversations were conducted with potential end-users of new HIV prevention methods in South Africa from April to May 2021. A semi-structured discussion guide explored their perceptions of new PrEP methods and the decision-making support needed for informed choice. Dialogues were audio-recorded and thematic analysis was conducted using a two-step rapid analysis process.

Results: Nineteen potential end-users (15 youth ages 20–30 [13 female and 2 male] and four female sex workers [FSWs] ages 30–35) were interviewed. About half the participants

were currently using oral PrEP. Ten of the youth had heard about the ring; four were familiar with CAB-LA, and FSWs had heard of neither product. Perceived advantages of the ring included not having to take a pill daily, discretion, and ease of insertion and removal. A major concern was that the ring protects against HIV exposure only through receptive vaginal sex. Perceived advantages of CAB-LA included that it is long-acting, requires fewer clinic visits, and offers systemic protection. However, concerns included additional clinical screening requirements such as HIV testing and long-lasting side effects associated with CAB-LA. The majority preferred CAB-LA, followed by the ring, and finally oral PrEP. Potential end-users expressed a need to receive information on all PrEP methods available, side effects, clinical screening and testing requirements, efficacy levels, time to effectiveness, and location of action (localized vs. systemic) to support informed choice.

Conclusions: Our findings provide early insights into the acceptability of and preferences for new HIV prevention methods among these important populations. They also identified a need to proactively reach end-users and their communities with accurate information about these methods to ensure informed choice and avoid myths, misconceptions, and stigma.

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Potential End-User and Community-Level Perspectives on New Biomedical HIV Prevention Methods in Zimbabwe

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Background: Zimbabwe is considering new biomedical HIV prevention methods, such as the PrEP Ring and injectable cabotegravir (CAB-LA), to increase client choice. We spoke with potential end-users and community influencers to gain a better understanding of their needs and concerns about these methods and to inform introduction and rollout efforts using lessons from experiences with oral PrEP.

Materials & Methods: We conducted 7 group conversations with 71 purposively selected participants who provided verbal consent. Participants included 51 potential end-users (adolescent girls and young women (AGYW), adult women, and female sex workers and 20 community influencers (parents of AGYW, and religious and political leaders). Thirty-seven of the potential end-users were current or former oral PrEP users. Detailed notes and audio recordings of the conversations were summarized using Microsoft Excel with common themes identified by participant type.

Results: Both potential end-users and community influencers thought women would use the ring and CAB-LA because they are discreet, long-acting, and do not require daily adherence. They also cited concerns about the ring, including its relatively lower efficacy, discomfort with a vaginally inserted product, and the possibility of it being felt or dislodged during sex, resulting in involuntary disclosure. Nine end-users reported stopping oral PrEP due to stockouts, negative attitudes from health care providers, COVID-19 restrictions. Helpful strategies for effective oral PrEP use cited by potential end-users included:

- Routine follow-up by health care providers
- Support from peers
- Uninterrupted supply of commodities
- Community based service delivery models e.g., home visits for drug delivery.

Potential end-users preferred integrated PrEP and FP services with synchronized clinic visits for both services. AGYW mentioned non-traditional delivery channels, such as retail shops and key population-friendly spaces (e.g., youth drop-in centres), as potential options to access PrEP services.

Conclusions: Potential end-users and community influencers expressed desire for expanded PrEP service delivery channels and communication highlighting the benefits of new prevention products. Provision of clear messages addressing community and potential end-user concerns on the products will help optimize uptake and effective use. Leveraging strategies for effective oral PrEP use will be key to successful implementation of new biomedical methods.

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HIV Self-Test Performance Among Targeted Populations in Rural Mozambique

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Background: In early 2021, Mozambique initiated community-based HIV self-testing (HIVST) distributions as a strategy to increase HIV testing access and coverage among specific target populations, including adult men, adolescents, and young adults. This study aimed to evaluate HIVST performance and result interpretation among students, employees and community members.

Materials and Methods: A cross-sectional study was performed among college students (<25 years of age), employees of small businesses, and community members (CM) in two rural districts of Zambézia province, Mozambique. Participants were evaluated on their HIVST procedures performance using a structured checklist and then asked to complete a survey on interpretation of three pre-defined HIVST results. Data were collected between January-March 2021. The usability index (UI) of HIVST was calculated, ranging from 0% (not useable) to 100% (highly useable). False positive and false negative interpretation results were presented as proportions. Comparisons between groups were made using the Chi-square test.

Results: Overall, 312 persons participated (131 [42%] students, 71 [23%] employees, 110 [35%] CM); 239 (77%) were women; median age was 24 years [IQR 21-30]. Overall, 260 (83%) were previously tested for HIV, with 9 (3%) undergoing prior testing via HIVST. Major errors observed were: incorrect tube positioning into the stand (152 [49%]); incorrect specimen collection (134 [43%]); incorrect waiting time for result reading (130 [42%]). The average usability was 80%, 86%, and 77%, among CM, employees and students, respectively. A correct interpretation for all tests was given by 81 (74%) CM, 63 (89%) employees and 90 (69%) students (p=0.08). Nine (3%) persons failed to correctly interpret all presented tests (6 students, 3 community members). False negative result interpretation was given by 14 (13%) CM, 3 (4%) employees, 19 (15%) students (p=0.08). A false positive result interpretation was given by 6 (6%) CM, 1 (1%) employees and 14 (11%) students (p=0.03).

Conclusions: Despite testing procedure errors, the overall usability of HIVST was favorable. Continuous information and educational sessions focused on proper procedures at strategic places such as schools and workplaces may improve HIVST quality.

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Oral PrEP Use Acceptability and Feasibility among Uganda Fisherfolk Communities in Central Uganda: A Qualitative Study

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Background and Purpose: HIV is hyperendemic among fisherfolk in Sub-Saharan Africa. Research is needed to determine acceptability of pre-exposure prophylaxis (PrEP) and identify feasible and sustainable intervention strategies to improve PrEP implementation and social marketing messages to encourage PrEP use in fisherfolk communities. Mildmay Uganda, the research setting, is implementing PrEP at the Nakiwogo and Kigungu fishing communities on Lake Victoria, Uganda.

Methods: To inform PrEP implementation, semi-structured interviews were conducted with 35 HIV-negative testing clients at Nakiwogo and Kigungu (15 women, 20 men: fishermen, other fishing industry workers, commercial sex workers, and unemployed individuals) and 10 key stakeholders (4 women, 6 men: 2 Ministry of Health policymakers, 1 district focal person, 4 healthcare workers, 2 fishing community leaders, and 1 Village Health Team provider). Interviews aimed to understand what is currently being done regarding current PrEP implementation and how it can be improved; marketing messages to introduce PrEP to fisherfolk; and ways to support adherence and medication refill. Transcripts were analyzed using a directive content analysis approach based on implementation science and social marketing frameworks.

Results: Participants showed misconceptions and a lack of knowledge about the purpose of PrEP, how it works, and how it should be taken. Other barriers included stigma (due to similar medications/packaging as HIV treatment); mobility, competing needs, poverty, and fear of partner conflict. Providers discussed insufficient staffing to provide PrEP in fishing communities. Misconceptions included fear of side effects, doubts about effectiveness, beliefs that PrEP cannot be taken with alcohol or on an empty stomach, and concerns that it is experimental or poisonous. Recommendations included: change PrEP packaging; integrate PrEP with other services; decrease PrEP refill frequency; give transportation resources to providers; train more healthcare workers to provide PrEP in fisherfolk communities; and use positively framed messages to promote PrEP.

Conclusions: Inadequate knowledge and misconceptions may be due to inadequate explanation by healthcare providers, as well as low education levels in fisherfolk communities. Results can inform policymakers and healthcare organizations on how to overcome barriers to PrEP scale-up in most at-risk populations.

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Translating Research Into Policy and Practice: Five Key Steps to Successful HIV Pre-exposure Prophylaxis Introduction for Key and Priority Populations in Ghana

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Background: The failure to use research evidence to inform policy development and practice, sometimes known as the research-to-policy-to-practice gap, is a critical public health challenge in low and middle-income countries. While there is no doubt that research evidence is pivotal in policy and implementation, investing in research alone is not enough to bridge this gap. This abstract highlights the process used by the USAID Strengthening the Care Continuum Project, implemented by JSI Research & Training Institute Inc., to assist the Government of Ghana (GoG) through the Ghana Health Service to roll out PrEP for populations at substantial risk of HIV as part of the comprehensive HIV prevention activities.

Description: Five interlocking evidence-informed steps in translating research

knowledge into policy and practice were employed:

1. Researchers, policy makers and other end-users collectively identified research, programmatic and policy priorities, and gaps, establishing a shared research agenda.
2. Policy-driven research informed how the PrEP strategy would appropriately and effectively meet client needs in the Ghanaian context and address policy maker's priorities. This included specific considerations for key and priority populations.
3. Research results were explicitly packaged for policy and decision-makers.
4. Addressing implementation gaps through implementation science to inform national scale-up.
5. Cyclical and continuous policy engagement and advocacy using existing research and policy platforms set up by the Ghana AIDS Control, Ghana Health Service/National AIDS/STI Control Programme, Ministry of Health, and USAID.

Lessons learned: The initial hesitancy in adopting PrEP in Ghana manifests the typical research-policy-practice disconnect. Still in the early phase of PrEP roll-out, implementation science and demonstration projects, these observations reflect some of the first research in Ghana to best understand how to successfully roll out PrEP.

Conclusions/ Next steps: Sharing and applying these key early lessons will further inform the national scale-up of PrEP implementation in Ghana and in other African countries.

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Barriers and Facilitators to Oral PrEP Uptake and Continuation among Adolescents and Young People in Sub-Saharan Africa: A Qualitative Systematic Review

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Background: HIV/AIDS among adolescents and young people (AYP) is a common public health problem globally and is associated with significant morbidity and mortality. More than 80 percent of the world's HIV positive AYP live in sub-Saharan Africa (SSA). Despite evidence suggesting that oral PrEP is effective, safe, acceptable and tolerable among AYP, significant numbers of high-risk AYP are not utilizing PrEP services and those that initiate PrEP discontinue after a few weeks. There is need to understand individual, interpersonal and structural factors that act as barriers or enablers for AYP to access and utilize PrEP in order to optimize their uptake and continuation of PrEP.

Methods: A systematic review was conducted to synthesize available qualitative evidence on AYP's views on factors that deter or facilitate their uptake and continuation of PrEP in SSA. Four databases were searched and yielded a total of 728 potential citations published up to 7th October 2021. A total of 9 qualitative and mixed-methods articles published between 2018 and 2021 were selected for inclusion in the review synthesis. Majority of the identified studies were conducted in South Africa and Kenya and the rest were conducted in Uganda, Zimbabwe, Tanzania and Malawi. Methodological quality assessment of studies meeting the inclusion criteria was done using the CASP tool. Thematic synthesis was conducted adapting McLeroy's socioecological model.

Results: Anticipated or experienced side effects, knowledge gaps on PrEP, HIV-ART related stigma, logistical challenges of accessing PrEP and health professionals' negative attitudes on AYP PrEP use were the key barriers identified from the review. Significant facilitators identified included high perceived risk of HIV infection, autonomy of PrEP use, perceived risk compensation benefits, social support from partners, family and friends and ready availability and access to PrEP at AYP-friendly centers.

Conclusions: AYP care about how they are perceived and broader community-level

knowledge and attitudes towards PrEP are likely to influence AYP decisions on PrEP use. There is need to move beyond individual-level behaviour change models to incorporate broader understandings of interpersonal and structural-levels factors that can influence AYP uptake and continuation of PrEP during the design of AYP-centered PrEP interventions in SSA.

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Perspectives on Perceived Barriers and Benefits of Integration of Harm Reduction Services and PrEP Among People Who Use Drugs in Uganda

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Background: People who use drugs (PWUD) are at increased risk of HIV acquisition and often encounter barriers to accessing healthcare services. Understanding PWUD drug and harm reduction use experiences, along with HIV risk perceptions, may inform strategies to optimize integration of pre-exposure prophylaxis (PrEP) with harm reduction services and align with their needs and priorities.

Methods: We conducted semi-structured interviews with 23 PWUD in Kampala, Uganda, from May-November 2021. We recruited participants with and without previous experience accessing harm reduction services using purposive and snowball sampling. Interviews were audio recorded, translated, and transcribed. We used thematic analysis of structured debrief reports and a subset of full transcripts to identify drug and harm reduction use experiences, HIV risk perceptions, and perspectives of integrating PrEP into harm reduction services.

Results: PWUD were predominantly male (ages 20-53 years), with 4-39 years of drug use experience; all reported prior HIV testing. Overall, participants were knowledgeable about PrEP and trusted its efficacy, though few reported ever taking PrEP. Many reported willingness to use PrEP if available, and if they perceived themselves as being at risk. Most participants reported frequent HIV testing, were relatively aware of their personal HIV risk, and accurately identified situations that increased risk, including sharing needles and engaging in sex work to facilitate drug purchases. COVID-19 caused increased risk to participants, since traditional sources of income were limited by COVID-19 prevention measures. Participants supported integrating PrEP into harm reduction service delivery but advocated for changes in how these services are accessed. They described challenges in acquiring sterile needles and syringes, noting that high costs associated with individually purchasing them were prohibitive, as were existing policies within harm reduction centers that required exchanges. Stigma experienced in healthcare facilities and challenges acquiring money for transportation presented additional barriers to accessing current facility-based harm reduction services.

Conclusions: Meeting the needs of PWUD in Uganda will require addressing barriers to accessing existing harm reduction services. Approaches to integrating PrEP into harm reduction services that are informed by PWUD experiences has the potential to prevent HIV acquisition among this key population.

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"We Are at Risk, Make PrEP More Accessible to Us": HIV Risk Perception and PrEP Acceptability by Pregnant and Breastfeeding Women at

Katutura Health Centre, Namibia

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Background: Susceptibility to HIV is known to be particularly heightened during pregnancy and breastfeeding. PrEP presents a convenient HIV prevention method to women who face difficulties with other means. This study sought to assess HIV risk perception, evaluate access to PrEP, and gauge the acceptability of PrEP among women seeking antenatal and postnatal care at Katutura Health Centre, Namibia.

Materials and Methods: A sequential explanatory mixed-methods approach was used. Routinely collected quantitative data was analysed first to ascertain the theoretical risk of HIV infection among women who booked antenatal care (ANC) over the six-month period January – June 2021. Interviews were then conducted with 30 purposively selected participants from the quantitative sample to gather qualitative data, which was analysed to help explain and build upon the statistical findings.

Results: In total, 791 women booked ANC over the period. Nine women were newly diagnosed HIV-positive, and 85 were known-positive, translating to an HIV prevalence of 11.9% (9.7-14.2). The estimated annual incidence was 1.8% (0.3-12.7). Using validated HIV risk factors, 694/695 (99.9%) women who tested negative were theoretically at risk of becoming infected, based on their documented demographic characteristics.

Of the 30 interview participants, 23 (77%) perceived themselves to be at risk, mainly due to mistrust of their sexual partners. Risk perception was enhanced by having an HIV-positive partner, a partner of unknown HIV status, inability to enforce condom use, and previous diagnosis of an STI. Most women (70%) had heard about PrEP, but only a small proportion (30%) had a clear understanding of what it was. Only 9/30 (30%) women had had PrEP being discussed or offered to them by a healthcare provider. Actual PrEP use was very low (13%). With adequate counselling and health education, PrEP seemed to be a highly acceptable HIV prevention method, and the women expressed autonomy in making decisions on PrEP use.

Conclusions: HIV risk perception among these women was high, and PrEP was a highly acceptable HIV prevention method to them. Strengthening the service delivery continuum to make PrEP more accessible has the potential to significantly increase its use by pregnant and breastfeeding women.

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Delivering Pre-exposure Prophylaxis (PrEP) Service to the Most at Risk of HIV Acquisition: A Retrospective Cohort Study in Ghana

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Background: Pre-Exposure Prophylaxis (PrEP) is a biomedical intervention that enables HIV-negative individuals to reduce their risk of HIV by taking a daily pill. To achieve epidemic control in one high HIV burden region in Ghana, and to inform national PrEP scale-up for all populations at substantial risk, we assess the delivery barriers and facilitators in PrEP program implementation.

Method: The USAID Strengthening the Care Continuum Project, implemented by JSI Research & Training Institute, Inc. with the Population Council, triangulated client service data and in-depth interviews with service providers captured during programme monitoring. Descriptive analysis was carried out with the client service data drawn from 21 health facilities providing PrEP services

covering one year (October 2020-September 2021). To analyze the data from the in-depth interviews, thematic content analysis approach was used along the main themes of individual and structural level barriers and facilitators to PrEP access and utilization.

Findings: Of 1,966 clients were screened for substantial risk with PrEP, 98.8% were eligible, and 1,932 (99.4%) accepted initiation, and 11 declined. A total of 23 (1.2%) clients screened for PrEP were found not eligible for PrEP, with 10 (43.5%) tested HIV positive, 7 (3.4%) exposed within 72 hours before screening for PrEP, and 5 (21.7%) were showing signs and symptoms of Acute HIV infection (AHI). Non-disclosure of HIV status and low partner notification were identified as significant barriers to sero-discordant partner enrollment. Pill burden was a barrier, especially among key populations. Level of acceptance of PrEP is attributed to effective demand creation by CSOs. There is high preference for event- driven PrEP among MSM, and long-acting injectables among FSWs, while the current model of daily PrEP was a limiting factor to client initiation and continuation.

Conclusions: Epidemic control is achievable with access to all HIV prevention methods including PrEP. Central to scaling up PrEP services in Ghana is the PrEP integration PrEP into HIV testing and other health services, and empowerment for disclosure. CSOs played a critical role in PrEP demand creation, and continuity of clients on PrEP. For effective integration, PrEP should be made available to all at risk populations.

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Considerations for the Delivery of New Biomedical HIV Prevention Methods: Zimbabwe Healthcare Provider Perspectives

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Background: Women in Zimbabwe continue to be disproportionately affected by HIV despite available prevention methods, including oral pre-exposure prophylaxis (PrEP). Expanded method choice has the potential to increase the overall uptake of PrEP, especially among adolescent girls and young women. As Zimbabwe considers adopting emerging PrEP methods such as the dapivirine vaginal ring (the ring) and injectable cabotegravir (CAB-LA), effective service delivery strategies need to be considered. We gathered perspectives from healthcare providers (HCPs) on implementation considerations that should be addressed to effectively deliver multiple biomedical HIV prevention methods in Zimbabwe.

Materials & Methods: We conducted 20 in-person conversations with HCPs (12 oral PrEP and 8 family planning [FP] providers) using thematic discussion guides. The 20 HCPs were drawn from public, private, church-based facilities, and pharmacies. Detailed notes and audio recordings of the conversations were consolidated into a Microsoft Excel table and analyzed.

Results: All HCPs welcomed new PrEP methods because they expand options for clients and will likely increase uptake. Public sector providers were worried about the potential of increased workloads given current staffing shortages. PrEP providers mentioned that counseling around varying user requirements for multiple methods would be time-consuming whilst FP providers reported familiarization with counseling on multiple FP methods as well as FP products with varied efficacy. FP providers anticipated challenges with clients who opt to receive CAB-LA and the two-month contraceptive injections and suggested the synchronization of visits to reduce client burden. Oral PrEP providers in larger public and private facilities suggested PrEP be offered across multiple departments to improve the efficiency of service delivery.

Both PrEP and FP providers desired additional training on new products and follow-up systems, samples of products for demonstrations during counseling, and educational materials to support client decision-making.

Conclusions: HCPs expressed a need for trainings, tools, and support materials to provide comprehensive counseling on multiple PrEP methods. Ensuring adequate HCPs, particularly in public health facilities, will ensure effective service delivery of multiple PrEP methods. PrEP and FP services need to be integrated and delivered across multiple access points whilst ensuring the synchronization of visits for FP and PrEP products.

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High Demand for HIV Pre-exposure Prophylaxis (PrEP) Services Amongst Key Populations in Sierra Leone: Early Lessons From the Country's First PrEP Program

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Background: HIV pre-exposure prophylaxis (PrEP), recommended since 2015 by WHO for high-risk groups, including key populations (KPs), has been unavailable in Sierra Leone (SL), a low-income country with limited data on KP population size and HIV prevalence. In 2021, the SL Ministry of Health and Sanitation (MoHS) and National AIDS Secretariat partnered with ICAP at Columbia University (ICAP) to launch the country's first PrEP program with support from the U.S. Health Resources and Services Administration (HRSA).

Description: Following stakeholder consultation, ICAP partnered with nine KP-led community-based organizations to design and implement PrEP services with a goal of initiating PrEP for 800 clients within six months. Eight KP-led drop-in centers (DICs) were supported to provide PrEP and linked to four public-sector health facilities (HFs) to manage clients testing positive for HIV. Guidelines, training materials, job aids, monitoring and evaluation (M&E) systems, and safety monitoring protocols were developed. PrEP medications were procured with HRSA support, DICs were refurbished, and 24 healthcare workers were trained. DIC staff provided information, eligibility screening, PrEP prescriptions, condoms, lubricants, adherence support, and side effect monitoring. Peer educators generated demand for PrEP via their social and sexual networks. Blood samples were collected at DICs, and screening tests were performed at accredited laboratories. ICAP staff provided supportive supervision, mentorship, and M&E support.

Lessons Learned: Between May and September 2021, 1450 KPs were assessed; 1308 (90.2%) initiated PrEP. 83.4% of the clients enrolled on PrEP were female, the median age was 24 years (range 14-71), 83% were sex workers, 10% injected drugs, and 7% were men who have sex with men. Of the 142 ineligible for PrEP, 111 were HIV-positive at screening, and all were linked to care. Suspected acute HIV infection (30) and abnormal creatinine (14) delayed PrEP initiation for others. No PrEP-related side effects were reported, and 5-month retention was 97.1% (1270/1308).

Conclusion: Demand creation and delivery of PrEP via KP-led DICs supported by public-sector HFs and an implementing partner facilitated rapid PrEP roll out to a high-risk population. Close monitoring as the program matures will be important as MoHS and its partners scale up PrEP in SL.

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Low Awareness of Pre-exposure Prophylaxis Among Female Sex Workers in Togo

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Background: The HIV pandemic remains a public challenge in sub-Saharan African, particularly among Female Sex Workers (FSW). Pre-exposure prophylaxis (PrEP) is an effective HIV prevention method among this high-risk group, however scarcely used in Togo. The aim of this study was to explore PrEP awareness among FSW in Togo.

Materials and Method: A cross-sectional study was completed in June 2021 among FSW in two cities of Togo: Lomé, the capital city in the South and Kara in the North. A snowball sampling method was used and initial seeds were identified in collaboration with local FSW non-governmental organizations. After consent, a standardized questionnaire was administered by trained research staff.

Results: A total of 447 (300 in Lomé) FSW participated in this study. Median age was 30 (interquartile range [24 – 38]), and 48.8% (n=218) had a secondary school education or higher. Only 8 (1.8%) were aware of PrEP. After explanation on what PrEP is, 88.5% (n=309) expressed their interest and intention in using PrEP if available. If on PrEP, 12.1% and 47.7% reported they would be willing to engage in condom less sex with clients and partners, respectively. Nearly half (47.4%) were unsure whether PrEP could fully fulfill their HIV prevention needs, and 24.7%, (n=43) of those who believed PrEP could fully fulfill their HIV prevention needs indicated that they would absolutely not use condoms with their clients if on PrEP (p<0.001). A third of FSW (33.8%) indicated that they would find it difficult and very difficult to take PrEP every day without missing a dose, and among them 43.7% (n=66) indicated not feeling capable to take PrEP every day without missing a dose. About one in two (n=223; 49.9%) FSW indicated they would prefer obtaining PrEP at the pharmacy and 52.8% (n=236) indicated that they would be willing to pay for PrEP if given the option.

Conclusion: Despite low awareness of PrEP, FSW were interested in it for HIV prevention. However, for a successful implementation, long-acting PrEP, non-stigmatizing access to PrEP and steady behavioral prevention should imperatively be considered.

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The Lived Experiences of Young Women on the Use of Pre-exposure Prophylaxis in Namibia

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Background: Young women are more at risk for acquiring HIV compared to other age groups. Pre-exposure prophylaxis (PrEP) is the use of antiretroviral medicines by HIV negative individuals before HIV exposure to avert HIV infection. However, PrEP uptake amongst young women remains low since it was introduced in Namibia, in 2016. Various factors may influence women's experiences and therefore their uptake. Little is known about the lived experiences of young women on the use of PrEP.

Materials and Methods: An explorative-qualitative descriptive phenomenological design was used. The study inclusion criteria were: young women aged between 21 and 24 years; current or previous use of PrEP; and attendance of at least one follow-up visit. The

sample included nine participants from five clinics in and around the town of Rundu. A purposive sampling method was used to obtain maximum variability. Data collection involved a face-to-face in-depth interview. Colaizzi's seven-step process was used to analyse data.

Findings: Three themes were identified: Risk awareness, Empowered for self-care, and persisting despite challenges. Young women in this study were aware of their risk of acquiring HIV, which prompted them to use PrEP. These risks included lack of awareness of their partner's HIV status coupled with a lack of trust in their partners, or being in a sexual relationship with HIV positive partners. Awareness emanated from information provided by healthcare workers, peers and media. Using PrEP empowered them for self-care through enabling them to make choices about managing their risk. However, they had to persist despite challenges such as, need for privacy and stigma.

Conclusion: PrEP is an empowering HIV prevention strategy for young women however, much still needs to be done to promote young women's willingness to initiate and continue PrEP. Strategies to improve awareness should be implemented in order to improve the awareness of young women and positively influence social norms, which may further improve access and utilisation of PrEP.

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Implementing Advanced HIV Disease Care For Inpatients in a Referral Hospital in Malawi; Demand, Results and Cost Implications

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Background: HIV patients admitted to hospitals often have advanced HIV disease (AHD) and carry a high risk of mortality. The most common cause of death of HIV positive inpatients in low and middle-income countries (LMICs) identified through autopsies are infections in the lung, such as tuberculosis (TB), bacterial and pneumocystis pneumonia, and of the central nervous system, like cryptococcal meningitis (CM) or TB meningitis.The World Health Organization (WHO) published guidelines for the care of AHD in 2017 , but implementation requires significant resources. While many Malawian outpatient ART clinics are supported through external funding as part of the global HIV response, hospitals rarely receive additional funds while caring for the sickest segment of the HIV patient population. To address this, Lighthouse Trust, a Public Trust and WHO-recognized Center of Excellence for integrated HIV care in Malawi, initiated inpatient AHD inpatient care at Kamuzu Central Hospital, a tertiary hospital located in the capital city Lilongwe. We describe an implementation model for AHD care, its outcomes in routine care and provide cost estimates.

Methods: An "AHD care room" was established staffed by HIV counselor, nurse, and clinical officer allowing Provider Initiated Testing and Counseling, diagnostic testing for AHD and ensuring availability of HIV and TB drugs for rapid treatment initiation.

Results: In the observation period from January-December 2020, a total of 1549 medical inpatients were HIV tested (coverage 81.1%); yield of HIV testing was 4.5%. The total proportion of HIV positive was 32.3% (638 already on ART and 69 new HIV patients) .There were 460 (65.1%) medical inpatients that received CD4 testing; 245 (53.2%) were below 200 cells/ml and thus met definition of AHD. Approximately 238 received S-CrAg tests; 39 (16.3%) were positive; 62 (28.3%) of 219 U-LAM tests were positive.

The cost per identification of HIV positive patient was US$ 110.8; per AHD diagnosis between US$ 17.1 to 78.9; per positive S-CrAg

test US$ 18.5 and per positive U-LAM test US$ 17.5.

Conclusions: Our model successfully implemented AHD services according to WHO guidelines and provides basic costing data. Similar services could be implemented in other hospitals in LMICs.

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Understanding Gaps in Index Case Testing Cascade: Experience From Partners in Hope Supported Health Facilities in Malawi

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Background: Index case testing (ICT) is critical to reaching the minority of people still unaware of their HIV status. Implementation challenges limit the impact of ICT in sub-Saharan Africa. We use programmatic data from Partners in Hope supported facilities in Malawi to identify gaps across the ICT cascade, and in-depth interviews (IDIs) to understand why these gaps exist.

Methods: ICT strategies were taken to scale in October 2020 at 48 facilites in two districts in Malawi, with a focus on testing sexual partners (SP) and biological children (BC) of individuals recently diagnosed with HIV or with viral load results >1000copies/ml. Programmatic ICT data from October 2020-January 2021 were reviewed from 48 facilities to assess outcomes across the ICT cascade. We conducted IDIs with a random subset of index clients, their contacts (SP and BC), and health care workers (HCWs) from four facilities who were >18 years old and engaged in ICT during the same time-period. We analyzed data using constant-comparison methods in Atlas.ti.v9.

Results: The largest gaps in the ICT cascade were: 1) not successfully tracing eligible contacts (only 60% traced of all eligible contacts); and 2) low HIV-positivity rates than expected among those tested (3.6% tested positive of the contacts that were tested). We analyzed 49 IDIs: 13 index clients, 21 contacts (13 SP, 8 BC), and 15 HCWs. Barriers to contact tracing were index clients giving inaccurate contact information due to fear of unwanted disclosure (especially for new or extra-marital partners), as well as due to poor counseling/lack of trust in HCWs, and lack of privacy at ICT screening locations. Transport challenges for HCWs hindered community tracing. Barriers to high HIV-positivity rates were testing BCs of men and testing non-eligible BCs who were easy to reach during home visits to increase test productivity.

Conclusion: Improving quality of counseling and privacy, facilitating tracing activities, and promoting fidelity of ICT protocols are key to success across the ICT cascade.

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PrEP Awareness and Factors Associated With PrEP Interest Among Adults in Malawi: Results From the MPHIA 2020

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The World Health Organization recommends Pre-Exposure Prophylaxis (PrEP) for all populations at substantial risk of HIV infection. Understanding PrEP awareness and interest is crucial for designing PrEP programs; however, data are lacking in sub-Saharan Africa. In Malawi, PrEP was rolled out nationally in December 2020. We analyzed data from the 2020 Malawi Population-based HIV Impact Assessment (MPHIA) to assess PrEP awareness

and factors associated with PrEP interest in Malawi.

MPHIA 2020 was a national cross-sectional, two-stage, cluster sample household-based survey targeting adults aged 15+ years. PrEP was first described to the survey participants as a process of taking a daily pill to reduce the chance of getting HIV. To assess awareness, participants were asked if they had ever heard of PrEP and to assess interest, were asked if they would take PrEP to prevent HIV, regardless of previous PrEP knowledge. Only HIV-negative participants are included in this analysis. We used multivariable logistic regression to assess sociodemographic factors associated with PrEP interest. All results were weighted.

We included 20,089 HIV-negative participants; median age was 28 years old (interquartile range: 20-40). Overall, 14.6% (95% confidence interval (CI): 13.8-15.4) of participants were aware of PrEP. A higher proportion of male (17.3% (95% CI: 16.2-18.4)), those with post-secondary education (42.8% (95% CI: 37.6-48.1)) and urban (22.1% (95% CI: 19.7-24.6)) participants were aware of PrEP than female (12.1% (95% CI: 11.3-12.8), those with no education (10.0% (95% CI: 8.6-11.4)) and rural (13.1% (95% CI: 12.4-13.8)) participants, respectively. Of those aware of PrEP, 8.3% (95% CI: 7.2-9.5) had been offered PrEP and of those, 33.8% (95% CI: 27.1-40.5) had ever used it. Overall, 70.0% (95% CI: 68.9-71.0) of participants were interested in using PrEP. Younger age, being male, primary education, rural and northern zone participants and being divorced/separated were associated with PrEP interest in multivariable logistic regression analyses.

In this survey, prior PrEP knowledge and use were low while PrEP interest was high. Additional research is needed to understand and address low uptake of PrEP. Strategies to increase PrEP awareness and access targeting subpopulations at HIV risk with low knowledge can help to reduce HIV transmission.

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What Are the 12-Month Retention and Viral Suppression Outcomes for South African ART Clients Enrolled in DSD Models Compared to Conventional Care?

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Background: South Africa has implemented several differentiated service delivery (DSD) models for HIV treatment. Few comparisons of treatment outcomes between the country's DSD models and conventional care are available. We analyzed routine data to determine one-year retention and viral suppression of clients enrolled in DSD models.

Methods: We analyzed individual data from South Africa's electronic patient record (TIER.Net) for 24 clinics across 4 districts. We followed clients alive and in care on 01/02/2019 and estimated outcomes of retained at 12 months after follow up start date and virally suppressed (<400 copies/ml3) ≥3-18 months after follow up start date. We classified clients as eligible for DSD models if they were ≥18 years old, on ART ≥12 months and had two suppressed viral load (VL) measurements, per national guidelines at the time. We compared outcomes for those enrolled in a DSD model to those eligible but not enrolled and for those ineligible, compared outcomes by reason ineligible for DSD.

Results: Among 12,120 clients enrolled in DSD and 22,551 ART clients eligible but not enrolled in DSD, retention was 95% and 93%, respectively (risk ratio [95% confidence

interval] 1.02[1.02-1.03]). Viral suppression for those with a VL measure was 95% for both groups (n=8164/8595 for DSD enrolled and n=17,943/18,869 for eligible but not enrolled in DSD), but 29% (n=3,525) of those in DSD models and 16% (n=3,682) in conventional care had no VL measurement recorded. Of the 3,298 recently enrolled into a DSD model (≤6 months), 35% (n=1,153) did not meet the eligibility criteria (0.5% <18yrs, 3% on ART <12 months, 99% missing two suppressed VLs).). Of those who were recently enrolled despite not meeting the eligibility criteria, retention and VL suppression were higher for those with one known suppressed VL prior to DSD enrollment (93%, n=498) than for those with a known unsuppressed VL prior to DSD enrolment (87%, n=46).

Conclusions: DSD model enrolment conferred a minor benefit to retention and equivalent viral suppression over one year of follow-up compared to conventional care for clients eligible for DSD enrolment.

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Evaluating the Impact of WHO's Treat All Guideline on Disease Progression for People Living With HIV in Central Africa From Cohort Data by Target Trial Design And Multi-State Modeling

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Background: By the end of 2018 nearly all countries in Central Africa had adopted WHO's "Treat All" guideline, which eliminates eligibility thresholds for people living with HIV (PLWH) to receive antiretroviral therapy (ART). Previous studies showed that the implementation of this guideline led to reduced mortality and morbidity, and prolonged retention in care. However, the impact of the Treat All policy on critical clinical outcomes, such as HIV disease progression and mortality, is largely unexplored.

Methods: We utilized a "target trial" design with individual-level longitudinal data collected between 2013 and 2019 from the Central Africa International Epidemiology Databases to Evaluate AIDS (IeDEA) consortium, from Burundi, Cameroon, the Democratic Republic of Congo (DRC), the Republic of Congo and Rwanda. Multi-state models (MSMs) infered the transitional hazards of disease progression among four disease stages (Stages 1-4 and death) which consisted of WHO clinical stages and death. The hazard ratios (HR) between a cohort enrolling in HIV care under Treat All guideline implementation and a cohort enrolling prior to Treat All guideline implementation were estimated, with and without adjusting covariates: sex and age.

Results: A total of 9,293 patients were included, 4,680 in the Treat All cohort and 4,613 in the pre- Treat All cohort. The Treat All policy was significantly associated with a reduced hazard of transition from WHO stage 1 to death with an adjusted HR (AHR) of 0.35, 95% CI 0.16 to 0.76, and from stage 2 to stage 3 (AHR = 0.63, 95% CI 0.43 to 0.92).

Conclusion: The adoption of Treat All was associated with a reduced likelihood of disease progression and death, especially for people with no or mild clinical symptoms at care enrollment. Prevention of HIV disease progression from the early-stage HIV infection suggests that 'treat all' policies can improve both short- and long-term clinical outcomes,

and ultimately the quality of life and life expectancy.

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Innovative Approaches to Improving Retention in HIV Care and Treatment: The Impact of 4D Strategy in Reducing Treatment Attrition Among Clients Re-Engaging in Care at Lighthouse HIV Care Facility in Malawi

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Introduction: Substantial progress has been made towards attaining 95-95-95 UNAIDS targets. However, the major challenge facing HIV programing is maintaining people on life-long ant-retroviral therapy (ART). Knowing that being on ART is a journey and we should still expect some clients to interrupt treatment, Lighthouse Trust implemented welcome back service in its HIV care facilities for clients re-engaging in care. Therefore, the aim of the study was to assess the impact 4D of strategy as a welcome back culture initiative on preventing further treatment interruption among clients re-engaging in care at Umodzi Family Centre (UFC) HIV care clinic.

Methods: This was retrospective cross-sectional study for clients who re-engaged in care after treatment interruption and received welcome back services using 4D strategic approach from May 2021 to January 2022 at UFC. The 4D strategy aims at deflating (1st D) fears client have when re-engaging in care, discussing (2nd D) the reasons client decided to interrupt treatment, directing (3rd D) the client to appropriate services based on raised reasons and decorating (4th D) the client for continuing treatment. We collected data from welcome back culture database. We looked at the main reasons clients dis-engaged from care, the type of services they received to address their challenges and the proportion of clients who reported on next appointment date. Data analysis was done using thematic analysis method and Microsoft Excel-365.

Findings: In total 453 clients re-engaged in care, 226 were Males (50%). In terms of residence, 412 (90%) were coming from Blantyre City, 54% were defaulters and 46% were missed appointments. The most common reasons were logistics challenges (travel or long distance to the clinic), social factors (stigma and discrimination) and treatment illiteracy. The major interventions given to address their challenges were counselling and multi-month scripting (3-6 months' supply). As of mid-January 2022, 60% managed to come for their next clinic visit.

Conclusion: As more innovations unfold to address gaps in continuity in care, welcome back service using 4D strategic approach, is a promising complimentary strategy to reduce further treatment attrition among client re-engaging in care if implemented with fidelity.

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Acceptability and Cost-Effectiveness of Blood Sample Transport by Drone for HIV-Testing of Infants Exposed to HIV in the City of Conakry, Guinea (ANRS 12407 AIRPOP)

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Background: Early infant diagnosis (EID) of HIV is essential because of the high mortality of HIV-infected infants during the first months of their lives. In Conakry timely EID is difficult as traffic congestion prevents the rapid transport of blood samples to the central laboratory. We investigated the cost-effectiveness and acceptability of transporting EID blood samples by drone.

Methods: The incremental cost-effectiveness ratio (ICER) per life-year gained of drone transport compared to motorcycle transport was estimated using Monte Carlo simulations. The local annual GDP per capita (1,160 USD) was set as the threshold. Main parameters included consultations parameters (e.g., time of arrival, time before been seen by a healthcare worker), speed of motorcycle and drones, weather and road conditions, blood sample analysis duration, maximal waiting time for carers, time when the healthcare centre closes, probability for the carers to return at a later day to receive the test result and HIV-infected infant survival depending on antiretroviral treatment initiation timing. Data sources included field surveys, literature reviews, Google Maps, Meteoblue, DroneVolt and IeDEA West Africa data.
Interviews were conducted with 65 stakeholders including postpartum women, local residents and policy makers. The drones were demonstrated to these individuals.

Results: Based on the current purchase price for a drone of 22,500 USD the ICER of 2,504 USD/ life-year gained, is above the cost-effectiveness threshold. The ICER would fall below the threshold if the price reduced to 8000 USD. The ICER is sensitive to weather-related downtime, number of exposed infants, and drone speed.
Post-partum women perceived that the use of drones could reduce the time taken to receive EID results. Health policy makers expressed the view that drone use could improve care decentralization and allow for the transportation of other health products.

Conclusion: The transportation of EID blood samples by drone whilst highly acceptable is not currently cost-effective in Conakry. Expected improvements in drone technology and decreases in purchase costs suggest it may soon be an acceptable option in this context. Transportation of EID blood samples by drone could be a cost-effective strategy in upper-middle-income cities with important traffic congestion and low rate of EID.

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Improving Access to HIV Treatment Services Through Private Pharmacies: Experience and Early Lessons From Mozambique

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Background: Mozambique has introduced several differentiated service delivery (DSD) models for HIV treatment. However, service delivery challenges persist, especially amid COVID-19. Antiretroviral therapy (ART) clients continue to visit health facilities (HFs) for ART, increasing COVID-19 risk. Additionally, services are usually provided during times when clients are at work/school or are otherwise engaged. Decentralized drug distribution through private pharmacies (DDD/PP) offers clients the option to refill ART at a PP at convenient times and locations.

Materials/Methods: The USAID- and PEPFAR-funded EpiC project engaged the ministry of health (MOH) and other stakeholders through a DDD technical working group to design and implement DDD/PP. Forty-two HFs and 77 PPs in 11 provinces were selected. HF and PP providers were trained, demand-creation materials were disseminated, and two electronic service delivery and data management tools were adapted. Eligible

clients (virally suppressed, no coinfections, among other criteria) were offered enrollment, along with other DSD options, at the HF. Clients selected their preferred PP and received all subsequent three-month dispensation of ART at the PP. Other services provided at PPs included weight and blood pressure monitoring, adherence support and monitoring, tuberculosis screening, and ART refills. Clients continued to receive clinical and laboratory care at the HF.

Results: From July through December 2021, 12,036 clients enrolled and 1,048 refilled ART at PPs. Enrollment gradually increased as the number provinces offering the model increased from one in July to four by the end of August. By mid-September all provinces were enrolling clients. In September, 819 clients newly enrolled in the model, in October 2,038, in November 1,513, and in the first half of December, 584.
Implementation of this new DSD approach relied on strong MOH leadership for policy direction and engagement of stakeholders, including people living with HIV. A robust supportive supervision plan, especially in the early stages, ensured program fidelity and timely course-correction, resulting in progressive enrollments.

Conclusions: DDD/PP is feasible in Mozambique and has significant potential to improve HIV service access and address services delivery challenges. To further improve the model and inform scale-up, initial client experiences with DDD/PP and provider and stakeholder perspectives should be assessed.

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Evaluation of the HIV-3 Test HIV Algorithm and the Scan Form Technology: Joint Pilot Qualitative Assessment Report

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Malawi has made tremendous progress on HIV Testing Services. According to the 2015-2020 National Strategic Plan for HIV and AIDS (NSP), testing numbers doubled, putting a strain on the health system, including human resources, commodities, quality assurance, monitoring and evaluation systems, and a potential increase in the number of false-positive results. To improve HIV testing efficiency and the accuracy of results, the government of Malawi plans to adopt the WHO recommended 3-test algorithm, including an ultra-rapid first test to reduce time to results delivery.

To implement the WHO recommendation, we simultaneously conducted a field evaluation of the 3 – test algorithm alongside the ScanForm technology for digitizing HTS paper registers. The field evaluation was conducted in 9 high testing volume sites across seven districts in Lilongwe, Thyolo, Mzuzu, Blantyre, Mulanje, Machinga and Mangochi. In this joint qualitative study, we used focus group discussions (FGDS) and questionnaire surveys to assess the acceptability and experiences of the HTS service providers with the new HIV testing algorithm and the Scan Form Technology. The aim of the FGD's was to generate participants views on the new testing algorithm and the ScanForm, benefits, challenges and recommendations.

Overall, participants from all the health facilities explained that the pilot training was helpful because they are able to conduct the test and use the ScanForm without problems. They further articulated that the 3-Test algorithm, including the use of the ultra-rapid first test to reduce time to results (INSTI), is an effective way of conducting HTS services because the results are read within a minute and it provides accurate results. Participants also acknowledged the significance of the use of the ScanForm technology as an efficient way of reporting data in real time.

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Facilitators and Barriers of Same-Day Linkage to ART Care of Newly Diagnosed HIV Adults in Health Facilities: A Cross Sectional Study From Primary Health Facilities, Supported by Expert Clients, in Urban Malawi

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Background: Malawi national HIV guidelines recommend same-day antiretroviral therapy (ART) initiation. In Malawi, only 88.6 % of those that tested HIV positive are on ART. Factors that facilitate and hinder successful linkage to ART among newly-diagnosed HIV-positive individuals have not been fully described.
The study described individual based, health system and health facility infrastructural factors that facilitated or hindered successful same-day ART initiation at two health centers, supported by expert clients(EC), in Blantyre, Malawi.

Methods: A cross-sectional, descriptive, quantitative study was conducted at South Lunzu (semi-urban) and Limbe (urban) primary health facilities, from March to July 2020.Study populations were HIV positive adults and health facility leaders. Eligibility criteria for the former group included: age ≥ 18 years, recently diagnosed HIV infection, received counselling from ECs, and offered same day ART. ECs are HIV positive lay individuals, doing well on ART and ready to support other HIV positive individuals through services like counselling. Structured questionnaire and checklist were used for data collection. Same day ART initiation was verified in health passport books of study participants.

Results: About 321 study participants enrolled. Their mean age (standard deviation) was 33(10) and 59% were females. Of these, 315 (98.2%) were successfully initiated on same day ART. Four of the six participants who failed to initiate ART reported that they were not mentally prepared to do so. During the period under review, HIV/ART services were available every day and there was no stock out of HIV testing materials and ART drugs. Participants reported health facility accessibility (99%, n=318), privacy in accessing ART (91%, n=292), and conduciveness of the distances between HIV Testing and Counselling(HTC) clinic and ART room (85%, n=273). They rated quality of counselling by EC as excellent (40%, n=128) and good (59%, n=189), quality of interaction with EC as excellent (41%, n=132) and good (58%, n=186) that the location of the EC in the HTC clinic was conducive (95%, n=305).

Conclusion: Health facilities supported by ECs successfully linked to ART newly diagnosed HIV positive clients. Mental unpreparedness likely contributed to unsuccessful linkage. Good health facility service delivery and infrastructure appeared to facilitate linkage.

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Expanding Assisted Partner Services (APS) to Partners of Index Partners in Western Kenya

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Objectives: To investigate the uptake, characteristics and outcomes of Assisted Partner Services (APS) when expanded to identify, test and treat female sexual partners of male partners identified through the APS scale up program.

Design: Longitudinal study nested in the APS Scale-up Implementation Study (R01AI134130) Materials and Methods: We utilized data from 31 health facilities offering APS in Homa Bay and Kisumu Counties in Kenya from November 2018 – March 2020. Male sexual partners of female index participants were traced and tested for HIV. Male partners who tested HIV-positive were provided APS and, asked to provide contact information for their female sexual partners so that they could be offered HIV testing and linkage to care if positive. We evaluated socio-demographic characteristics of FPP by HIV status using chi-squared and fisher's exact tests. We further compared New Positive FPP with index females (enrolled females who tested positive for HIV in the facility and provided contact information for their male sexual partners) in terms of socio-demographic characteristics, linkage to care at 6 weeks, viral suppression outcomes at 12 months, and intimate partner violence (IPV). Univariable and multivariable logistic regression was used to evaluate associations between FPP demographics and new HIV positivity.

Results: Overall 4951 FPP were identified and enrolled. Among these, 291 (5.9%) were new positives, 1745 (35.2%) were known positive, and 2915 (58.9%) were negative.
FPP and female index clients were similar in terms of age, marital status and income. FPP had a 1.72 (1.38-2.14) higher likelihood of having completed secondary school and nearly 6-fold increased likelihood of being self-employed (5.87 (4.20-8.21) compared to female index clients. Similar proportions of FPP living with HIV were in care at 12 months compared to index females (90% vs 89%). Follow-up and HIV viral load outcomes, including report of IPV, were also similar for both populations. No IPV experience was reported in either group.

Conclusion: FPP with HIV had high rates of linkage to HIV care and low IPV outcomes. Expanded APS also identified a large number of negative FPP at risk of HIV infection and link them to prevention interventions.

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Affordability of Integrating Early Childhood Development into PMTCT Programs

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Integrated health services can improve client experiences and maximize clinic resources, health system efficiency, and health outcomes for patients. We analyzed the incremental cost associated with including Early Childhood Development (ECD) in government and NGO clinical prevention-of-mother-to-child-transmission (PMTCT) services in Malawi. The aim was to examine program feasibility and cost effectiveness, with a view to promoting its uptake by government and other healthcare providers in the country.

The intervention incorporated ECD training sessions into routine clinic visits for mothers enrolled in PMTCT at 6 health facilities in Malawi. Data presented previously demonstrated that mothers attended sessions regularly, with high retention of mothers and infants in ART services. We estimated the additional financial cost of delivering the intervention from the provider perspective. Cost data were collected prospectively using timesheets, staff interviews and expenditure categorization to distinguish between research and implementation costs. An ingredients approach was used to estimate the implementation cost per activity. These data were used to calibrate a costing model to investigate changes in input costs if the intervention is replicated. We analyzed the cost per ECD session across different delivery scenarios to provide a measure of relative efficiency.

The incremental cost per mother per intervention session ranged from US$2.2

(delivered at government clinic) to US$6.3 (delivered at NGO run clinic). The cost implication of expanding such a service is determined by the structure of health care delivery: what level of existing cadre can implement the service, how much they are paid, and the level and cost of supervision they require. Lower wages/stipends lowers costs significantly, as would lower levels of supervision, but we have seen this compromises quality. A key consideration is the opportunity to use staff downtime: if implementing staff can provide other clinical services while not busy with the ECD intervention, the intervention becomes more efficient.

We have demonstrated previously that ECD integrated into PMTCT resulted in better clinical outcomes for mothers and infants. Determining whether these clinical outcomes result in further cost savings should be investigated. Further investigation is required to determine optimal delivery design for scale-up from a demonstration project to a government program.

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Optimizing Diagnostic Technologies for Pediatric HIV– Function or Location? Modelling analysis of Point of Care Technologies in Matabeleland South, Zimbabwe

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Background: Novel point-of-care (POC) devices for infant HIV testing provide prompt receipt of results and increase ART initiation, improving survival among HIV-exposed infants with HIV. POC device functionality (proportion of days devices are operational) varies with power supply, machine maintenance and testing commodities supply. Program planners must decide in which health facilities to locate a limited supply of POC devices.

Method: We developed a location-optimization model to identify the placement of 11 currently available POC devices in Matabeleland South Province, Zimbabwe, that would maximize the number of infants with HIV initiating ART within 30 days of testing. We first examined the current and optimal placement of the currently available devices, then determined the number of new POC machines that would need to be added and optimally located to achieve 50% 30-day ART initiation. We applied an accessibility constraint to model location optimization with equity of access (+/-1 POC machine allocated to each district of the province). We modelled 4724 infants who received HIV testing from January 2019-January 2020 using routine program data from 122 health facilities.

Results: With current placement of 11 existing POC machines, 37% of all tested infants with HIV would receive their results and 35% would initiate ART within 30 days. With optimal placement of existing machines, 46% would receive their HIV test results and 44% would initiate ART within 30 days; retaining 2 machines in their current locations and moving 9 machines to new facilities. Requiring >/=1 machine/district reduced 30-day ART initiation to 42%. The number of optimally placed POC devices required to achieve 50% 30-day ART initiation depended on device functionality: 38 devices would be needed with low (51%) functionality, 25 with current (63%) functionality, and 15 with high (75%) functionality.

Conclusions: We demonstrate substantial increases in 30-day result return and ART initiation among infants with HIV through

optimization-based location of available POC machines for infant testing. The benefits of optimal location and/or adding new POC machines are dramatically influenced by machine functionality. Optimization modelling can be a useful decision aide for prioritizing pediatric HIV program investments and approaches in limited resource-settings.

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Community Antiretroviral Therapy Dispensation in Cameroon Associated With Improved Perceived Service Quality: A National Evaluation

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Background: The USAID- and PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project and the Government of Cameroon developed and evaluated a model in which some health facilities providing antiretroviral therapy offered clients the option to receive antiretroviral (ARV) drug refills at community-based organizations (CBOs). We describe the impact of the model on clients' perceived quality of HIV services.

Methods: The evaluation was conducted from October to December 2020 in 10 regions of Cameroon. We compared measured wait time for HIV services and perceived client satisfaction with services as proxies for service quality between clients receiving ARV refills at health facilities (n=557 clients) vs. at 50 CBO pick-up sites (n=293 clients). Wait time and satisfaction among clients were also assessed at three matched pairs of health facilities: three facilities offering the CBO pick-up option ("offering facilities") (n=170 clients) and three facilities that did not offer the CBO option ("non-offering facilities") (n=170 clients). Perceived satisfaction and wait time were collected through a client survey and a time log. Descriptive and inferential analyses were conducted.

Results: CBO dispensation was associated with shorter wait times. Mean difference in wait time for clients receiving ARV refills from CBOs was 37.5 minutes less (CI:29.05–45.95, p-value=0.000) than at health facilities. Between the matched pairs, wait time for clients receiving refills at offering facilities was 12.9 minutes less than at non-offering facilities (CI:26.29–44.31, p-value<0.000). Clients receiving refills at CBOs were 4.5 times more likely to report satisfaction with services than those at offering facilities (97.3% vs. 89.1%, CI:2.12-9.42, p-value ≤0.000). Similarly, clients receiving refills at offering facilities were 6.26 times more likely to report satisfaction with services than those at non-offering facilities (94.4% vs. 73.1%, CI: 3.13 - 12.54, p-value <0.000).

Conclusions: Community ARV dispensation through CBOs was associated with shorter wait times for HIV services and higher client satisfaction than in offering facilities, and higher client satisfaction in offering facilities than non-offering facilities. ARV dispensation through CBOs has the potential to improve perceived service quality both for clients who receive ARV refills at CBOs and those who continue to obtain refills at the offering facilities.

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Implementation Research Outcomes of Point of Care HIV Viral Load Monitoring for People Living With HIV in Low- And Middle-Income Countries: A Systematic Review

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Viral load monitoring has been rapidly increasing among people living with HIV in low- and middle-income countries. This leads to a huge burden on laboratories. Innovative Point-of-Care (PoC) tests enable a reduction of laboratory workload, but the implementation bottlenecks are uncertain. This study aims to review implementation research outcomes of PoC HIV Viral load for people living with HIV in low to middle income countries.

We conducted a qualitative synthesis of peer-reviewed papers to explore implementation research outcomes (IROs) of Point of care HIV Viral load monitoring. We identified studies published between Jan 2013-Feb 2021. We used IROs as described by Proctor et al., which are acceptability, adoption, appropriateness, feasibility, fidelity, implementation costs, penetration/coverage and sustainability. We identified the following Mesh terms: Point of care testing, HIV, Viral load, acceptability, feasibility, sustainability, costs, adoption, appropriateness, fidelity and coverage. We searched in PubMed, Cochrane, and Scopus. The selection process of included papers is presented by the PRISMA diagram.

Studies have shown that PoC is feasible and successfully carried out in health settings. In most settings, it was found to be useful as patients received results the same day and rapid clinical action was taken. From a health service provider's perspective, high acceptability leads to the effective implementation of PoC. Additionally, there is high testing coverage in routine PoC VL monitoring in center's where the intervention was introduced. Fidelity was questionable in some settings due to lack of PoC guidelines, absence of quality monitoring and not being delivered as intended. Also, several studies showed that the costs are higher with costs varying from 23 to 98 USD compared to 24 to 46 USD for current centralized testing. Testing costs will be lower when scaled up and targeted for those at risk. Several studies presented a need for scale-up and integrating PoC VL technology in all existing health settings and use the same technology for a combination of conditions.

Implementation of POC testing for HIV viral load monitoring is acceptable and feasible but hindered by higher costs and low levels of fidelity. Implementation strategies should be investigated to overcome these challenges.

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Assessing the Feasibility and Acceptability of Integrating HIV/Syphilis Dual-Testing in Antenatal Care Facilities in Liberia

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Background: In Liberia, 2.0% of pregnant women are infected with HIV and 2.7% with active syphilis. If left untreated, these infections result in adverse outcomes for both mother and fetus. While over 80% of pregnant women are tested for HIV during antenatal care (ANC), only 8% are tested for syphilis. To address this gap, the National HIV Program implemented a pilot to assess the feasibility and acceptability of switching from an HIV-only screening test to a rapid diagnostic HIV/syphilis dual-test in ANC facilities across Liberia.

Description: From March-December 2020 dual-tests were piloted amongst pregnant women in 5 facilities with different characteristics. A 2-hour on-site training was held with providers on the use of the dual-test and treatment of syphilis. At least 8 mentorship-and-supervision visits were provided at each facility. Focus group discussions (FGDs) were used to assess provider perspectives at the end of the pilot.

Findings: A total of 8,908 pregnant women were screened with the dual-test. Of the 1.3%(n=112) who tested positive for syphilis, 69.6% (n=78) received treatment. Additionally, 21.2% (n=29) were co-infected with HIV and syphilis while 1.5%(n=137) were positive for HIV. In 99.7% (n=8887) of HIV tests recorded

at facilities, the revised HIV-testing algorithm was followed correctly. Through FGDs, providers expressed high levels of acceptance and confidence in using the dual-test and the benefits of using a single finger-prick to obtain timely results for both HIV and syphilis. Additionally, the introduction of the dual-test had no adverse impact on providers following the updated national HIV-testing algorithm.

Recommendation: The pilot demonstrated that the introduction of the dual-test in ANC settings is feasible and readily adopted by healthcare providers and leads to increases in syphilis screening and treatment. Early mentorship and supportive supervision beginning 2-weeks following on-site training is critical to address challenges early on as well as improve quality of data recording for programmatic decision-making. The National HIV Program recommends that the dual-test be integrated into all ANC settings to ensure that pregnant women receive comprehensive care and that mother-to-child transmission of HIV and syphilis is prevented.

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Implementing Safe and Ethical Index Testing Services: Adapting Provider Referral Contact Tracing Method to Suit Client and Provider Needs in the Western Region of Ghana

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Issue: Breaking the chain of HIV transmission is key to preventing new infections and achieving epidemic control. Disclosure of HIV status to sexual partners and children who may have been exposed persists as a huge challenge to HIV positive clients in communities where stigma, discrimination, and the fear of intimate partner violence is pervasive. Assuring and maintaining the confidentiality of index clients enhances contact elicitation, tracing and testing.

Description: The USAID Strengthening the Care Continuum Project, implemented by JSI Research & Training Institute, Inc. with the Population Council, trained healthcare providers (HCP) from 43 facilities in Western Region of Ghana to support clients to notify and contact their sexual partners and biological children below 19 years to test for HIV. Due to sociocultural difficulties with the partner notification approaches, the project introduced the adapted provider-assisted strategy where traceable addresses of clients' contacts are given to Community-Based Organizations to anonymously trace and conduct HIV testing within the community, the workplace or the social network of contacts.

Lessons Learned: A review of index testing registers showed about 70% of clients selected passive referral, where contacts elicited had to visit the health facility for testing. Sexual partners, in particular, did not show up for testing or were probably never informed by their HIV positive partners that they needed to test. Under the provider-assisted strategy, providers had difficulties informing HIV-exposed contacts by phone for fear of exposure of the identity of the index client. With the introduction of adapted provider-assisted strategy the project identified 760 undiagnosed HIV infections out of 4,356 persons tested and 489 known positives between April 2020 and March 2021 compared to 296 HIV+ clients diagnosed out of 1848 persons tested and 75 known positives between October 2019 and March 2020. When HCWs maintain the confidentiality of index clients and elicited contacts, and trace contacts anonymously, high contact tracing and testing rates are achieved.

Next Steps: The adapted provider-assisted strategy provides a feasible adaptation of the traditional provider-assisted testing strategy and is appropriate in situations where the risk

of partner violence, stigma and discrimination, and other adverse events is high.

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High Acceptability of a Direct-To-Pharmacy PrEP Delivery Model in Public Health HIV Clinics in Kenya: Perspectives of PrEP Clients and Healthcare Providers

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Background: High opportunity costs and health system burdens limit oral pre-exposure prophylaxis (PrEP) delivery in Kenyan public HIV clinics. Differentiated care interventions can reduce persistent barriers, and enhance PrEP scale-up and implementation. We conducted a qualitative study to gather insights of PrEP clients and healthcare providers regarding a PrEP differentiated care intervention aimed at improving efficiency of PrEP delivery in public HIV clinics.

Methods: From March to November 2021, we conducted in-depth interviews with 17 clients enrolled in a direct-to-pharmacy (DTP) PrEP care model with HIV self-testing (HIVST) for PrEP refill visits, and 18 healthcare providers. Participants were purposively sampled from two public HIV clinics in central Kenya. We used semi-structured interview guides informed by the theoretical framework of acceptability. We used inductive and deductive thematic approaches to understand attitudes, experiences, opportunity costs, burden, and willingness to participate in the intervention.

Results: PrEP clients were 76% female with a median age of 40 years (interquartile range 33-50). Providers were 61% female, and included 44% HIV testing services (HTS), 28% pharmacy, and 17% clinical providers, among other cadres. Participants reported feeling satisfied with the DTP model, as it improved service efficiency and quality, motivating continuation and PrEP adherence. Clients reported that they experienced less queues and movement between clinic rooms, which improved privacy and reduced HIV clinic-associated stigma. Clients also reported that spending less time in the clinic reduced loss of working hours and income. Providers reported reduced workload attributed to involvement of fewer staff and improved clinic flow, saving time for other roles. Both clients and providers expressed confidence and willingness to continue with the DTP model. However, participants described concerns of clients possibly missing out on other healthcare services during DTP refill visits, and of HIVST self-efficacy and accuracy. Providers further described worries over shift of workload to the pharmacy and loss of roles among HTS providers.

Conclusions: DTP refill visits with HIVST was highly acceptable as a differentiated care intervention for PrEP delivery among clients and providers. Context-specific adaptations and scale-up of the intervention could improve efficiency of PrEP delivery in public HIV clinics in Kenya.

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Talking About Treatment-As-Prevention and U=U: Patient Needs and Health Worker Perspectives

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Background: People who are virally-suppressed cannot transmit HIV sexually. While the science of HIV treatment-as-prevention (TasP) is clear, this message has not been disseminated widely in sub-Saharan

Africa, limiting its value in motivating treatment uptake, adherence, and retention HIV care. We sought to understand the TasP communication needs of persons living with HIV (PLHIV) and barriers and facilitators to TasP communication among health care workers in South Africa.

Methods: As part of an ongoing randomized controlled trial, we conducted five focus group discussions (FGDs) with healthcare workers (N=42) including nurses and counsellors from primary healthcare clinics and counselling staff of non-governmental organisations supporting the HIV testing and treatment programs in the Gauteng and Free State Provinces of South Africa. Additionally, three FGDs (N = 27) were conducted with PLHIV recruited by snowball sampling through civil society organisations and we interviewed 27 PLHIV referred by HIV counsellors at primary healthcare clinics in Johannesburg. Interviews were conducted in May 2021, audio recorded, transcribed verbatim, translated to English, and thematically analysed.

Results: While PLHIV participants had some knowledge about TasP, they expressed scepticism about the effectiveness of TasP. Knowledge about viral load (VL) suppression was an important validator and motivator for medication adherence. However, PLHIV expressed the need for guidance in communicating TasP, highlighting ongoing concerns around possible rejection by potential sexual partners.
Healthcare workers expressed discomfort with sharing the science of TasP due to concerns about patient non-adherence to ART and being responsible for ensuing HIV transmission. Healthcare workers worried that promoting TasP would undermine strong messaging on condom use to prevent other sexually transmitted infections. HIV counsellors expressed the need for communication tools providing simple, unambiguous, and consistent narratives for TasP and VL counselling, with visual and narrative support.
PLHIV and counsellors alike recommended a phased approach to communicating ART benefits, focusing first on attaining viral suppression and emphasizing condomless sex only after sustained viral suppression.

Conclusions: These data highlight the need for TasP communication support. Healthcare workers also need training and support to confidently and adequately communicate TasP, adapting the message according to the phases of PLHIVs' ART journey.

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Developing a Theory-Driven Treatment-As-Prevention and U=U Communication Materials for Person Living With HIV and Health Workers in South Africa

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Background: Messages on HIV treatment-as-prevention (TasP) and undetectable=untransmittable (U=U) have not historically been emphasized during HIV counselling in South Africa. We sought to develop video-based communication materials to support HIV counsellors in confidently sharing accurate information on TasP with persons living with HIV (PLHIV).

Methods: We followed the Intervention Mapping protocol, including consulting a stakeholder planning group, formative research consisting of five focus group discussions (FGDs, N=47) with healthcare workers, three FGDs (N=27) with PLHIV from civil society organisations, and 27 in-depth interviews with PLHIV at primary healthcare clinics. Data were analysed thematically through a series of workshops. We adapted the Information Motivation and Behaviour (IMB) skills model, refined strategies to enhance the

intervention's acceptability, and developed storyboards and scripts for the videos.

Results: Our formative research revealed that: (a) counsellors and PLHIV had doubts that TasP worked and needed support to improve their confidence in sharing TasP information; (b) they felt it essential to promote TasP alongside standard condom use as prevention strategies; (c) PLHIV were motivated to achieve viral suppression but needed counselling to improve their viral load literacy; (d) PLHIV worried a lot about transmitting HIV to others, and felt that TasP promoted self-acceptance and peace of mind.

Following this evidence, we will develop a series of short videos featuring PLHIV's testimonials of experience with TasP. The videos will be embedded in a tablet-based mobile application and presented in local languages. The video themes – quotes from the participants: 1) "My treatment boosts how I look at myself. I am a full human again."; 2) "HIV does not control me. I control it and I keep my partner safe."; 3) "My child is my testimony. U = U really works"; 4) "Now that I am virally suppressed, I can talk about HIV without feeling like I'm the victim or a villain"; 6) "We have been practising U=U for years now. She is positive and I'm still negative."

Conclusions: Our engagement with healthcare providers and PLHIV as well as advocates of U=U informed the development of a theory-driven, contextually grounded communication intervention to support counselling on HIV TasP.

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Estimation of Personal Out-Of-Pocket Patient Costs for PLHIV Who Have Co-morbid Hypertension in HIV Clinics in Kampala and Wakiso Districts in Uganda

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Background: Leveraging existing HIV infrastructures for management of non-communicable diseases (NCDs) such as hypertension (HTN) offers opportunity for integrated care. We examined the personal out-of-pocket patient costs incurred while accessing HIV and HTN care at HIV clinics in two urban districts of Uganda.

Methods: We administered a pre-tested out-of-pocket cost survey to PLHIV with HTN receiving care at 10 HIV clinics in Wakiso and Kampala districts. The survey assessed socio-demographic characteristics, direct medical costs (consultation, medications), direct non-medical costs (transport costs, food costs, other informal costs) and indirect costs (lost wages, household care,) associated with seeking HIV-HTN care. The costs were obtained in Ugandan shillings (USH) and converted into United States Dollar (USD) using prices for 2021.

Results: From June 2021 to November 2021, 94 respondents participated in the survey (78 Kampala; 16 Wakiso). Median age was 52 (IQR 44-60) and 74% were female. Forty-two percent of participants were self-employed, and only 10% received a regular salary. Median household monthly income was 400,000 USH (113 USD) with median monthly household expenditures of 300,000 USH (85 USD).

PLHIV with HTN spent a median of 5,000USH (1.41 USD) (IQR 3,000-10,000) in transport costs and 56 (59.6%) of the participants lost wages to access HIV care. The median amount lost to attend the HIV clinic was 20,000 USH (IQR 10,000-30,000)

A majority of the respondents (73.4%) received HTN services at a site separate from the HIV clinic and 92.6% always paid out-of-pocket for HTN medications. Although these clinics are

within the patients' area of residence, estimated median distance to clinic was 0.5 kilometers (IQR 0.16 -1). Patients spent up to 2,000 USH (0.56USD) on one-way transportation to the clinic and 42,000USH (12USD; IQR 20,000-99,000) quarterly to pay for HTN medications. Only 1% of the PLHIV with HTN had health insurance and nearly one third of respondents (28.7%) borrowed or sold property to finance their health care bills.

Conclusion: PLHIV with HTN incur substantial direct and indirect costs to access hypertension care. Integration of HIV- HTN services within the HIV clinics may improve access, and reduce the cost of care for PLHIV with HTN.

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How Do Nurses Spend Their Time? A Time and Motion Analysis in the Context of Differentiated Service Delivery at Primary Public Healthcare Facilities in South Africa

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Background: Among other benefits, differentiated service delivery (DSD) models are expected to reduce the time that clinicians spend with established ART clients enrolled in DSD models and thus potentially increase available provider time for non-DSD ART and non-ART clients. The actual use of provider time after DSD model implementation has not been reported. We measured healthcare provider time utilization in the context of DSD model implementation in South Africa.

Methods: We conducted a time and motion study at 10 primary clinics (5 rural and 5 urban) in South Africa from August to November 2021. Nurses involved in ART delivery (n=34) were observed for a total of 61 working days; type and duration of activities were recorded. We estimated average minutes spent/nurses/day on each activity and average number of clients seen/nurse/day, stratified by proportion of a facility's ART clients enrolled in DSD models, facility setting, and facility size.

Results: Average minutes worked/nurse/day was 574 (45=free time/no patients, 65=personal time/breaks, 66=administration/meetings, 37=DSD-model related tasks, 79=clients-related tasks, and 282=direct clients care) and 561 (61=free time/no patients, 75=personal time/breaks, 48= administration/meetings, 48=DSD-model related tasks, 37=clients-related tasks, and 293=direct clients care) at facilities below and above median DSD model uptake (< 47.7% of ART clients), respectively. Compared to facilities with DSD model uptake below the median, nurses in facilities with high DSD model uptake worked slightly shorter days (-13 minutes), had more free time/breaks (26 minutes), spent substantially more time on client-related tasks (42 minutes), administration/meetings (18 minutes), and spent slightly less time on direct client care (11 minutes). Low or high DSD model uptake did not meaningfully affect the average number of clients seen/nurse/day (26 and 27 clients, respectively). Nurses at facilities with below-median ART client volumes (< 2809) and in rural areas saw more clients/day (30 and 29, respectively), compared to facilities above-median client volume (24) and in urban areas (24).

Conclusions: Nurses in facilities with high DSD uptake spent slightly less time on direct client care but more on related activities; they did not see more clients/day. As DSD model implementation expands, effective reallocation of time may enhance facility performance.

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HIV Serostatus Disclosure and HIV Self-Testing Delivery Impact on HIV Treatment and Prevention Outcomes in Central, Kenya

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Background: HIV serostatus disclosure is an important aspect of HIV prevention that improves adherence to antiretroviral therapy (ART) among people living with HIV (PLHIV), and pre-exposure prophylaxis (PrEP) uptake for their serodifferent sexual partners, through enhanced social support. We sought to understand the effectiveness of HIV serostatus disclosure on ART adherence and PrEP uptake through HIV self-tests (HIVST) delivery among PLHIV.

Methods: At two public HIV clinics in Central Kenya, the Partner HIV Self-Testing Study distributed HIVST among PLHIV to deliver to sexual partners of unknown HIV serostatus. We conducted qualitative interviews among 21 PLHIV to understand their experiences with ART adherence and PrEP uptake for seronegative partners following HIV serostatus disclosure and HIVST delivery . We audio recorded and transcribed interviews; and analyzed data thematically using both deductive and inductive approaches.

Results: Participants' median age was 34 years (interquartile range 26-42) and 15 were female. Most PLHIV reported disclosing their HIV serostatus and delivering HIVST to their sexual partners which resulted in PrEP initiation among some of their serodifferent sexual partners. PLHIV reported feeling relief after HIV serostatus disclosure and no longer needed to hide when taking ART. Additionally, PLHIV reported better ART adherence because they received support from their partners who reminded them to take their pills. PLHIV whose seronegative partners initiated PrEP reported that taking medication together strengthened their relationship, made them feel safe and supported, and improved ART as well as PrEP adherence. A few PLHIV however reported challenges after HIV serostatus disclosure such as mistrust and disappointment from their partners but noted that for most relationships these were resolved over time. PLHIV who had not disclosed their HIV serostatus reported concerns such as fear of conflict and separation from their partners, which hindered possible linkage of partners to treatment or prevention services.

Conclusions: HIV serostatus disclosure with HIVST delivery was associated with improved ART adherence for index PLHIV and PrEP uptake among seronegative partners in this study. These results support HIVST delivery as a strategy to facilitate HIV serostatus disclosure to support adherence to HIV treatment and prevention strategies in Kenya and other similar settings.

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Does Implementing Differentiated Service Delivery Models Result in Greater Job Satisfaction for Providers? Lessons From Malawi, South Africa and Zambia

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Background: Differentiated service delivery (DSD) models for HIV treatment are expected to improve healthcare providers' quality of professional life by reducing the patient/provider ratio and allowing providers to spend more time with recipients-of-care in need. We interviewed healthcare providers to evaluate the effect of DSD models on job satisfaction.

Methods: In 2021, we surveyed a convenience sample of up to 10 providers/facility at 12 facilities in Malawi, 20 in South Africa, and 12 in Zambia. Questions investigated the effect of DSD models on provider responsibilities, work burden, time allocation, and job satisfaction. We conducted a principal components analysis using questions with responses to create an index score for job satisfaction and estimated odds ratios using logistic regression for associations between key variables and low reported job satisfaction.

Results: Of the 452 providers interviewed, 51% were doctors and nurses, and 49% were other staff cadres (administrators, data staff, lay counsellors, outreach workers, pharmacists). Across the three countries, 97% of respondents believed DSD models improved care to ART patients; 85% felt that DSD models make their jobs easier. Among 346 providers who had worked in their current roles when DSD models were initially implemented, 38% (n=131) reported low job satisfaction. Reporting that their job became harder (adjusted odds ratio(aOR) [95% confidence interval(CI)] 3.26[1.27-8.41]) or did not change after DSD introduction (aOR[95%CI] 8.15[3.07-21.62]), involvement in 3 or more DSD models (aOR[95%CI] 1.54[0.79-2.97]), and experiencing pressure to enrol patients in DSD models (aOR[95%CI] 2.15[1.04-4.45]) were all factors associated with low job satisfaction. Providers who qualitatively described low job satisfaction attributed it to more patients (ART or acute), more responsibilities, and staff shortages or absenteeism.

Conclusions: While most providers report high job satisfaction with the DSD models, those who did not perceive any changes in job difficulty after DSD implementation or those who had more pressure to enrol patients in DSD models were more likely to report low job satisfaction.

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Digital Intervention for HIV Disease: Integrating Clinical Decision Support and Patient Empowerment for Better Health Outcomes

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Background and objective: HIV/AIDS remains a public health threat but little attention has been paid to digital intervention as a strategy to empower patients and support clinicians, especially in developing countries. This study investigated the feasibility of integrating two digital interventions to support clinicians and empower people living with HIV (PLWH) for improved treatment outcomes.

Method: SmartHIV Clinician (SHC) is a web-based clinical decision support tool to support clinicians in the management of HIV disease and associated complexities. This digital tool integrates with BSmart Chart App (BSCA), another digital tool that empowers patients in many ways. These integrated technologies were evaluated for the potential impact on patient care. Information was obtained from thirty-five PLWH who participated in a focus group discussion in Nigeria and Kenya. Kano questionnaire was used to elicit information on the potential utility of the BSCA from PLWH.
SHC was validated against World Health Organization (WHO) treatment and care guidelines; the Centre for Disease Control (CDC) Guideline, European AIDS Clinical Society (EACS) Guideline and the British HIV Association (BHIVA) guideline conformity.

Results: Most of the participants for the BSCA study were aged 18-45 (63%), and had at least B.Sc. education (77%) and were females (71%). The Kano analysis revealed a high average satisfaction coefficient (ASC). Patient's daily management of HIV (ASC=0.77), real-time connection with the clinician (ASC=0.79), medications and appointment alerts (ASC=0.82), monitoring of health outcomes (ASC=0.82), credible information about HIV (ASC=0.82), and co-medication management (ASC=0.80) were considered crucial to support PLWH. The evaluation of the SHC against the guidelines validates the utility and concordance with recommendations by all treatment and care guidelines evaluated, for both naïve and treatment-experienced patients. The study revealed that both SHC and BSCA are feasible and useful in supporting PLWH and Clinicians for better outcomes.

Conclusion: The study revealed that integrating digital interventions is feasible and capable of supporting PLWH and the Clinicians for better outcomes. Thus, the adoption of integrated digital tools is a pragmatic option for stakeholders to deliver quality health services and better outcomes.

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Children and Adolescents' Preferences Regarding the Contents of Sms Reminders to Improve HIV Treatment Adherence

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Background: Adherence to treatment is important for children and adolescents living with HIV. Several studies found that digital adherence tools (DATs) are feasible and effective in certain groups. However, there are concerns about unwanted disclosure of the HIV-status. The aim was to explore the preference for contents of SMS-reminders for promoting adherence among children and adolescents living with HIV in Kilimanjaro, Tanzania.

Methods: We conducted a mixed-methods study among children with their caregivers and adolescents. We purposively selected 40 participants. Participants were given a Wisepill-dispenser and received short messages with different contents and length for 28 days. The first week, participants received a daily text message that literally asked to remember taking medication. In the second, third and fourth week, participants received more neutral messages consecutively (i.e. 'Think about your health', 'Remember'). Participants were interviewed after one month about the SMS-content during a semi-structured interview. We calculated a mean score for preferred SMS per week and compared the means between weeks using a within-subjects ANOVA test. We used thematic content analyses to identify themes from qualitative data.

Results: For both adolescents and children we found a higher mean score for week 2 (5.5 and 5.9) and week 3 (5.6 and 5.9) compared to week 1 (4.1 and 4.4) and week 4 (5.1 and 5.5.). From qualitative data we found that participants felt uncomfortable with the word medication due to fear of exposure. Both adolescents and caregivers said customised messages gave a sense of being cared for and protected. The majority of participants confirmed that SMS-reminders increased the habit of taking pills on time and minimised the chance of forgetting. Participants interpreted a neutral and short SMS message as caring because it was understandable, short and it maintained the privacy of their HIV-status.

Conclusion: Our study shows that more neutral messages as medication-reminders are preferred by caregivers of children and adolescents living with HIV. Results of this study will inform our trial in which we will investigate the effectiveness of digital

adherence tools among children and adolescents living with HIV.

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The Uganda HIVDR Database: A Data Information Exchange Platform to Improve HIV Drug Resistance (HIVDR) Monitoring

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Background: The Uganda HIVDR Database was commissioned by the Ministry of Health as part of a national HIVDR improvement program in 2018 and was deployed in May 2021. Before the Database, turnaround time was as high as 8 months, and it was hard to identify where the delay was. We describe the implementation, immediate benefits, and a future outlook of the HIVDR Database.

Description: The Uganda HIVDR Database is a PEPFAR funded online system developed by the Ministry of Health in 2021 with support from CHAI to expedite HIVDR monitoring. In Uganda, HIVDR testing is performed after a repeat viral load (VL) > 1000 copies/ml following intensified adherence counselling. Each VL result goes through an HIVDR testing eligibility algorithm and profiles of eligible samples are exchanged with the HIVDR Database that also pushes them to the HIVDR testing laboratories' systems. After testing, laboratories automatically push the results back to the Database. Through the Database interface, clinicians can access the results in real-time, add client medical and social histories, discuss results, make ART recommendations, and monitor clients started on new regimens. Each stage is timestamped, and clinicians are notified through email.

Lessons Learned: The Database received 3,575 sample profiles collected between February and September 2021 and 303 results discussions were conducted via the Database interface. Real-time data exchange with the laboratories and clinician notifications at each stage have facilitated a reduction in results handling latencies by an average of 174 days from 247 days. Timestamping every stage allows for targeted quality improvement interventions at inefficient stages. In addition, the Database provides better client data security and privacy through data encryption.

Conclusions/next steps: The HIVDR database has facilitated the use of data exchange to improve turnaround time for HIVDR results. However, continuous quality improvement is required to further reduce the turnaround time to expedite timely switch decisions and patient management.

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Going Online: Pilot of a Complementary Virtual Approach to Engage Key Populations and Other Hard-To-Reach People With HIV Services

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Background: The PEPFAR- and USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project, led by FHI 360 in Liberia, is piloting Going Online (GO), a complementary approach to maximize reach and provide a comprehensive package of HIV services to key populations (KPs) and other hard-to-reach people. GO is primarily intended to increase reach to unreached individuals, engage them using online platforms, and connect them to HIV services.

Description: EpiC Liberia used an app called QuickRes developed by FHI 360 to manage clinic appointments and complete the cascade of HIV services. EpiC identified and trained two community peer outreach workers (OWs), as well as "elite" outreach workers (elite OWs). The latter are professional health workers recruited for their skill and rapport with clients. Peer educators assisted clients with taking an online risk assessment that helped the client decide which services they needed. The app then walked clients through the booking process, helping them identify the nearest of seven PEPFAR-supported facilities where they could receive HIV services.

Lessons Learned: We launched QuickRes on July 19, 2021, and have reporting through December 8, 2021. EpiC successfully reached and booked 311 clients (236 KP clients booked by peer OWs, and 75 general population clients booked by elite OWs). All 311 clients (100%) arrived at the facilities, and 30 clients who rebooked for antiretroviral therapy (ART) refilled successfully, for a total of 341. Overall, 62 clients (18%) tested positive, and all were initiated on ART; this is the highest case-finding rate within the subsets of case-finding strategies for EpiC Liberia. The HIV case finding from KP clients booked through community OWs was 21.6% (51/236). The HIV case finding from elite OWs was 14.7% (11/75). Ordinary outreach testing in the project had a case-finding rate of 11% during the reporting period.

Conclusion: Using peer OWs improved reach among key population individuals, who are more likely to be positive. There are ongoing efforts to document and scale up best practices from the pilot as we strive to replicate results in other areas of Liberia.

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Digital Transformation in Community-Based HIV Programs – Are We There Yet?

Integration of a Digital Information App for Community Health Workers in 5 Districts of Zimbabwe

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Background: With rapidly changing guidelines and emergent public health threats such as COVID-19, reaching community health workers (CHWs) with appropriate, up-to-date information and myth-busters is a persistent challenge in large-scale HIV programs to reduce the 'know-do' gap. Digital transformation involves the use of digital technologies to improve the performance or reach of an program. Boost is a mobile phone application and website designed and developed in collaboration with CHWs that provides visual and interactive materials on HIV, sexual health and COVID-19. Our objective was to evaluate the use of Boost by CHWs in a large-scale HIV program.

Methods: We purposively sampled CHWs in the geographical catchment of 74 health facilities in 5 Districts of Zimbabwe where Boost was recommended for use. CHWs and their supervisors self-completed a survey on the installation, user-experience and reasons for (non)use of Boost on their smartphones using OpenDataKit. Survey data were analyzed descriptively using StataV15.1 and qualitative data analyzed thematically.

Results: From November-December 2021, 485 CHWs completed the survey. While the majority (66%; 319/485) of CHWs had used Boost, there were significant variations in App usage and frequency of use between rural/urban Districts, and clustered between sites within Districts. The most frequently cited reason for use of Boost by both CHWs and their supervisors was to increase their personal knowledge about a health topic (73%; 232/319); 98%(n=312) of CHWs reported use

of the App had improved their confidence and communication with clients. Additional support requested by CHWs to optimize Boost use included translation into local languages, mentorship/demonstration on App sharing/use with clients, and ensuring data-lite applications for download, storage and use.

Conclusions: We demonstrate the potential of digital applications for rapidly cascading information to CHWs when new evidence or guidelines are released. Reducing the 'digital divide' between rural/urban settings and normalizing digital technology use by CHWs at scale will require differentiated training and technical support strategies. Community-based program implementers require user dashboards for targeted program remediation to improve coverage and implementation fidelity of digital strategies. Future research is required to evaluate the impact of digital tools upon the quality of services provided by CHWs.

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Acceptability of a Tablet-Based Neurocognitive Test Battery among Adolescents and Young Adults With and Without Perinatally Acquired HIV in Uganda

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Background: Neurocognitive problems are common among adolescents with perinatally acquired HIV (PHIV). However, neurocognitive testing in low- and middle-income countries (LMICs), where the burden of PHIV is greatest, faces major challenges (e.g., few culturally/linguistically-adapted tests, few trained experts to administer tests, and limited access to specialty equipment/forms). Tablet-based tests have the potential to overcome barriers to scaling-up neurocognitive testing in LMICs, minimizing the need for specialty testing forms/equipment. However, tablet technology is still novel for many populations, and its acceptability for use to deliver neurocognitive tests in many LMICs remains unclear. This study aimed to evaluate the acceptability of a tablet-based neuropsychological test battery (i.e., NeuroScreen) among Ugandan adolescents with and without PHIV.

Methods: Fifty-seven adolescents (36 PHIV; 50.9% Male), 11-20 years (Mage=15.75, SD=2.11), recruited from Kampala, Uganda completed 12 NeuroScreen subtests and a technology use questionnaire assessing experiences with and comfort using computer technologies (i.e., smartphones, tablets, computers). Participants also rated their ease of using the tablet during NeuroScreen and identified the easiest and most difficult NeuroScreen subtests to complete.

Results: Prior computer and tablet use was low: 46% and 54% of participants had never used a computer or tablet, respectively. Only 12% reported owning a computer, 2% owning a tablet, and 25% owning a smartphone. While 47% of participants reported being "somewhat uncomfortable" or "very uncomfortable" using a computer, 81% rated using the tablet to complete NeuroScreen tests as "easy" or "very easy". 65% of participants identified a "Finger Tapping" test (rapidly tapping a button on the screen with a finger) as the easiest test; 39% identified a "Trail Making" test (drawing a line with a finger to connect circles) as most difficult.

Discussion: Despite limited experience and comfort using computers, adolescents with and without PHIV found the tablet-based NeuroScreen tests highly acceptable and easy to use. Results suggest that technological familiarity may not necessarily be a significant barrier for scaling-up neurocognitive testing in Uganda and other LMICs. However, future research must examine how experiences using computer technology could impact

performance on tablet-based neurocognitive tests.

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The Impact of an Interactive Social Media Intervention on Sexual Health Knowledge and Attitudes of South African Adolescents Living with Perinatal HIV: A Qualitative Assessment

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Background: South Africa has the highest burden of adolescents living with perinatally-acquired HIV (ALPHIV) in the world. ALPHIV in South Africa have limited access to sexual and reproductive health (SRH) education and services specific to their HIV status. When lacking comprehensive sexual education, ALPHIV are prone to sexual risk behaviors that can lead to teenage pregnancy, sexually transmitted infections, and HIV transmission. The use of social media in public health interventions has been shown to deliver information, foster social support, and improve decision-making skills. In this study, we evaluate how an mHealth intervention using WhatsApp influences sexual health knowledge and behaviors in ALPHIV.

Methods: We purposively enrolled 21 adolescents who were randomized to the intervention arm (total n=40) of a randomized clinical trial: Interactive Transition Support for Adolescents Living with HIV (InTSHA) from a government supported clinic in KwaMashu, an urban township of KwaZulu-Natal, South Africa. We conducted in-depth interviews using an interview guide consisting of open-ended questions based on World Health Organization guidelines to asking adolescents about SRH. Using Grounded Theory, we thematically analyzed data through an iterative, team-based coding approach combining deductive and inductive elements to contextualize youth's SRH attitudes, knowledge, and behaviors before and after InTSHA.

Results: Of the 21 participants, 13 (61.9%) were female and the mean age was 16.6 years. Most participants reported first learning about SRH as young teenagers in school in a non-targeted and negative way, and seeking clarification through peers and the internet rather than clinicians or caregivers. Participants reported that InTSHA provides a holistic and destigmatizing perspective on relationships, gender, and sexuality specific to growing up with HIV in South Africa. They acknowledged the ability to give and receive information from peers in a moderated setting, building their confidence, decision-making skills, and communication with partners and caregivers. Despite reporting some technological challenges, adolescents agreed that InTSHA was convenient, confidential, and user-friendly.

Conclusions: Adolescents admired InTSHA's unique role in bridging the gaps between existing sexual health knowledge, cultural norms, and social relationships during the COVID-19 pandemic. mHealth interventions have the potential to supplement SRH education for ALPHIV.

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Improving KP Data Capture and Entry Processes on the Ghana Key Population Unique Code Identification System

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Issue: The Ghana AIDS Commission (GAC) developed a Ghana Key Population Unique Code Identification System (GKPUIS), an online reporting system designed to track key population (KP) interventions in Ghana. The system has the capabilities of generating unique identification codes for KP clients hence protecting their identity. Key Population Implementing Organizations in the western region are expected to enter details of all KPs reached and provided with services into the system. An assessment conducted on the system showed in April, 2021 that 70% of reported data could not be found on the GKPUIS. Poor data entry on the GKPUIS has been linked to lack of computers for data entry, poor capturing of data from primary source and system failures. As a measure to improve data entry and reporting on the GKPUIS by 80%, the GAC GKPUIS Team embarked on a monitoring and onsite training visit to Civil Society Organizations (CSO) implementing KP interventions under the USAID Strengthening the Care Continuum Project in western region, Ghana.

Description: The GAC GKPUIS Team adopted four main approaches to improve data entry and reporting on the GKPUIS. Reviewing of all KP data from source documents to make sure that we had good primary data to feed into the system, Populating and updating all microsites and service points demarcated for each implementing CSO into the system for service provision, Introducing and demonstrating how to use the GKPUIS mobile app for primary data capturing and supporting implementers to key in all backlog data into the system.

Lessons learnt: The introduction of the GKPUIS mobile app significantly contributed to the increase in data entry. Five months after, 5 out of 7 KP implementing CSOs visited had achieved 90% data entry into the system, two averaged 70% data entry, Trained PEs equipped to capture primary data of KP client reduced data backlogs.

Next Steps:
-Roll out the use of GKPUIS mobile application for all PEs
- Embark on routine monitoring and conduct refresher trainings every half year.
- Monitor the data entry process and ensure continuous system improvements.

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Pilot Implementation of a User-Driven, Web-Based Application Designed to Improve Sexual Health Knowledge and Communication Among Young Zambians: A Mixed Method Study

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Background: The decline in HIV incidence among adolescents and young people (AYP) ages 15-24 in sub-Saharan Africa must be accelerated to end the AIDS epidemic by 2030. Interactive digital health interventions show promise to improve uptake of HIV services among AYP.
Objective: To pilot-test a theory-based, empirically grounded web-based application designed to increase condom-related knowledge, sexual and reproductive health (SRH) communication, and healthier choices, among young Zambians.

Methods: We conducted a pre-post quasi-experimental evaluation of the user-driven, interactive 'Be in the Know Zambia' (BITKZ) application through online surveys and phone interviews. Using social media advertisements, we sequentially enrolled AYP in the intervention (1377 received link to BITKZ) and comparison group (1494 received no intervention). Our final analysis set comprised of 749 intervention and 878 comparison participants (N=1627) who had baseline and end-line (5-weeks after first enrollment) data. We interviewed 59 BITKZ users. App log files

provided usage data. We conducted descriptive analyses and Student's t-test using an intention-to-treat approach, and rapid matrix analyses of interviews on excel.
Results: Users spent an average of 37 minutes on BITKZ. Intervention participants were more likely to score higher for intention to test for sexually transmitted infections (STIs) (0.21; P=.01) and HIV (0.32; P=.05) and, for resisting peer pressure (2.64; P=.02). We found no other statistically significant effect measure. At end-line, the intervention group (aOR-1.35; 95%CI 1.06-1.69) and those educated beyond primary level (range aOR 3.02-5.72) had higher odds while men had lower odds (aOR 0.73; 95%CI 0.58-0.92) of increased condom-related knowledge. Those educated had 27% (95%CI 1.06-1.54), those in full-time employment had 67% (95%CI 1.06-2.63), and men had almost two-fold increase (aOR-1.92; 95%CI 1.59-2.31) in odds of knowing how to wear condoms correctly. Interviews corroborated increased knowledge on correct and female condom use, awareness of STIs, and resisting peer pressure. Interviewees provided examples of SRH communication with partners and peers and of considering, adopting, and influencing others to adopt healthier behaviours.

Conclusions: Despite high baseline awareness of SRH among Zambian AYP with internet access, BITKZ provided modest gains in condom-related knowledge, resistance to peer pressure, and intention to test for STI/HIV.

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Peer Inmate Health Educators Improve Viral Load Coverage and Suppression Among Incarcerated Persons in Zambia

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Background: In Zambia, inmates represent a critical key population at risk of HIV infection during incarceration yet have limited access to comprehensive antiretroviral therapy (ART). Zambia has over 22,000 incarcerated persons across 100 correctional facilities with an occupancy level of 9,150, representing 247% occupancy as of December 2019. HIV prevalence among prisoners in Zambia is estimated at 14.3%. We present findings on improving HIV viral load (VL) coverage and suppression from 11 Zambia Correctional Services facilities under the University of Maryland Baltimore CIRKUITS project in Lusaka, Western, Eastern, and Southern Provinces of Zambia.

Description: CIRKUITS used an expanded peer approach model to offer adherence counselling to inmates on ART. Inmate peer educators were recruited and trained in adherence counseling, then reached out to their fellow peers in the prison cells to offer education and support. Additionally, the peer educators reminded clients on scheduled VL collection dates, and helped obtain permission from prison warders for the client to visit the clinic for VL sample collection. VL campaigns were held to ensure that all inmates on ART had a VL checked. CIRKUITS also trained prison healthcare workers in phlebotomy technique to ensure appropriate quality VL sample collection.

Lessons Learned: Data from a convenience sample of 11 Zambia Correctional Services facilities showed that VL suppression was high (98%) among clients with documented VL measurements. Of 2,354 inmates with VLs from October 2020 to September 2021, 2,297 were suppressed to VL <1,000 copies/mL. The transient nature of the inmate population made it difficult to assess VL coverage estimates, as VL measurements are due every 6-12 months for individuals on ART and many inmates are incarcerated for less than six months.

Conclusion: A strong support system from peer educators contributes to high levels of viral suppression among incarcerated persons;

however, VL coverage estimates are not currently possible. Development of longitudinal client-based data systems to track inmates on ART is needed to improve HIV service delivery in correctional facilities.

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Scaling up Integrated HIV Service Delivery for Key and Priority Populations in Catholic Health Facilities in Kampala and Wakiso Districts, Uganda

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Background: HIV prevalence among key and priority populations (KP/PPs) in Uganda remains higher than the national prevalence, yet these populations are stigmatized,discriminated against, and excluded from some mainstream HIV programming. Catholic healthcare networks are key partners in the HIV epidemic but are perceived as non-inclusive to KP/PPs. We used a multi-pronged approach to improve KP/PP service delivery in Catholic facilities in Uganda's Kampala and Wakiso districts.

Description: Uganda Catholic Medical Bureau (UCMB) integrated pre-exposure prophylaxis (PrEP), sexual and reproductive health, HIV care, and gender-based violence services into the KP/PP services package available through Catholic facilities. UCMB trained and mentored health workers (HWs) on stigma-free screening and conducted Continuing Medical Education to improve HW attitudes and perceptions towards KPs. HWs conducted routine screening with KPs to identify their needs, provided psychosocial support and behavior change communication, and operationalized flexi-hour clinics to improve access and privacy. UCMB partnered with the KP-led Uganda Empowerment Mission (UGEM) for behavior change dialogue meetings and hotspot outreaches, engaging KP peer leaders to mobilize KPs, distribute commodities, scale up partner testing and PrEP and HIV treatment initiation, screen and treat sexually-transmitted infections and TB, and strengthen referrals.

The numbers of KPs receiving HIV prevention, and treatment initiation services increased 9.7-fold from 746 served in 4 facilities in the first quarter (Oct-Dec 2020) to 7,255 in 21 facilities in the fourth quarter (Jul-Sep 2021). PPs increased 8.8-fold (874 to 7,700); PrEP distribution to KP/PPs increased 9.0-fold (101 to 907). Served KPs comprised 69% female sex workers, 10% men who have sex with men, 10% transgender persons, and 11% persons who inject drugs. PPs comprised adolescent girls and young women (48%), fisher-folks (23%), migrant workers (23%), truck drivers (23%), and discordant couples (5%).
Lessons Learned: Despite Catholic teachings on sexuality, Catholic health facilities have maintained a tradition of compassionate care. They can effectively provide KP/PP services if guided by KP/PP peers and sensitized about stigmatizing and discriminatory attitudes and practices.

Conclusions: UCMB will continue providing services to KP/PPs and stigma/sensitivity education to Catholic health facilities. We will solicit client feedback and KP-led civil society monitoring to ensure stigma-free services.

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Towards HIV Epidemic Control: Social Network Strategy as a Testing Modality to Reach Underserved Key Populations for HIV Testing and Prevention Services

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Background: Moving towards HIV epidemic control in Zambia requires innovative approaches to reach the remaining people living with HIV. Social network strategy (SNS) is an incentive-based testing modality which assumes that people in the same social network share similar HIV risks. Through the CIRKUITS project, we used SNS to identify underserved key populations (KPs) in the rural Eastern Province of Zambia.

Description: To implement SNS, we set up safe spaces in the community and conducted SNS and KP sensitivity trainings for 45 peer promoters, nurses, and community liaison officers. Peer promoters identified recruiters from KP communities, including female sex workers (FSWs), men who have sex with men (MSM), and transgender (TG) persons. Each recruiter was given five coupons to distribute to network members. Upon presentation of the coupon at the safe space, KPs received health education, risk screening, and health services based on their risk profile, including antiretroviral treatment (ART) or HIV pre-exposure prophylaxis (PrEP). Upon coupon redemption clients received an incentive of 20 kwacha (~1.50 USD).

Lessons Learned: From October to December 2021, 73 recruiters distributed 323 coupons and 137 (78%) were redeemed, as follows: 49 FSW distributed 243 coupons (104, 98% redeemed), 19 MSM distributed 60 coupons (24, 53% redeemed), and 5 TG distributed 20 coupons (9, 45% redeemed). Of the redeemed coupons, 132 (96%) accessed HIV testing. Of these 28 (21%) tested HIV positive: 26/105 (25%) FSW, 2/19 (11%) MSM, and 0/8 (0%) TG, with all 28 (100%) linked to ART. Furthermore, 104 (79%) tested negative with 73 (70%) KPs accessing PrEP: 59 FSWs, 10 MSM, and 4 TG. SNS identified KPs not accessing testing via traditional modalities. FSW recruiters had minimal challenges in inviting their network members to access health services. However, only half of the coupons distributed among MSM and TG were redeemed.

Conclusions: SNS was highly successful at identifying PLHIV among FSWs, moderately MSM, and did not identify TG. Including KP community members in providing HIV testing services via community safe spaces helped identify underserved KPs who had not yet accessed HIV testing. Linkage to ART and PrEP was high for clients via SNS.

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Improving HIV Case Finding Among Men-Who-Have-Sex-With-Men (MSM) In Bayelsa State, Nigeria: Lessons From the EpiC Project

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Background: Men who have sex with men (MSM) are the only group in Nigeria where HIV prevalence continues to rise. In 2017, prevalence in this group stood at 23%, significantly higher than among the sex workers - at 14.4%. In 2014, 10% of all new HIV infections in Nigeria occurred among MSM. The high rate of stigma and discrimination in Nigeria has pushed MSM underground, making them more vulnerable to HIV and case finding more difficult.

Description: The PEPFAR/USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project, led by FHI 360 implemented a peer-led community-based HIV program aimed at increasing access and uptake of comprehensive HIV prevention, care and treatment services among key populations, including MSM. Using innovative and adaptive strategies, the program offered

HIV testing services through community-based outreaches, strengthened index testing services, and voluntary counseling and testing and introduced HIV self-testing through community structures as testing modalities among the MSM community in Bayelsa State. Routine program data were collated and analyzed.

Lessons learned: Between January 2020 and September 2021, a total of 8,294 MSM were tested for HIV with 1,215 newly identified positives (15% case finding rate). Community outreaches provided the highest testing volume with 7,477 tested and 865 newly identified positives (12% case finding rate). However, index testing services had the highest case finding rate of 64% with 506 tested and 323 newly identified positives. 207 MSMs were tested through voluntary counseling and testing with 22 newly identified positives (11% case finding rate). 104 MSMs were reached using HIV Self-testing with 5 newly identified positives (5% case finding rate). All newly identified positives were initiated on Anti-retroviral therapy.

Conclusions/ Next steps: While index testing services had the highest case finding rate, the other testing modalities were also effective in reaching MSMs with significant HIV case finding rates. Scale-up and optimization of the different testing modalities will be effective in reaching more MSM as we continue to strive towards achieving epidemic control.

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Violence and Harassment Among the Key Population in Nigeria

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Background: Harassment and violence against key populations (KP) have existed for a long time. However, recent emphasis has been focused on this group, despite the fact that the issue continues to be a concern for the health system in the management of HIV/AIDS. Despite progress in the fight against HIV-related stigma and prejudice, discriminatory attitudes continue to exist in far too many countries. Discriminatory legislation, harsh law enforcement, harassment, and violence can push vulnerable people to the margins of society, denying them access to important health and social services, including HIV services. The focus of this research is on violence and harassment directed at KP.

Method: The rate of reported violence and harassment across the four KP typologies was described in a descriptive analysis of the 2020 Integrated Behavioural and Biological Surveillance Survey (IBBSS) encompassing 17975 KP (Female Sex Workers (FSW), Men who have Sex with Men (MSM), People Who Inject Drugs (PWID), and Transgender (TG)). Microsoft Excel and STATA 13 software were used to sort and analyze the data retrieved.

Result: There are 17975 KP in total. 4974 FSW, 4397 MSM, 4414 PWID, and 4190 TG. 8.8% of FSWs, 16.1% of MSMs, 6.5 percent of PWIDs, and 15.1 percent of TGs had been forced to have sex in the year leading up to the poll. Forced sex was forced on 41.9 percent of FSW, 72.9 percent of MSM, 69.7% of PWID, and 61.4 percent of TG, among which 33.3 percent of FSW, 35.7 percent of MSM, 36.9 percent of PWID, and 54.6 percent of TG were forced without a condom. Prior to the study, 38 percent of FSWs, 17 percent of MSMs, 51 percent of PWIDs, and 32 percent of TGs had been harassed or arrested by law enforcement.

Conclusion: The level of violence and harassment among Nigeria's KP remains alarming, with over 70% of MSM reporting forced sex and over 50% of PWID reporting law enforcement harassment. As the country works to eliminate the HIV epidemic by 2030,

this indicates that violence and harassment among MSM and PWID is a cause for concern.

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Syphilis Self-Testing to Expand Test Uptake Among Gay, Bisexual, and Transgender Men: A Pilot Randomized Controlled Trial in Zimbabwe

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Background: Syphilis testing and treatment is important for HIV prevention, yet for MSM access is frequently limited by cultural taboos, stigma and discrimination. A two-armed pilot randomised trial compared efficacy and costs of facility-based syphilis testing with self-testing among MSM in Zimbabwe.

Methods: In this pilot trial, conducted in Harare between October 2020 and July 2021, participants were randomized 1:1 to either arm [(MRCZ/2533), (NCT04480749)]. The primary outcome was the relative proportion of individuals uptaking testing between arms. Total incremental economic provider costs, cost per client tested, diagnosed and treated were assessed using ingredients-based costing. User access costs were estimated from exit interviews.

Results: A total of 100 men were enrolled, split equally across the arms. The mean age was 26. Overall 29/50 (58%) of facility arm participants completed a syphilis test compared to 37/50 (74%) for self-testing. 8/29 (28%) of facility arm participants had a reactive syphilis test with 4/8 (50%) returning for confirmatory testing. For the self-testing arm, the reactivity rate was 6/37 (16%) with 4/6 (67%) returning for confirmatory testing. Total provider costs were $859 and $736, and cost per test $30 and $15 for the respective arms. Cost per reactive test was $107 and $123 and per client treated $215 and $184, respectively. The initial screening test was the largest cost component in both arms (33% in facility vs 31% for self-testing arm). Total user cost per client per visit was US$9, with around half due to transport. Syphilis protocols prescribe three clinic visits to receive syphilis treatment, consuming almost 92% of client's weekly income (average weekly earnings = $30.30).

Conclusion: Syphilis self-testing can increase test uptake among MSM in Zimbabwe. However, a number of barriers limit uptake including lack of self-care products and poor service access. Additionally, the current syphilis screening and treatment protocols requiring 3 visits, generate a significant financial barrier to an already overburdened population. Bringing syphilis testing services to communities, simplifying service delivery to reduce travel costs and related barriers, increasing self-care products and service access through CBOs are useful strategies to promote health seeking behaviours among hidden populations such as MSM.

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"You Can Get That Person on ART but You Can't Give Them Back Their Social System". Qualitative Insights of HIV Voluntary Assisted Partner Notification in Marginalized Populations.

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Background: Voluntary assisted partner notification (VAPN) is an important method for identifying HIV infections, sero-discordant

couples, and to link partners of persons diagnosed with HIV to testing and care services. While the VAPN approach is seen as appropriate in many settings, little is known about VAPN in groups that experience marginalization and whether its use is suitable for referral to HIV care pathways.

Materials and Methods: We conducted semi-structured in-depth interviews with purposively selected local, regional and international VAPN stakeholders (N=15) regarding their perspectives and experiences with VAPN policy and implementation. Data were analyzed following a Reflexive Grounded Theory approach and managed using NVIVO Pro 12.

Results: Respondents highlighted flexibility in VAPN policy implementation and spoke extensively about patient centred approaches to support VAPN. However, respondents felt the scope of policy was not broad or nuanced enough for marginalized groups, especially women, Female Sex Workers (FSW), men who have sex with men (MSM) and children. Women were seen as vulnerable to violence following partner notification, and lacked access to adequate support. Age appropriate VAPN assistance was considered unavailable for sexually active children. Upon HIV status notification, FSW and MSM could face exclusion from important social networks leading to further marginalization, particularly - for MSM - in places where same-sex relationships are illegal. Strict funder driven VAPN targets were considered to reduce the quality of care and functioning of VAPN as health workers forego certain guidelines in order to reach adequate numbers of patients.

Conclusions: Our findings suggest that VAPN can be a useful tool for HIV testing and prevention but marginalized communities have complex care needs which current VAPN policy does not support. Embedding understandings of identity, belonging and safety into VAPN could address individual priorities and needs. Community support networks, tailored care for children and family orientated approaches to HIV notification may overcome issues relating to vulnerability and marginalization.

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Long-Term Retention and Predictors of Attrition for Key Populations Receiving Antiretroviral Treatment Through Community-Based ART in Benue State Nigeria: A Retrospective Cohort Study

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Background: Key populations (KP) are disproportionately infected with HIV and experience barriers to HIV care. KP include men who have sex with men (MSM), female sex workers (FSW), persons who inject drugs and (PWID) and transgender. We implemented three different approaches to the delivery of community-based antiretroviral therapy for KP (KP-CBART) in Benue State Nigeria, including One Stop Shop clinics (OSS), community drop-in-centres (DIC), and outreach venues. We studied long-term attrition of KP and virological non-suppression.

Method: This is a retrospective cohort study of KP living with HIV (KPLHIV) starting ART between 2016 and 2019 in 3 0SS, 2 DIC and 8 outreach venues. Attrition included lost to follow-up (LTFU) and death. A viral load >1000 copies/mL showed viral non-suppression. Survival analysis was used to assess retention on ART. Cox regression and Firth logistic regression were used to assess risk factors for attrition and virological non-suppression respectively.

Result: Of 3495 KPLHIV initiated on ART in KP-CBART, 51.8% (n=1812) were enrolled in OSS, 28.1% (n=982) in DIC, and 20.1% (n=701)

through outreach venues. The majority of participants were FSW - 54.2% (n=1896), while 29.8% (n=1040), 15.8% (n=551) and 0.2% (n=8) were MSM, PWID, and TG respectively.
The overall retention in the programme was 63.5%, 55.4%, 51.2%, and 46.7% at 1 year, 2 years, 3 years, and 4 years on ART. Of 1650 with attrition, 2.5% (n=41) died and others were LTFU. Once adjusted for other factors (age, sex, place of residence, year of ART enrollment, WHO clinical stage, type of KP group, and KP-CBART approach), KP-CBART approach did not predict attrition. MSM were at a higher risk of attrition (vs FSW; adjusted hazard ratio (aHR) 1.27; 95%CI: 1.14 – 1.42). Of 3495 patients, 48.4% (n=1691) had a viral load test. Of those, 97.8% (n=1654) were virally suppressed.

Conclusion: Although long-term retention in care is low, the virological suppression was optimal for KP on ART and retained in community-based ART care. However, viral load testing coverage was sub-optimal. Future research should explore the perspectives of clients on reasons for LTFU and how to adapt approach to CBART to meet individual client needs.

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Expanding Access to Oral Pre-exposure Prophylaxis for People Who Inject Drugs in Nigeria

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Background: While oral pre-exposure prophylaxis (PrEP) is recommended for all individuals with substantial likelihood of acquiring HIV, people who inject drugs (PWID) have not been prioritized in most settings. The USAID- and PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project implemented PrEP services for PWID in Nigeria.

Materials/Methods: PrEP services were provided to PWID in Bayelsa and Niger states. At the program's start, hotspots were identified, PWID were engaged to tailor PrEP services, and ongoing training of providers in the community began. In addition to PrEP, the HIV prevention package provided in hotspots and drop-in centers (DICs) included HIV testing, STI screening and management, condoms and lubricants, PWID-specific exposure reduction counseling, and referrals to other support programs. At DICs, paralegal and psychological support services were also provided. Outreach was led by peer frontline workers. Program data were recorded on paper-based forms with subsets entered online.

Results: From January 2020 to September 2021, a total of 13,286 PWID were tested for HIV. Of these, 12,111 (91.2%) had negative results. Of all negative test results, 8,190 (67.62%) were followed by PrEP eligibility screening. Of these screenings, 2,661 (32.19%) were eligible. PrEP eligibility criteria included several factors: no suspicion of acute HIV infection, absence of proteinuria, and willingness to use PrEP as prescribed. PrEP was initiated with 2,659 PWID (312 [12%] female; 2,347 [88%] male), indicating that PrEP is a feasible HIV prevention intervention among PWID. While only the negative test results among those not taking PrEP should be followed by screening, determining this proportion is not currently possible as indicators do not differentiate between people currently taking PrEP and those not. In the future, HIV testing for PrEP continuation should be tracked separately. Additionally, improved program level data is needed to further delineate the reasons for PrEP ineligibility.

Conclusions: Provision of HIV prevention services, including PrEP to PWID is feasible in Nigeria when PWID are engaged throughout implementation and interventions are peer-led, client-centered, tailored, and holistic. Female PWID may benefit from further tailoring of HIV prevention programs.

However, program-level data systems need strengthening to improve programmatic monitoring, evaluation, and response.

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PrEP and Family Planning Uptake Among Adolescent Girls and Young Women in Post-Abortion Care in Kenya

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Background: Women accessing care at post abortion care (PAC) clinics have had recent and potentially ongoing condomless sex, placing them at risk for subsequent unintended pregnancy, HIV, and other STIs depending on their geographic settings. Few studies have assessed PAC settings to assess the uptake of HIV pre-exposure prophylaxis (PrEP) when integrated into PAC services, including family planning (FP).

Methods: Using medical records data abstracted from clients attending 14 PAC clinics in Kisumu and Thika, Kenya with an integrated PrEP program, we describe PrEP and FP uptake among adolescent girls and young women (AGYW) aged 15 to 30. Logistic regression models were utilized to estimate the effect of age on uptake of PrEP and FP.

Results: A total of 1041 AGYW were offered PrEP and FP across 14 PAC clinics, of which 19.3% initiated PrEP and 43.1% initiated FP prior to discharge. The median age of AGYW clients was 24 (interquartile range (IQR): 18-30). Relative to AGYW ≥19 years, AGYW ≤18 years were less likely to initiate PrEP (9.5% vs. 22.6%, OR: 0.35, 95% CI: 0.23-0.55), more likely to initiate FP (56.0% vs. 38.5%, OR: 2.03, 95% CI: 1.54-2.69), and less likely to initiate both concurrently (6.6% vs. 16.5%, OR:0.53, 95% CI: 0.31-0.91).

Conclusions: Uptake of PrEP and FP among AGYW in PAC settings in Kenya are associated with age. Younger women (15-18 years) are more likely to initiate FP following post-abortion care. However, younger women are significantly less likely to initiate PrEP or FP and PrEP concurrently, and may benefit from additional and more age-tailored counseling around sexual health and prevention of HIV and unintended pregnancy after an abortion.

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HIV Testing Uptake Among Men.

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Background: HIV testing is a critical initial step in HIV therapy and care. Despite the fact that women in resource-constrained areas have a higher HIV burden, men's utilization of HTC services is still inadequate. Analysis from ROM medical data indicate that males are less likely than women to seek HIV services, despite the fact that more than 70% of women in ART clinic are sexually active. In an effort to reach UNAIDS 95-95-95 targets especially among the men, ROM designed a men's HIV clinic to provide comprehensive HTC and STI screening services to improve male HIV testing uptake.

Description: Our intervention is to increase men's use of HIV testing services. In addition to HIV clinics, men's clinic operates from dusk to dawn. To eliminate any hassles, the clinic is strategically positioned and in dim light to avoid any inconveniences. The clinic serves men with; busy work schedules, self-stigma, missed appointments, as well as to shorten waiting times. Patients who have refile appointments are notified ahead of time and reminded. We also provide HTC, and STI screening to men at their gathering places such as bars, boda-boda stages, and recreation groups; those who test positive are linked to the facility. The community teams also

mobilize men from community/ HIV hotspot areas with megaphones to come for services.

Results: From 2018 to 2019, the number of men tested for HIV increased by 48%, and by 53% from 2019 to 2020, while the number of men who tested HIV positive and sought treatment increased by 22%. Due to covid19 restrictions in the country, the number of men tested for HIV reduced from 2020 to 2021.

Conclusion: In addition to men's clinic, reaching out to men at their gathering places with H testing services has proven to be efficient in promoting HIV testing among males. Prior mobilization of males from communities played a significant role. Linking men from facility to men's clinic has drastically reduced missed visits, improved client satisfaction, and drug adherence. Understanding the needs of clients is also an important factor to consider when developing HIV testing programs.

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High Linkage to Treatment Among Key Populations Who Self-Test Through a Peer HIV Self-Test Distribution and Community-Based ART Program Among Key Populations in Lagos, Nigeria

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Background: HIV self-testing (HIVST) presents an opportunity to increase HIV testing uptake. It offers a confidential alternative particularly for highly stigmatized and criminalized populations such as men who have sex with men (MSM), transgender persons (TG), and female sex workers (FSW). However, follow-up of HIVST recipients is often a challenge, thus hindering appropriate referral to prevention and treatment services. We report on implementation outcomes and lessons learned from community-based HIVST distribution and linkage to community-based ART and PrEP for key populations (KPs) in Lagos, Nigeria.

Description: In 2020, as part of outreach services of a community-based health clinic (CBHC) serving KPs, HIVST kits were distributed to 1,174 MSM, 224 FSWs, and 102 TG persons (TG men: 12; TG Women: 90) by peer educators (PEs). PEs (N=10) reached their peers at physical hotspots and through social media (WhatsApp followed by in-person distribution) and provided HIV education and shared an HIVST demonstration video and brochure on post-test services (e.g., confirmatory testing, ART, PrEP). Contact information was obtained from clients for follow-up (e.g., referral to the CBHC or linked with a community health extension worker for ART or PrEP enrollment).

Lessons Learned: 17% of recipients were first-time testers. PEs reached 100% of kit recipients within five days of distribution (majority by phone call); all reported having unassisted self-testing. The self-reported positivity rates were 3.1% in MSM, 0.4% in FSWs, and 4.9% in TG persons. All KPs who self-tested positive initiated ART; 10 of 1,458 who self-tested negative initiated PrEP (all MSM). Employing trusted peers was an effective way of reaching KPs with HIVST. Follow-up calls were successful due to: i) verifying the number at the time of kit distribution, ii) following-up soon after distribution by the PEs themselves. Successful linkage to treatment was likely due to referral to a KP-friendly community-based clinic supplemented by community-based ART initiation.

Conclusions: The high uptake of HIVST and ART was facilitated by strategies led by PEs and post-test services being offered in KP-friendly clinics and in the community. HIVST is especially essential given that the COVID-19 pandemic has limited numbers of in-person testing at clinic and outreach.

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Assessing Progress Towards the 90-90-90 Cascade Amongst Key Population: Results from the 2020 Integrated Behavioral and Biological Surveillance Survey (IBBSS) in Nigeria.

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Background: Key Population are critical in the Nigeria's national HIV/AIDs response.They are integral in the drive towards epidemic control as they serve as reservoirs of new infection within their sub-typologies and in the general population. A Mode of Transmission study in 2020 showed that Key Population, alongside their partners are implicated in about 24% of all new infections. Previous rounds of the IBBSS has always included Key Population, with a view to understanding the correlation, if any, between their respective behavioral characteristics and their HIV prevalence, access to prevention services and overall treatment outcomes. In 2020, the government of Nigeria,with support from GFATM,commissioned an IBBSS to determine, amongst others,testing coverage, sero-prevalence of HIV infection, assess their uptake of ARV as well as measure their overall treatment outcomes in line with the 90-90-90 goals. The study was conducted in 12 states.

Methodology: The study adopted a multi-stage sampling procedure, using the hotspots validated from the 2018 key population size estimation study as sample frame.During data collection,an checklist based on UNAIDs blue book guidelines, was administered on sample participants and all those who met eligibility were randomly selected by interviewers until the individual KP typology sample size per state (i.e.415, 368,372 & 372 per state for FSW, PWID, MSM &TG respectively) was achieved.Participant responded to both the behavioral and the biological component, inputed on android tablets. Ethical approval was obtained from the National Health Research Ethics Committee.Data was collected using the SurveyCTO app while analysis was done using the Stat,vs 13.

Result: A total of 17,975 interviews were administered.Across the HIV treatment cascade,26.7%,38%,19% and 12% of FSW,MSM,TG and PWID are diagnosed and know their status respectively. Amongst those diagnosed and know their status 89%,90%,84% and 68% of the respective KPs are on ART while 86%,78%,75% and 75 of those on ART have achieved viral suppression.

Conclusion: The cascade analysis highlights the need for the country to prioritize efforts in upscaling HIV diagnostics through a comprehensive HCT coverage.This is important in establishing linkage to care and initiation of ARV. Also,machineries should be set for a holistic KP size estimation exercise across the country.

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Determinants of COVID-19 Vaccine Uptake Among Female Sex Workers in Nairobi County, Kenya

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Background: In Kenya FSW have a HIV burden of 29% compared to the general population at 4.9%. This community has been criminalized and marginalized, as a result, they operate in hiding, hindering access to HIV and COVID-19 prevention services. In March 2020, Kenya announced its first COVID-19 case, this led to restriction of night movement, closure of bars and restaurants. These measures adversely affected sex workers' operating times and

places. As a result, FSWs ended up having random clients in their homes, exposing themselves to COVID-19 infection. The University of Manitoba under Partners for Health and Development in Africa (PHDA)-an HIV/STI research center serving approximately 35,000 FSWs in Nairobi County, availed COVID-19 vaccines to all FSW within Nairobi County. However, it was noted that there was vaccine hesitancy among FSWs necessitating an exit survey.

Method: A cross-sectional exit survey was carried out among FSW accessing HIV/STI services within seven PHDA sites in Nairobi County. A semi-structured questionnaire was administered by trained research assistants. The survey captured information on COVID-19 FSW knowledge, perception, challenges, and uptake.

Results: A total of 208 FSWs were recruited, whereby 104 had been vaccinated and 104 declined vaccinations. 165 (79.4%) heard about Covid-19 vaccines through media (Radio or TV). Varying statements regarding vaccines amongst the vaccinated and unvaccinated cohorts were encountered. Out of 208 FSWs, 69(33%) said COVID-19 vaccine was associated with corona, while 41(19.6%) associated it with sterility. 22(21%) unvaccinated FSW reported that vaccine kills while 13(13%) said it does not work. Additionally, it was interesting to establish that most of the unvaccinated FSW knew that the vaccine protects one from getting COVID-19 43(42%), reduces the chances of COVID-19 infections 34(33%), and increases immunity against Covid-19 (20%). Amongst the unvaccinated FSW, the majority 77(74%) reported that they would advocate for other key population on the importance of getting the COVID-19 vaccine. However, some FSW indicated fear of infertility, sickness, extreme side effects, limited time, misconceptions around the vaccine, and health concerns as some of the hindrances towards their uptake of the vaccine.

Conclusion: COVID-19 vaccine sensitization among FSW needs scaling up.

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Sexual and Reproductive Health History and Contraceptive Use Among Female Sex Workers in Togo in 2021

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Background: In sub-Saharan Africa, Female Sex Workers (FSW) face challenges increasing their vulnerability to HIV and poor sexual and reproductive (SRH) health outcomes. We sought to explore SRH outcomes and utilization of SRH services among FSW in Togo.

Method: A cross-sectional study was completed in June 2021 among FSW in two cities of Togo: Lomé, the capital city in the South and Kara in the North. A snowball sampling method was used and initial seeds were identified in collaboration with local FSW non-governmental organizations. After consent, a standardized questionnaire was administered by trained research staff.

Results: A total of 447 FSW, (300 in Lomé), with a median age of 30, participated in this study, among which 48.8% (n=218) had a secondary school education and higher. Median number of clients per week was 5 and weekly earning range was $17 - $43. Out of 191 (42.7%) FSW who reported STI symptoms in the previous year, 116 (60.7%) consulted for these symptoms. The majority reported at least one lifetime pregnancy (87.9%) and 79.2% (n=354) indicated having at least one child. More than one third (39.8%) reported ever having an unintended pregnancy, and 67.6% (n=121) of them ever had an abortion (p< 0.001). A total of 415 FSW were of reproductive age (18 to 49 years old) and 401 reported using a

contraceptive method: 57.1% used only condoms, 18.1%used other modern contraceptive methods (Intrauterine device, pills, injection or implants) and 8.7% used dual methods (condoms and any other modern contraceptive method). Among FSW using other modern contraceptive methods and dual methods, 84% used condoms consistently ($p < 0.001$). Among FSW who did not use any contraception (n=14), 78.6% did not have any desire for childbearing (risk for unintended pregnancy) and were all inconsistent condom users.

Conclusion: Despite a high proportion of contraceptive use, FSW face sub-optimal SRH outcomes in addition to inconsistent condom use. With the need to prevent both HIV/STI and unintended pregnancies in this population, the integration of SRH services into HIV prevention should be a priority to offset the high rates of HIV incidence and STI morbidity.

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The Road to Reach Marginalized Adolescent Girls and Young Women With SRH/HIV Services In Nairobi Kenya- Responded Driven Sampling.

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Background: Many adolescent girls and young women (AGYW) residing in informal settlements within Nairobi County engage in sex work but don't seek Sexual Reproductive Health (SRH) Services and HIV services. Cases of increased teen pregnancies and HIV incidences were observed from March 2020 to April 2021, where COVID-19 cases had led to school closure. Some of the marginalized AGYW are school going girls with babies, engaging in sex work to earn a living. They operate in shadows/fringes of existing hotspots/streets frequented by other sex workers, making it hard for healthcare providers to access and offer SRH/HIV services. Partners for Health and Development in Africa (PHDA) sought to mobilize and retain AGYW sex workers into a program offering free SRH/HIV services.

Methodology: Responded Driven Sampling (RDS), method was employed to reach AGYW sex workers aged 15-24 years accessing SRH /HIV services at PHDA clinics in a period of three months. Fourteen seeds were purposefully selected from PHDA facilities, the seeds brought their friends following the Social Network Strategy (SNS) platform.

Results: In three months, we managed to reach, mobilize and link 100 AGYW to SRH/HIV services through RDS. All 100 AGYW were selling sex for survival on the streets and controlled hot spots, 67% (67) were school going girls with no parents, 46% (46) were single mothers. None of them was aware of availability of facilities offering free SRH/HIV services. 99% of the girls preferred three monthly PrEP/PEP injection as a form of HIV prevention-Among the reasons given were "confidentiality, no one knows or sees the drug in your body" another one said, "she does not want to be judged by her mother and friends in school". All the girls agreed to HIV testing whereby 13% (13) tested HIV positive. Most preferred 5AM-7PM as best time of accessing SRH/HIV services before going to school, or after leaving the streets, some chose 5 PM-7PM that's before heading to the streets/pallor or after school. 12/70(17%) were treated syndromically for STIs.

Conclusion: Young sex workers have higher SRH/HIV burden, ways to help this group to access health services should be researched and devised.

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Leaving No One Behind for Epidemic Control: A Client-centered Approach in the Western Region of Ghana

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Background: Ghana, with a generalized HIV epidemic, was unable to achieve the UNAIDS 90-90-90 targets in 2020, just like all the other countries in West Africa. PEPFAR, in collaboration with the Government of Ghana, launched an ambitious program in October 2019 called the USAID Strengthening the Care Continuum (Care Continuum), implemented by JSI Research & Training Institute, Inc., with the goal of facilitating epidemic control in Ghana's Western Region by September 2022. This abstract describes the strategy of the program and successes achieved to date.

Description: The Care Continuum, prior to its inception, developed a theory of change after a root cause analysis of the HIV program in the Western Region of Ghana. The project developed seven client-centered interventions for rapid improvement in epidemic control indices. The seven client-centered interventions are: 1) differentiated HIV testing services; 2) active linkage to treatment for clients who test positive; 3) differentiated ARV delivery services; 4) optimization of viral load testing and early infant diagnoses; 5) integrated community mobilization for HIV services; 6) legal, human rights, and protection services for survivors of gender-based violence; and 7) improving accountability through continuous quality improvement (CQI).

Lessons learned: Implementation of these client-centered interventions led to dramatic improvement in the region's 90-90-90 UNAIDS targets from 63-51-38 in October 2019 to 88-91-90 in September 2021. The region is projected to achieve over 95-95-95 by September 2022 with the continued implementation of these client-centered approaches.

Conclusions/Next steps: The USAID Strengthening the Care Continuum's results in the Western Region of Ghana demonstrate the effectiveness of the program's strategies in accelerating the attainment of epidemic control. The project recommends the adoption of its seven client-centered strategies in similar resource-constrained settings to accelerate achieving the UNAIDS 95-95-95 targets by 2030.

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Revisiting the door-to-door approach: a stigma-free approach in reaching MSM during the COVID-19 era to achieve the 95-95-95 goals

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Background: The emergence of COVID-19 and its related protocols led to the closing down of many hotspots where men who have sex with men (MSM) are reached and provided with HIV related services. Existing stigma and discrimination, particularly within the COVID-19 context, intensified the need for innovative ways to continue to reach MSM. This involved revisiting and optimizing an old approach to reaching and testing hard-to-reach MSM.

Description: The Door-to-Door testing approach was adopted in the four districts of Western Region with support of the USAID Strengthening the Care Continuum Project (Care Continuum), implemented by JSI Research & Training Institute, Inc,. This improved outreach to MSM with HIV testing services (HTS), especially given COVID19 safety restrictions. During targeted Door-to-Door testing, peer educators and case managers go

to places where MSM tend to hide to provide them with HIV and STI's information and testing services. To ensure maximum confidentiality, the team sets up in an enclosed counseling and testing space provided by the MSM. MSM who test HIV positive are counseled by the case manager and referred to a health facility for confirmation and initiation on treatment.

Lessons learned: Prior to COVID-19 in March 2020, 338 MSM were reached and 315 MSM were tested using conventional outreach and peer education referral approaches, out of which 30 positive (HIV+ yield of 9.5%) were diagnosed. At the peak of the COVID19 pandemic with lockdowns and relocation of some community members, targeted Door-to-Door testing approach was implemented leading to 406 MSM being reached and tested, of which 69 were positive (HIV+ yield of 16.9%).
Targeted Door-to-Door HIV testing is an innovative strategy that enhances reaching MSM especially during difficult times such as COVID-19 lockdowns. It has also led to an increased HIV positivity yield among MSM reached.

Conclusion: Targeted Door-to-Door approach is an effective strategy in reaching MSM especially during difficult circumstances such as lockdowns, high levels of stigma and discrimination and other similar situations. It also has the potential of identifying HIV positive MSM who may have been missed using other HTS strategies.

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Opting Out of PrEP Among MSM and Transgender People in Ekurhuleni, Johannesburg, South Africa

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Introduction: Pre-exposure prophylaxis (PrEP) is an effective HIV prevention strategy among the key populations including Men who have Sex with Men (MSM) and Transgender People. Understanding the extent and correlates of PrEP uptake is critical in ensuring the successful implementation of the PrEP programs. This study determined the prevalence and correlates of PrEP uptake among MSM and Transgender People in Ekurhuleni, Gauteng, South Africa.

Methods: The study was carried through secondary analysis of October 2019 to September 2020 MSM and transgender Aurum Ekurhuleni clinic data (N=1605). The clinic is in the North sub-district of the Ekurhuleni district and the South district is furthest from the clinic. The descriptive statistics were summarized as proportions for categorical variables and mean ±standard deviation or median and interquartile range for continuous variables. Bivariate analysis was carried out to determine the correlates of PrEP uptake using the Chi-square test. The p-value of <0.05 was considered statistically significant.

Results: The overall prevalence of opting out of PrEP was 58.1%, and it varied by location whereby it was 52.9% in North sub-district, 69.6% in East sub-district, and 79.4% in South sub-district. The PrEP uptake was associated with the residence (p <0.001) and not associated with age (p=0.392). Among those (n=132) who reported the reasons for opting out of PrEP, loss of follow-up (43.2%) was the commonest.

Conclusion: There is the prevalence of MSM and transgender people opting out of PrEP is high. And this was highest in the sub-districts located far from the clinic. This study shows that the PrEP programs should explore innovative ways (for example, mobile clinics, online support through SMS) to improve access of MSM and transgender people to PrEP education, screening, initiation, and follow-up.

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Knowledges and Burden of Hepatitis B Virus Infection Among Pregnant Women in Southern Gabon – Central Africa

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Background: Hepatitis B virus (HBV) infection is a major public health threat in Sub-Saharan Africa with several million of chronically infected individuals. Vertical transmission from the mother to child (MTCT) is known as an important transmission route and prevention of MTCT is considered a priority by the WHO. Therefore, it is essential to investigate HBV infection and knowledges on the disease among pregnant women in the context of Africa. That was the aim of this ongoing study.

Materials and methods: This is a cross-sectional study that we initiated in January 2021 in Franceville, southern Gabon. Eligible participants were pregnant women, aged ≥18 and recruited in the three major antenatal clinics of this region. We administered a questionnaire to collect sociodemographic data, vaccination status, knowledges on HBV infection and other information. We collected whole blood samples for HBsAg, anti-HBcAb, and HBeAg screening.

Results: To date, we have recruited 896 women, out of the 1000 planned. The median age is 26 years (IQR: 21-32), 374 (41.7%) are single, 659 (73.5%) had one child or more, and 775 (86.5%) had reached a secondary school level. As of disease knowledge, 574 (64.1%) had no information on HBV and declared they never heard about the infection. 650 (72.5%) did not know that HBV was transmissible and 833 (93.0%) had no idea of the pathogen involved. Regarding the transmission route, 201(22.4%) knew at least one mode of transmission, but none of them mentioned MTCT as a possible route. Only 24 (2.7%) declared that they were vaccinated for HBV, 509(56.8%) indicated that they were not vaccinated and 363(40.5%) did not know if they were vaccinated or not. For the ongoing laboratory investigations, 19/522 (3.64%; CI 2.03-5.25) are HBsAg positive and 234 (44.8%; CI 40.5-49.1) are anti-HBc positive.

Conclusions: This is the first large study conducted in Gabon to investigate HBV infection and knowledges among pregnant women. Results indicate a crucial lack of information on the disease that can seriously impact prevention and care strategies. However, our preliminary data indicate a relatively low prevalence of HBV infection in this population, but high level of exposure to the virus.

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Knowledge, Perceptions, Attitudes and Beliefs About HIV/AIDS Among Most at Risk Populations (MARPs) in Liberia: Integrated Bio-Behavioral Surveillance Survey (IBBSS); Analysis of HIV/AIDs Knowledge of 2013 Compared to 2019.

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Background: With a population of 3.9 million, Liberia HIV prevalence is 2.1% which denotes a generalized epidemic. There is a gender disparity in the prevalence with female having a significantly higher prevalence (1.8%) as compared to male (1.2%).

According to the 2007 Liberia Demographic and Health Survey (LDHS), HIV knowledge in the general population is relatively high. Risk behaviors including the lack of condom use, remain significantly high. Issues bordering around multiple and concurrent sexual partners and the presence of a high mobile populations, the potential spread of HIV among special target groups remains a significance public health concern. MARPs referred to Men who have sex with men (MSM), Uniform service personnel, Female sex workers (FSW), Transgender and People who inject drugs (PWID), Transgender (TG), Miners and prisoners.
The objective of this study is to assess HIV/AIDS knowledge, perceptions, beliefs and attitudes among the most at risk populations in Liberia.

Methods: Study was conducted in 9 out the 15 counties among seven MARPs. A total of 547 FSWs, 343 MSM, 504 Uniform Service providers, 503 transport workers, 621: (313 male and 304 females) While youths were aged between 15-24 years old, adult groups were between the ages of 15-59 years. For each of the selected target groups, a multistage sampling was used probability through proportion to size. Further sampling varied depending on the target population.

Results: Knowledge on HIV/AIDS: A minimum of 88% and maximum of 94% of the targeted population having ever heard of HIV and AIDS. Knowledge on preventive methods: Among the three main preventive methods, condom use is the more known by 80% with a minimum of 77% among male out of school youths and a maximum of 87% in school youths and people who inject drugs. Comprehensive knowledge on HIV/AIDS: Comprehensive knowledge among all the targeted population was relatively low especially among FSWs at 19.6% while the highest knowledge was among MSM at 38.4%.

Conclusion: Results will ensure that a strong commitment among policy makers and implementers will have to be put in place in order to improve the knowledge about HIV/AIDS among MARPs in Liberia.

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Effectiveness of Female Sex-Worker (FSW) Peer Educators in HIV Service Provision: A Socio-Ecological Perspective

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Background: Peer education (PE) remains a popular strategy to provide HIV services to Key Populations (KPs) such as females sex workers (FSW) in Africa. Yet, there is paucity of literature documenting the effectiveness of PE to influence HIV outcomes. The USAID Strengthening the Care Continuum project, implemented by JSI Research & Training Institute, Inc., has been implementing a peer education intervention for FSWs in Ghana since 2016, through partner Civil Society Organization (CSO). Through a socio-ecological lens, this abstract attempts to document the effectiveness of a FSW PE strategy in meeting project goals and outcomes of epidemic control by attaining the 95-95-95 UNAIDS targets.

Methods: The study is a cross-sectional exploratory qualitative study conducted in three project sites in three regions of Ghana-the Greater Accra, Western and Western North. From October to December 2021 staff from seven CSOs and 12 PEs (n=19) were purposely sampled and engaged in in-depth interviews. Thematic analysis of data was conducted. Due to the complex and multi-component nature of most HIV projects, studies that are focused on quantitative program outcomes are not appropriate in assessing the contribution of PEs.

Results: PEs reported that they were able to reach and link FSWs who are at elevated risk of HIV infections to HIV services. The emergence of COVID-19 has accentuated the dependence on PE for case finding and linkage to care. At

the individual level, PEs took up new roles and responsibilities as they experienced personal and professional improvements resulting from project related training. However, they sometimes had to endure community backlash because of the stigma attached to being a FSW. CSO staff bemoaned the deteriorating cultural and legal environment under which FSWs worked and called for more support from public and policy institutions especially the Ghana AIDS Commission (GAC) to enhance their work.

Conclusion: This study provides more evidence of the usefulness of PEs at the various socio-ecological levels. CSOs and donors alike should continue to engage PEs in their work. CSO that employ FSW PEs should make provision for capacity building and training to help FSW PEs progress in their carriers.

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Exploring Innovative Approaches of Reaching for Key Population With HIV Testing Services Amid COVID-19 Restrictions

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Background: Since 2016, Ghana's decision to adopt events and location-based approach has provided low-cost opportunities especially at traditional and social events for HIV Testing Services (HTS) for Key Population (KP). The ban on social gatherings, closure of bars, and pubs, as part of COVID-19 restrictions, made it impossible to reach KPs with HIV Testing Services.

Description: Festivals are key events in the traditional calendars of Traditional Areas in the Eastern Region. The activities that characterize such events are well patronized by Female Sex Workers (FSW) and Men who have sex with men (MSM). Since the enforcement of COVID-19 restrictions in 2020, the Technical Support Unit in collaboration with Community-Based Organisations in the New Juaben South Municipal of the Eastern Region commenced the implementation of door-to-door HIV Testing Service as a strategy to reach MSM and FSW. The strategy involved visiting KPs in their homes or preferred place of convenience for the HIV test. The TSU mobilized trained KP-friendly counselors and KP peer educators to provide HTS. In addition to HTS, KPs were sensitized and provided with condoms and lubricants with referral systems to ensure linkage and retention in care. KPs were also sensitized on human rights. HIV-positive KPs were referred to Case Managers at the hospital for treatment, care, and support services.

Lessons Learned:

- Total of 1123 MSMs and 3280 FSWs were tested for HIV. KPs who tested positive were linked to Case Managers and enrolled in care.
- 8920 condoms were distributed to KPs.
- More than 500 households were visited including seater communities of FSWs.
- There were no cases of COVID-19 infections during the period.
- Door-to-door HIV Testing Services eliminates HIV-related Stigma and Discrimination.
- Easy to track PLHIV KPs who default on ARVs.
- KP peer educators are able to follow up on KPs with HIV education, and Human Rights Education.
- It helps reduce missed opportunities for HIV testing, especially those hard-to-reach populations.

Next Steps:

- Expand coverage of door-to-door strategy to other districts.
- Adapt the strategy for general population HIV Testing.

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The Use of Peer Mobilizers to Increase HIV Case Identification Among Hard to Reach Key Populations in Ghana

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Background: Traditional peer education methods provide low positive yield among key populations (KPs). Worldwide International Youth Organization (WIYO), with grant funding from the USAID Strengthening the Care Continuum (Care Continuum) project implemented by JSI Research & Training Institute, Inc., is working to improve the capacity of the Government of Ghana and its partners to provide quality, comprehensive HIV services for KPs (e.g., female sex workers and their partners, men who have sex with men, and people living with HIV).

Description: Following implementation of the Care Continuum among KPs in two municipalities in greater Accra, positivity yield was low for three consecutive months (October 2018 to December 2018), which called for pragmatic and innovative strategies to turn the tide. There was a need to better target high-risk and hard-to-reach KPs in order to improve case identification. WIYO employed the peer mobilizer strategy to reach KPs who could not be reached with traditional peer education strategies. Peer mobilizers are KPs who are well established and have deeper ties with their networks in different parts of the region. The Peer Mobilizers chosen were also representative of all the typologies of KPs including high-end FSW and MSM who are normally harder to get because of their social status.

Lessons Learned:

- The tide began to change within a month of implementation of the peer mobilizer strategy. For instance, from February 2019 to June 2019, the positivity yield among female sex workers increased significantly above the national prevalence rate of 6.7% to between 10% and13% per month.
- This trend was also observed among all KPs for three months after the intervention. The positivity yield in February 2019 was 13.0% (Tema Metro MSM13.9%, FSWs 10.76%, and Ashaiman Municipal FSWs 17.2%); in March it was 15.0% (Tema Metro MSM 13.5%, FSWs 22.8%, and Ashaiman FSWs 8.7%); and in May it was 10.93% (Tema Metro MSM 12.9%, FSWs 11.86%, and Ashaiman FSWs 4.4%).

Next Steps: Using experienced peer mobilizers yields superior results compared to traditional peer education methods. This approach will be recommended to similar CSOs in the field for scale-up.

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Engaging Social Networks to Increase HIV Case Finding Among Key Populations

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In Zambia, the USAID Open Doors project (ODP) provides access to comprehensive HIV prevention, care, and treatment services to key populations (KP): female sex workers (FSWs), men who have sex with men (MSM), and transgender people. After observing that the project's initial HIV case-finding rate among KPs was lower than the national general population yield of 12%, the project introduced the social networking strategy (SNS) to increase HIV case finding. We share lessons from eight project sites for implementation October 2017–September 2019.

To implement SNS, ODP identified 33 KP peer leaders who were familiar with the project, maintained a large KP social network, and

could mobilize their peers. Peer leaders were trained to identify high-risk clients from their social networks who could act as "seeds" to distribute coupons for services at ODP wellness centers to additional unreached clients. Each coupon included a unique identifier to track clients and seeds. Peer leaders were asked to identify at least three seeds to distribute coupons each month. Monetary incentives were provided for every coupon returned to the wellness center. A risk assessment tool—evaluating condom use, number of sexual partners, and sexually transmitted infection history—was used to gauge clients' risk level and eligibility to receive a coupon.

After implementation of SNS, project case finding increased from 13% in FY17 (FSWs=1,221 [16%]; MSM=117 [5.6%]; transgender people=30 [11%]) to 28% in FY19 (FSWs= 3,574 [32%]; MSM=774 [19%]; transgender people=119 [36%]). There was a significant increase in project yield in FY19 (M = 1105.75, SD = 370.3) compared to FY17 (M = 342, SD = 119.7), $t(3) = -3.21$, $p < .05$. By the end of FY19 the total SNS positivity contribution to the project yield was 32%, and 2,115 (76%) coupons were returned from 2,799 distributed to clients across all sites.

SNS was successful in increasing case finding among KPs. Leveraging trusted and knowledgeable social relationships to extend HIV services to hard-to-reach KP individuals is a strategy that should be scaled up.

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The Effect of a Targeted Quality Improvement Intervention to Improve Access to Antiretroviral Therapy (ART) Services for Key Populations in Zambia

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The USAID Open Doors Project (ODP) is a five-year project aiming to increasing access to and use of comprehensive HIV prevention, care, and treatment services by key population individuals including female sex workers (FSWs), men who have sex with men (MSM) and transgender people. An ODP implementing partner, ZANERELA+, faced challenges in linking HIV-positive key populations to clinical HIV services, after joining the project in October 2020. A quality improvement (QI) intervention was implemented with a goal of 95% of newly diagnosed clients were linked.

A QI team of two clinical officers and two medical doctors implemented QI activities over six weeks in collaboration with ZANERELA+. Starting December 1, 2020, the following interventions were implemented:
Engaged ZANERELA+ staff in a root cause analysis and driver diagram to identify specific issues
Developed job descriptions with defined responsibilities for health care providers and lay counselors
Developed and implemented weekly virtual and onsite mentorship on pre-ART counseling for program/clinical staff over six weeks
Demonstrated field-based HIV status probing skills for staff counselor
Established designated zones for client outreach

In the first quarter of fiscal year 2021 (Q1 FY21), the linkage rate for key population groups was 48% (FSW n=32 (50%), MSM n=5 (80%), transgender n=2 (0%)). Majority of unlinked clients were tested during community-based outreach (n=11) and were between the ages 20-29 (n=8). Linkage increased to 99.4% (FSW 99%, MSM 100%, transgender 100%) by March 2021, after the completion of Q1 interventions. Among previously unlinked FSWs, 92% (n=12) were initiated on care. All MSM (n=1) and transgender (n=2) clients were initiated, resulting in 100% linkage.

Average monthly linkage increased from 27% before the QI intervention to 98% after intervention activities were completed. We recommend that QI be extended to other subrecipients to improve service delivery and organizational capacity.

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Improving HIV Service Delivery in Correctional Facilities Through Task Shifting to Peer Educators Amidst COVID-19 in Zambia.

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Background: Incarcerated persons in prisons in Zambia have limited access to HIV prevention services. In accordance with the United Nations Office on Drugs and Crime ethical guidelines, inmates should have equivalent health care services as people in the community outside of correction facilities. Inmates face challenges accessing health services leading to poor health outcomes such as late diagnosis of HIV and poor linkage to care and treatment. We present lessons learnt on offering HIV services via task shifting to peer educators using a peer-to-peer approach.

Description: The community impact to reach key and underserved Individuals for treatment and support (CIRKUITS) project has been implementing community-based HIV prevention and testing services in Zambia since 2018. To improve uptake and access to HIV services for inmates amid COVID, task shifting of services was done via trained prison health committee members, prison peer educators, and community health care workers. A total of 229 peers were trained and mentored on conducting health promotion in preventive messages, HIV testing, and linking fellow inmates to ART or PrEP. Inmates were tested for HIV on entry to correction facilities and routinely during mass screening activities every three months.

Lessons Learned: CIRKUITS reached a total of 17,822 inmates with HIV prevention education in 16 supported correctional health facilities between October 2020 and September 2021. Of inmates reached, 26% (4,652) of those eligible were tested for HIV and 13% (620) tested positive. Of 4,032 inmates tested HIV negative, 49% (1,971) were initiated on PrEP; while 93% (577) of those tested HIV positive were linked to ART. Collaboration with Zambia Corrections Service facility management ensured mentorship, including virtually, of CHWs and prison peer educators. HIV service delivery was able to be sustained during the COVID pandemic. However, restricted entry to correctional facilities and periodic shortages of HIV test kits slowed down HIV testing services.

Conclusion: Task shifting of HIV testing services to peer educators in Zambian correctional facilities contributed to uptake of HIV testing and linkage to ART. Such differentiated service delivery models offer unique solutions to identify prisoners with HIV infection and provide HIV care for inmates in Africa.

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Innovative Strategies to Reach Hard-To-Reach Populations: (+) Screening = (+) Life II Project, in Portugal

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Background: In 2019, 778 new cases of HIV infection were diagnosed in Portugal, corresponding to a rate of 7.6 cases per 105 inhabitants. The lowest median (30.0 years) was found in MSM. Although heterosexual transmission is more frequent, MSM made up the majority of new diagnoses (56.7%). The (+) Screening = (+) Life II Project is aimed at screening hard-to-reach populations, representing an opportunity for prevention and linkage to health care.

Methods: We used a model of integrated care for screening, prevention, health literacy, and connection to care for hard-to-reach populations, through travel to their natural contexts of life. The Case Manager articulates between the user, the project team, and other partners, adjusting responses to the users' needs. The Peer Mediator brings new users together, refers them to the project, facilitating contact and the achievement of goals. The multidisciplinary team facilitates access to non-stigmatizing HIV services, helps individuals navigate these services, enhancing the connection to treatment and PrEP.

Results: Between February 2021 and January 2022, 426 people were screened for HIV, HBV, HCV and Syphilis, mostly at home (61.5%); (21.7%) in our NGO; (14.6%) with partners and 2.2% on the street. 52.6% are Brazilian; 42% Portuguese and the rest are from Eastern Europe, Sub-Saharan Africa and Latin America. We detected 34 cases reactive for HIV, 7 were new cases referred for confirmation and treatment consultation. The remaining knew their HIV status and were already under treatment in their country of origin. 15 individuals requested referral for continued treatment in Portugal. 29 users were referred for PrEP, 27 for Syphilis treatment, 1 for EPP, 8 started psychotherapy follow-up.

Conclusions: The importance of screening is reinforced, at least twice a year, namely trans sex workers, reinforcing the information, delivery of preventive material, and referral to PrEP. The model used facilitates the reduction of waiting times for referrals to confirmation consultations, and clinical and social monitoring. The users accompanied, in addition to being more empowered, strengthen their connection to health care and, consequently, adhere more effectively to ART and, by passing the word, bring other potential users and even clients to the screening.

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Innovation to achieve the second 95 amidst COVID-19 in key population in Nigeria.

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Background: Key Populations (KP) makeup 3.4% of the general population, yet account for ~32% of new HIV infections in Nigeria (NACA, 2017). With criminalizing laws, and ~3000 active KPs hotspots in Lagos state alone, it is increasingly challenging for civil society organizations to reach these groups with the much needed HIV services. With the COVID-19 outbreak in the South-West region of Nigeria, Lagos state in early March, 2020 and attendant lockdown leading to restriction in movement, it became even more challenging to reach KP members with a complement of comprehensive HIV services. We describe our experience implementing innovatively evidence and community-based strategies to scale active HIV case-finding using a COVID-19 guided protocol during the 6-week lockdown in the state.

Method: We set up 22 Community ART (cART) teams split into an 8-person KP peer-led sub team comprising (community health worker, pharmacist, laboratory technician, four counselor testers, and a community mobilizer) that conducted HIV Testing Services (HTS) in 78 communities across 7 districts using the "moonlight testing" (nightly testing) approach. The teams were equipped with a line-list of

index clients for elicitation of sexual and needle-sharing partners. Community engagement of gate keepers of pre-mapped KP communities was innovatively conducted, to seek approval, grant access and provide security during testing of elicited partners. Following an orientation on COVID-19 protocols for clients assessing services, index partners who accepted HTS were provided HIV prevention information, condom messaging, demonstration and distribution; those who tested positive were retested and provided with ART immediately.

Results: Prior to the lockdown (February – March 2020), 8,831 clients were offered HIV testing services with 1,396 (positivity yield of 16%). Following the lockdown period which lasted for 6 weeks (March- May, 2020), HIV testing among key population increased by 38% (12, 159) with a 28% increase (1, 781) in HIV positives and 15% positivity yield.

Conclusion: Despite the pre-existing challenge with KP access to comprehensive differentiated services worsened by current COVID-19 realities, peer-led cART showed significant promise in accelerating KP HIV case finding and sustaining community ART delivery.

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Gaps and Opportunities for Strengthening HIV Support in Schools for Youth Living With HIV

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Background: As a result of optimized HIV treatment, youth living with HIV (YLHIV) have improved survival and are enrolled in schools. YLHIV spend most of their time in schools, making schools an important venue to optimize health and social outcomes.

Materials and Methods: We conducted surveys with secondary/high schools in Kenya to determine policies/practices and staff training on HIV. Selected schools were in counties with varying adult HIV prevalence (Homa Bay 21%, Nairobi 6%, Kajiado 4%). Chi-squared tests and logistic regression were used to compare policy availability and staff training by HIV prevalence and school type (day or boarding).

Results: Of 506 schools, we surveyed 97 (19%); (35, 37 and 25 in Homa Bay, Nairobi, and Kajiado, respectively). Many schools had boarding facilities (58 [60%]). Median student population was 400 (IQR: 200, 750]) and student:staff ratio 13 (IQR: 9, 16).
While 85% of schools required disclosure of chronic illnesses, only half (49%) had confidentiality policies with significantly higher frequency of policy availability in higher HIV prevalence regions (Homa Bay [91%], Nairobi [57%], Kajiado [32%], p=0.004). Similarly, while a majority (81%) had clinic attendance policies; and policy availability was higher in higher HIV prevalence regions (Homa Bay [100%], Nairobi [81%], Kajiado [56%], p<0.001). Only 48 (49%) schools had medication use policies; significantly more in boarding than day schools (64% versus 28%, p=0.001).
Eighty percent of schools had staff trained in counseling, 32%, in HIV prevention 22%, mental health 31% stigma reduction, 36% psychosocial support, and 35% confidentiality. Overall, 24 (25%) schools had staff dedicated to health, 11 (46%) of which had staff trained in HIV care/treatment. Boarding schools were more likely to have staff trained in HIV prevention/care/treatment compared to day schools (75% vs 25%, p=0.03).
There were significant regional differences in student populations, staff:student ratio and HIV training (all highest in Nairobi).

Conclusion: In this survey of Kenyan schools, there were notable gaps in HIV care policies and training, despite high HIV burden. Implementation of national policies on

confidentiality, medication use, and clinic attendance as well as HIV training in schools may improve outcomes for YLHIV.

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Exploring The Perceived Risks That Come With Being A Man Who Have Sex WIth Men While Seeking HIV Services In Covid-19 Era, a Qualitative Study Done In Nairobi-Kenya.

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Background: In Kenya, Men who have sex with men (MSM) continue to live in fear of their lives because of the risks surrounding their sexual orientation. They are marginalized, criminalized, and face discrimination from the public, yet they carry an HIV burden of 18.2% compared to the general population, which has a prevalence of 4.9%. COVID-19 saw a decline in numbers of MSM seeking HIV services. This study explored the risks of seeking HIV services among MSM in the COVID-19 Era.

Method: A qualitative descriptive study was conducted among MSM seeking HIV services within the Sex Workers Organization Project (SWOP) -a HIV/STI NGO serving 1400 MSM within Nairobi, Kenya. This study was conducted in October 2021 during COVID-19 era. Participants were recruited through purposeful sampling that utilized an outreach, peer-led model. Two focused group discussions were conducted, a total of 17 respondents participated. An FGD guide was used to ascertain the risks encountered by MSM before/during COVID-19 era and how this affected their HIV services seeking behavior. The discussion was recorded, data were transcribed and coded for analysis through NVIVO.

Results: Most MSM respondents said their lives have always been miserable, but the COVID-19 pandemic worsened their situation. Some MSM reported that before the pandemic, they were afraid of; disclosing their orientation to health providers due to lack of trust, harassment, discrimination, and stigmatization especially in government health facilities. As a result, they risked unnecessary beating from the public and human rights violations to the extent of permanent disabilities/death. Despite all these, they were still financially stable due to working from hidden, organized hot spots where they met their sex clients safely. The movement restrictions and hot spot closure that come with COVID-19 saw MSM experience the above and again lose sex clients, which affected their financial status. Some MSM had to move to estates and "hunt" for potential clients, which earned them a beating from the "potential clients." This financial crisis saw them lack bus fare to access health facilities

Conclusion: Ways to reach the MSM community optimally during COVID-19 era with HIV services should be devised.

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Sexual Behaviour and HIV Acquisition Risk of Female Adolescents in High Schools From Harare, Zimbabwe

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Background: HIV prevention modalities will need to be packaged appropriately in order to make them appealing to at risk adolescent girls. This study was conducted to identify the HIV acquisition risk and sexual behaviour of adolescent girls in high school in Zimbabwe.

Methods: This was a cross sectional, mixed methods study which was conducted in June 2021 at two high schools from Harare, Zimbabwe. A validated, self-administered questionnaire was piloted and rolled out to adolescents aged 13 to 16 years. The tool assessed sexual behaviours which would place participants at risk of acquiring HIV. Sexually active was defined as penetrative vaginal or anal intercourse. Descriptive statistics are used to present the results of the study.

Results: A total of 150 adolescent girls participated in this study with a mean age of 15 years (range 13 – 16). Forty-four (29%) of the participants reported that they were sexually active. The median age of sexual debut was 15 (Range: 13 - 16) years of age and 19(43%) of these participants reported that this was an unplanned debut. Sixteen (37%) percent of the participants reported a condomless sexual debut whilst 39(87%) reported practicing unprotected sexual intercourse at least once. Thirty-eight (86%) of the participants reported inconsistent condom use in the preceding 12 months and only 16(36%) of participants were aware of their HIV status. Only 13 (30%) of the participants were aware of their partners HIV status.Thirty-two (72.7%) of the sexually active adolescents had their sexual debut before the age of 16 years (legal age for females to provide sexual consent in Zimbabwe).

Conclusions: Sexually active adolescents indulged in practices exposing them to risk of HIV acquisition. The proportion of sexually active adolescents aware of their HIV status was a low. HIV prevention programmes need to strengthen interventions that educate adolescents on HIV acquisition risk. HIV acquisition risk was high in the sexually active adolescents due to the low condom use, unknown HIV status of sexual partners and low age of sexual debut.

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Association Between Unprotected Receptive Anal Intercourse and HIV Prevalence by Partners Typology of Men Who Have Sex With Men in Nigeria.

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Background: Men who have Sex with Men (MSM) sexual orientation put themselves at a higher risk of HIV infection with their partners. Several other factors, such as receptive anal intercourse, have been identified as increasing the risk of transmission. The risk of HIV transmission is ten times higher in unprotected receptive anal intercourse (URAI) with ejaculation inside the anus. Hence, a high prevalence among MSM practicing URAI could indicate a high risk of HIV infection. The purpose of this study is to examine the relationship between URAI and HIV prevalence by partner typology among the target group.

Methods: The association between unprotected receptive anal intercourse and HIV prevalence was examined among three types of sex partners (regular partners, clients (transactional partners), and casual partners) among MSM using data from the Integrated Biological and Behavioral Surveillance (2020). Using statistical significance (p-value) of 0.05, bivariate analysis was used to assess a relationship between variables. STATA 13 software is used for analysis.

Results: A total of 4397 MSM with a mean age of 25 years. The findings show the relationship between unprotected receptive anal intercourse and HIV prevalence in MSM when sexual partners such as regular partners, clients (transactional partners), and casual partners are taken into account. The data reveals that 23%, 13%, and 10% of MSM with regular, casual, and client partners had receptive anal intercourse. Sero-prevalence among the group is 25% (p=0.907) among regular partners, 16% (p=0.07) among client

partners, and 29% (p=0.719) among casual partners.

Conclusions: Unprotected receptive anal intercourse with ejaculation into the anus carries a tenfold risk of HIV infection, with prevalence rates of 16 percent, 25 percent, and 29 percent among the three partner typologies, URAI among MSM is worrisome. To achieve epidemic control among the population, behavioral interventions should be oriented toward the use of protection during anal intercourse, particularly with casual and regular partners.

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Increasing Uptake of PrEP through Community Distribution: the Case of a CSO in Western Region of Ghana

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Background: PrEP is a very efficacious tool for HIV prevention among key populations. However, this is dependent on its availability, accessibility, uptake and usage. While initial PrEP Policy in Ghana required that it should be delivered only at the health facility, this was not in sync with international best practice of multiple delivery channels, and led to low uptake. As a pioneering CSO in HIV service provision for key populations (KPs) in Ghana, Maritime Life Precious Foundation (MLPF) piloted a community based service delivery model for PrEP.

Description: MLPF, a sub- grantee CSO of the JSI-led USAID Strengthening the Care Continuum Project, provides HIV services including PrEP to key populations in the Western region of Ghana. Within the period of April to June 2021, MLPF introduced community distribution of PrEP in its outreach activities by adding a team of trained nurses responsible for PrEP to the already existing HTS outreach team. KPs who test positive are put on ART and those testing negative are referred to the PrEP team for PrEP initiation at the same venue. This approach was carried out in two of the project sites.

Lessons Learned: Within the first six months (October 2020 to March 2021) of facility distribution of PrEP, before the introduction of community distribution, only 179 clients were initiated on PrEP across all our implementing sites. In contrast, the new community-based delivery channel which was carried out within the period of three months (April to June 2021) saw 330 clients initiated on PrEP. From the figures above, MLPF has achieved 184% increment in PrEP initiation within a shorter period which suggests that community distribution is gaining acceptance among the target population and it should be replicated across other project sites.

Next Steps: Community based distribution of PrEP is very effective and should be employed to complement the facility based initiatives. Implementing partners should not limit PrEP to health facilities only but consider more delivery channels such as community distribution. Results of this case study have intrinsic benefits for the review of national PrEP policy.

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Enhanced Peer Outreach Approach Increases HIV Case Finding Among Female Sex Workers and Men Who Have Sex with Men in Dar Es Salaam, Tanzania

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Background: In Tanzania, female sex workers (FSWs) and men who have sex with men (MSM) are highly affected by HIV with prevalence estimated at 26% and 25% respectively. Despite community outreach for HIV testing services, higher-risk KP individuals remain hidden due to stigmatization, discrimination, and criminalization. The USAID- and PEPFAR-funded EpiC project implemented the enhanced peer outreach approach (EPOA) to improve HIV case identification among FSWs and MSM in Dar Es Salaam, Tanzania.

Description: Peer-led coupon network mobilization was implemented in an urban region of Dar Es Salaam. Twenty Peer Educators (PEs) were trained to identify hard-to-reach KP members and invite them to access HIV testing services (HTS) using a coupon promotion. Ten Health Care Providers (HCPs) were trained to screen clients accessing HTS and select those with higher-risk peer networks to become peer mobilizers (PMs). PMs were given coupons to distribute to their risk networks and invite them to receive comprehensive HIV services. Each PE and PM was given five coupons and provided with monetary incentives for each one returned. Weekly network analysis was done to identify PEs and PMs with productive networks for continued coupon distribution. We compare case identification rates from EPOA and traditional mobile testing, used Chi-squared test to determine if the difference is statistically significant.

Lessons: EpiC distributed 1,893 coupons (1,325 FSWs and 568 MSM) between July 2020 and September 2021; 1,590 (84%) individuals returned with coupons. Of those, 100% were offered and accepted HIV testing. HIV case finding rate was 14.3% (169/1,179) among FSW tested through EPOA and 6.5% (1,257/19,411) through traditional mobile testing. Among MSM, case finding rate was 16.1% (66/411) through EPOA and 10.4% (534/5,126) through traditional mobile testing. The odds of testing positive were 2.4 times higher among FSW in EPOA compared to traditional mobile testing (2.42 Odds ratio, 2.03-2.89 95%CI), and 1.6 times higher among MSM tested through EPOA (1.65 Odds ratio, 1.23-2.18 95%CI).

Conclusions: EPOA is effective in identifying high-risk FSWs and MSM, especially those who are difficult to reach through traditional methods. EPOA provides a viable option in settings where case finding has proven to be a challenge.

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Adapting Tablet-Based Neuropsychological Tests for Adolescents and Young Adults with Perinatally Acquired HIV in Uganda: The Translation Process for Two Languages

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Objectives: Neurocognitive problems are common among adolescents and young adults (AYA) with perinatally-acquired HIV (PHIV) and detecting them requires neuropsychological (NP) testing. However, few NP tests exist for languages in Uganda (i.e., Luganda and Luo). Adapting NP tests for different languages requires careful consideration of word choice to ensure culturally appropriate and understandable translations. Additionally, NP tests may use technical words not readily translatable to other languages (e.g., “motor skills”). This study describes a novel process of translating a battery of tablet-based NP tests for use for AYA with PHIV in Uganda into the Luo and Luganda languages.

Methods: Two professional translators were hired to translate the English NP tests into Luo and Luganda. After the English-to-Luo and English-to-Luganda translations had been generated, two groups comprised of bilingual speakers (Luo- English, Luganda-English) back-translated the respective translations into English. Translator groups met to compare and review all translations for accuracy, cultural appropriateness, and understandability.

Results: Groups identified translations that could cause confusion such as: words that were too formal (e.g., obukulungwa in Luganda for "circle"), words that did not convey the English as intended (e.g, "sign language" in Luo for "motor skills"), and words that did not accurately describe visual stimuli (e.g., "brown" in Luo for "yellow"). Some technical words did not have a direct translation and had to be resolved by the groups to produce an understandable alternative (e.g., there is no word for "maze" in Luganda, but "arrangement of walls" was an accepted alternative).

Conclusion: Forward translation alone of NP tests from English to Ugandan languages did not provide the most accurate and understandable translations, which could affect an examinee's understanding of task demands and subsequent test performance. Using a group of bilingual speakers to back-translate and review allowed for greater insight into the cultural appropriateness of the translations and helped produce translations that conveyed the intended meaning of the English text (especially technical terms) to understandable Luo and Luganda. This process can serve as a model for future translations of NP testing, and our findings could inform future translations of NP tests for different languages.

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Scaling up Integrated Hypertension-HIV Care in Uganda: From Research to Policy.

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Background: The high prevalence of hypertension among persons living with HIV (PLHIV) in Uganda necessitated efforts to integrate the management of hypertension into routine HIV care. Working with the Uganda Ministry of Health (MoH) and with support from Resolve to save Lives, Makerere University Joint AIDS Program (MJAP) conducted a two-year implementation research project to integrate hypertension management into HIV care at Mulago Immune suppressed syndrome clinic. We adapted the World Health Organisation HEARTS package for cardiovascular disease management. The implementation strategy had four key components: a stepwise hypertension treatment protocol, task shifting for screening and treatment, systems for monitoring and providing hypertension medicines to patients at no cost. Hypertension control among the enrolled 1140 hypertensive PLHIV improved from 5.1% to 70% with sustained HIV viral suppression above 98% over 24 months. Our recommendations to the Uganda MoH included a need to scale up integrated hypertension-HIV care nationally, revision of the essential medicines list (EML) and adapting a national treatment protocol for hypertension management in HIV care.

Materials & Methods: Initially, MJAP engaged key MoH departments (the non-communicable disease, pharmacy, AIDS control program, clinical services and the quality assurance departments) to introduce the project objectives of translating research into routine practice, which were in line with the ongoing efforts by the MoH and its partners to integrate NCDs-HIV care in Uganda. With support from MJAP, MoH is engaging key stakeholders from government, non-government and academic institutions to share best practices and experiences on integrated NCDs-HIV care. MoH has developed a roadmap

for revising the Uganda EML and adopting a national protocol for hypertension management. The MoH also set up a technical working group (TWG) to develop guidelines for integrated hypertension-HIV care.

Results: Drafts of standard operating procedures and protocols for management of hypertension among PLHIV have been developed and reviewed by the MoH TWG awaiting adoption. The next phase is to conduct stakeholder consultations to develop drafts of the revised EML.

Conclusions: Sustainable translation of research into policy requires a multi-layered process that involves multiple stakeholders' engagements from MoH, health providers, recipients of care, academia and global partners.

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The Intended and Unintended Consequences of HIV Voluntary Assisted Partner Notification Services in Sub-Saharan Africa: A Multi-Level Qualitative Analysis

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Background: Voluntary assisted partner notification (VAPN) in HIV contact tracing is a globally recommended strategy to identify persons who have been exposed to HIV and link them to HIV testing and treatment services. However, little is understood about how VAPN is experienced by stakeholders in sub-Saharan African (SSA) contexts. We conducted a qualitative study evaluating stakeholder experiences and mapped these onto domains of intended/unintended and desirable/undesirable outcomes. We aim to inform the development of future VAPN policies reflecting the diversity of SSA experiences.

Method: From December 2019 to October 2020, we conducted 15 in-depth interviews with VAPN stakeholders at global (n=5), national (n=6) and community level (n=4) representing eight SSA countries. Eligible participants were ≥ 18 years old and had experience developing or implementing VAPN policies in SSA. We sought to understand stakeholder's perspectives on policy development, implementation, and perceived outcomes. Interviews were audio recorded, transcribed and analyzed thematically using a combination of inductive and deductive codes.

Results: Many participants intended VAPN to uphold ethical principles and to inform HIV surveillance data. Participants also reported high numbers of identified new HIV infections and increased uptake of HIV prevention methods (i.e., condom use) among clients. However, some participants described undesirable implementation of VAPN including limited reporting of long-term consequences (e.g., social harms, antiretroviral therapy [ART] adherence), foregoing consenting procedures through opt-out approaches, and lacking standardized data reporting tools across healthcare facilities. Some participants also perceived pressure from global implementers to meet VAPN targets which in some cases resulted in data manipulation, data fabrication, and coercive measures to reach partners. Other participants, however, reported experiences which were desirable and innovative. These included the use of social media to reach young persons, utilizing secure data files to prevent involuntary HIV status disclosure, and developing guidelines to reach populations left behind by VAPN (e.g., sex workers).

Conclusion: In sub-Saharan Africa, VAPN is experienced as a strategy which can optimize the identification of new HIV infections but also as a strategy prone to ethical challenges. Future policy developers should work collaboratively with SSA community

stakeholders to mitigate these challenges and to maximize ethical VAPN.

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The Utility of the Continuous Quality Improvement (CQI) Methodology in Identifying and Addressing Gaps in the HIV Care Continuum: The Case of USAID Strengthening the Care Continuum

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Background: In low prevalence and generalized epidemic contexts such as Ghana, effective and efficient case identification is critical in meeting the first 95% of the global 95-95-95 targets. However, structural and policy level challenges often inhibit utilization of all entry points for effective case identification. This abstract illuminates the power of the continuous quality improvement (CQI) methodology to test a change idea and convince reluctant policy actors to use blood banks as a feasible entry point for HIV testing and linkage to care in Ghana.

Description: As part of its CQI process in 2019, the USAID Strengthening the Care Continuum (Care Continuum) project implemented by JSI Research & Training Institute, Inc. collected retrospective baseline data from eight hospitals on blood donors in the Western Region (WR) of Ghana. The analysis revealed that about one percent (40 out of 3,152) voluntary donors and over two percent (299 of 11,743) replacement donors were reactive to HIV. This prevalence was close to the national average of two percent. However, due to stigma and fears of discouraging potential blood donors, these reactive donors missed the opportunity to know their HIV status and receive timely treatment. The Care Continuum project therefore used the largest hospital in WR, the Effia Nkwanta Regional Hospital (ENRH), to test an innovation by offering HIV testing services to blood donors as a test case. Two nurses from the blood bank received additional training on counseling to offer HIV tests to donors at the point of sample taking. Additional key stakeholder engagement included convincing hospital authorities that with effective counseling, HIV positive donor results could be disclosed without negative consequences.

Lessons Learned: The change idea was successful and offering HIV testing services to donors did not lead to a reduction in persons donating blood. From April 2020 to June 2021, 3,634 donors were offered HIV testing services and eleven positive cases were identified and linked to care.

Conclusions/ Next Steps:
- Harness the findings of this intervention for high-level policy engagement.
- Conduct more rigorous research studies in this area to inform policy and practice.
- Scale-up to other blood banks.

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Measures Put in Place to Ensure Organizations Have HIV Workplace Policy in the Western Region, Ghana

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Issue: To ascertain whether organization have workplace policy on HIV prevention and management for their employees, the Technical Support Unit (TSU) of the Ghana AIDS Commission (GAC) embarks on routine visits to public and private sector organizations in the western region, Ghana. Persons Living with HIV working in these organization most often do not have access to medical help or receive any support from employers. The TSU

thus provides technical support to organizations to ensure that comprehensive workplace policies are put in place to address the HIV needs of their employees.

Description: Six organizations (3 each from the public and private sector) are selected annually. An institutional analysis is conducted using a qualitative purposeful sampling technique to know the type of written policies in place at the organization, identify HIV and AIDS resource persons at the workplace, engage workers on HIV and AIDS services provided at the workplace, probe into health insurance benefit packages for workers, observe if there are visible HIV & AIDS policy awareness documents and focal points at the workplace. The data collected is presented to the top management of the organization and appropriate advice and direction is given to ensure HIV workplace policy documents meet International Labour Standards

Lessons learnt: 80% of the organizations visited in 2020 had HIV workplace policy documents, 50% of the policy documents did not meet required standards. Staff rotation in most of the organizations visited due to COVID-19 affected the interview selection process. Major organizational decisions emanate from office headquarters in Accra and that handicapped most of the organizations to start or design a HIV workplace policy in the region. In 2021, 60% of the organizations visited had developed standard HIV workplace policy documents.

Next steps: High level advocacy and engagement on HIV workplace policy at the national level by the Ghana AIDS Commission. The TSU must continue to provided technical support to organizations and ensure adherence and implementation of the workplace policy.

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Socio-Demographic Characteristics of Key Populations in Nigeria - Findings from the 2020 Integrated Behavioral and Biological Surveillance Survey (IBBSS).

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Background: UNAIDS estimated that around two-third of the new HIV infection in West and Central Africa in 2017 occured in Nigeria.Nigeria has a mixed epidemic, meaning that while HIV prevalence among the general population is high, certain groups (i.e Key Population) still carry a far greater HIV burden compared to the rest of the population.The Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) was conducted in 2018.NAIIS was a national household-based survey that assessed the prevalence of human immunodeficiency virus (HIV) and related health indicators in the general population.In order to comprehensively appraise the HIV epidemic status amongst all populations,the 2020 IBBSS was commissioned in 12 states to guide understanding of the HIV dynamics within the Key population.

Methodology: The study adopted a multi-stage sampling approach, using the hotspots validated from the 2018 key population size estimation study as sample frame.During data collection, a study inclusion checklist based on UNAIDs blue book was administered on participants and those who met eligibility were randomly selected until per state sample sizes were achieved across the 4 typology. Ethical approval was obtained from the National Health Research Ethics Committee.Data was collected using the SurveyCTO while analysis was done using the Stata vs 13.

Result: The mean ages of key populations interviewed were 28yrs, 24yrs,25yrs and 31yrs for FSWs,MSM,Transgender and PWIDs respectively. Approximately 10%,33%30% and 22% of all KPs have tertiary education while 66%, 63%,65% and 61% have secondary

education respectively.Those without any forms of education included 6.7%,0.6%,0.6% and 4.2% of FSW, MSM, TGs and PWIDs respectively.In terms of marital status for FSW, MSM, Transgender and PWIDs, 3.2%,6.4%,5.8% and 19% of KP are currently married, while 65.4%,92%,92% and 72% are unmarried respectively.For employment status, about same proportion of MSM and Transgenders (47%),39% of FSW and 54% of PWIDs are employed while 57%,29%,28% and 34% are unemployed amongst the FSW, MSM,Transgender and PWID respectively.

Conclusion: Following study findings,stakeholders can adopt a streamlined approach in planning and implementing prevention service program for Key Population.Policy makers,program managers etc should also use data from the study to generate evidence-based frameworks for the realization of the targets of Nigeria's national response.

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Reinforcing Nigeria's HIV prevention efforts through strategic HIVST and PrEP interventions

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Background: Nigeria's HIV prevalence stands at 1.4% (NAIIS 2018). Proven are the efficacy of Pre-Exposure Prophylaxis (PrEP) in preventing HIV and use of HIV-Self-Testing (HIVST) as an innovative HTS approach to reduce the burden of HIV. However, gaps exist between number of PLHIV and number identified by HTS. Uptake of HIVST and PrEP remains low and hinders the achievement of the national target of reducing new HIV infections by 2030. To address these, Nigeria recently developed a communication strategy for HIVST and PrEP.

Description: The National HIVST and PrEP Communication Strategy is an action plan to contribute to the prevention of new HIV infections. It addresses the challenges of low level of awareness, demand, uptake of HIVST and PrEP services. It is a product of extensive collaborative efforts of government and stakeholders. Data extracted from Nigeria AIDS Indicator and Impact Survey (NAIIS) 2018 and Integrated Biological and Behavioural Surveillance Survey (IBBSS) 2020 provided practical resource to support partnerships in all forms of HIVST and PrEP interventions. There was desk review of 60 HIVST- and PrEP- related materials to identify contextual issues which guided the strategy development. Over 100 members of the national prevention working group met and articulated issues that formed the strategy. Thus, a national consensus to use the strategy to improve HIVST and PrEP services for better-quality healthy behavioural outcomes.

Lessons learned: There's paucity of HIVST and PrEP data. Materials review revealed barriers to HIVST and PrEP uptake viz low awareness/knowledge of HIVST and PrEP services, low risk perception of HIV infection, fear of HIV-test result, poor health seeking behaviours, myths/misconceptions around side effects of PrEP, etc. Evidence shows that HIVST increases HTS acceptability and access; provides confidentiality and empowers users to determine their HIV status. There is increased confidence in the efficacy of PrEP for HIV prevention among people at substantial-HIV--risk.

Conclusions/next steps: The strategy communicates national approach to using HIVST and PrEP for HIV prevention. To achieve the national target of reducing new HIV infections, there is a need to scale-up and intensify HIVST and PrEP services among persons at high risk of HIV in Nigeria.

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The Vision 2030 of HIV/AIDS-Free Generation: Contribution by the Drop-in Centres in the City of Johannesburg

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Background: The primary goal of the Joint United Nations Programme on HIV/AIDS (UNAIDS) is to bring an end to the HIV/AIDS epidemic as a public health threat by 2030. In respond to this, South African government engaged with various stakeholders, including non-profit organisations (NPOs). Drop-in centres (DICs) are among the NPOs funded by the Department of Social Development (DSD) and supported by USAID/PEPFAR funded organisations to provide HIV services as a governments' respond to the 2030 vision. The goal of the study was to explore the strategies employed by the DICs in contributing to the realisation of the 2030 vision, HIV free generation.

Materials and Methods: The study employed a qualitative case study design. Using a non-probability purposive sampling, five DICs were sampled, comprising four employees per DIC and totalling 20 participants. Semi-structured interviews using interview schedule were conducted to collect data. Data was analysed using thematic analysis.

Results: The study's findings demonstrate that DICs have established strategies that facilitate their contribution to realisation of 2030 vision, HIV free generation. While the implementation of these strategies has been enhanced by the presence of policy, the findings also indicate that from the five DICs that participated, four do not have an HIV policy or rollout strategy documented. However, they do provide HIV services. Drop-in centres that demonstrated understanding on programmes for HIV services were those who were receiving support from USAID/PEPFAR funded organisations as oppose to those who were not receiving the support.

Conclusion: The results identified a gap in policy development for HIV programmes in DICs and the absence of a clear strategic plan for HIV roll-out. Furthermore, the study reveals that although the DICs used their own models to roll out HIV services, it was not documented. The study recommends that, through assistance of the DSD or USAID/PEPFAR funded organisations, the DICs should draft a policy document to help streamline the implementation of the HIV services' strategies in a more structured manner. The study further recommends that the DSD support the sustainability of structured programmes introduced by USAID-funded organisations in the DICs.

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Global Prevention Coalition: Assessment of the Sub-National Awareness and Implementation in Nigeria.

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Background: Prevention remains a key strategy for reversing the HIV epidemic in Nigeria. The Global HIV Prevention Coalition (GPC) was established to strengthen and sustain political commitment for key population, adolescent girls and young women, condom and pre-exposure prophylaxis programming. A continuous quality improvement (CQI) for health and community system strengthening to states was conducted to strengthen HIV prevention programmes in the states, to ascertain the states progress in HIV prevention implementation and provide mentorship to state actors on the global prevention coalition pillars.

Method: The National Agency for the Control AIDS (NACA), through the support of the Global Funds, embarked on the CQI in 6 states (Taraba, Akwa Ibom, Rivers, Nasarawa, Kano and Oyo) targeted at reaching HIV prevention implementers. The states were selected based on prevalence, HIV integrated biological and behavioural surveillance survey (IBBSS) results and states with little or no prevention activities. A survey was conducted in 10 different organizations per state (ministries, departments, agencies, community-based organizations and implementing partners). A standardized questionnaire was administered to one person per organization to determine the awareness and implementation of activities related to GPC pillars. A total of 60 persons were interviewed.

Result: The findings from this study shows that about 73.77% of the respondents were not aware of the GPC pillars, and approximately 63.93% offer programme from the four GPC pillars. A mentoring on the GPC reporting that promotes local and state level feedback as well as appropriate feedback to the national levels for GPC pillars' reporting purposes was provided to the HIV prevention implementers as well as road maps for the state HIV prevention and strategies for resource mobilization in the state to facilitate positive changes.

Conclusion: Ensuring that Nigeria ends HIV/AIDS epidemic by 2030 requires the building of the capacity of the states on GPC pillars for HIV prevention programmes.

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HIV drug resistance testing gap in Malawi's HIV programme advocates for increased local genotyping capacity

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Background: Between 2019-2021, full transition to dolutegravir-based regimens took place in Malawi's HIV program. National guidelines were adjusted to require confirmation of HIV drug resistance (HIVDR) for patients on dolutegravir and protease inhibitor (PI)-based therapy before switching to next-line regimens.

Description: Malawi implements routine viral load (VL) monitoring at 6 months after ART initiation and yearly thereafter. Confirmed virological failure is defined as: VL result >1,000 copies/mL followed by second VL result >1,000 copies/mL after 3 months adherence support. For patients with confirmed virological failure, guidelines require submission of a standardized case form to the national HIVDR committee to determine eligibility for HIVDR testing. Eligible samples are currently genotyped in South Africa as capacity at the national reference laboratory is not yet available.

Lessons learned: Using data from quarterly Ministry of Health reports and laboratory information management system (LIMS), we estimated that VL coverage (routine VL results/patients on ART, mid-period) during October 2020-September 2021 was 64%. Comparing VL data from LIMS with submissions to the national HIVDR committee in the same observation period, we observed a large unmet need of HIVDR testing among patients with confirmed virological failure. Of 349,029 VL results of patients on dolutegravir- or PI-based regimens, 23,293 were >1,000 copies/mL. After adherence interventions, 3,518 follow up VL results >1,000 copies/mL were reported, all having an indication for HIVDR testing. However, only 174 (5%) applications for HIVDR testing were received. Contributing to this gap are clinician-related factors (insufficient guidelines knowledge, low motivation to complete HIVDR testing applications) and systems-related factors (long

VL result turn-around times). Only 52% (90/174) of submissions resulted in HIVDR testing, mainly through rejections (poor adherence to ART; incomplete documentation) or suspension of sample transport to South Africa during Covid-19 waves.

Conclusions/next steps: Malawi's current HIVDR policy does not meet the high need for genotyping after transition to dolutegravir-based regimens and increased VL testing coverage. Sufficient in-country HIVDR testing capacity, rapid communication of VL results and capacity building among ART providers may contribute to closing Malawi's HIVDR testing gap.

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Assessing Contribution of CD4+ T Cell Estimation in HIV and Malaria Co-Infection among Participants Attending Two Anti-Retroviral Treatment Clinics in Kano, Nigeria

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Background: Globally, current HIV treatment guidelines recommend HIV viral load estimation as monitor and marker of treatment success after three-six months Anti-Retroviral Therapy (ART)depending on regimen.CD4+ T cell estimation now a screening investigation for opportunistic infection. Malaria as HIV co-infection not consider as an opportunistic infection. However, HIV & malaria co-infection possess additional challenge to ART treatment outcomes.

Objectives: To assess CD4+ estimation contribution to HIV & malaria co-infection at Two ART Clinics in Kano, Nigeria.

Materials and Methods: After ethical approval, a cross -sectional design consisting of 1,521 consented HIV+ adults attending two ART clinics in Kano were randomly selected between June 2015- May 2016. Participants' basic /clinical details collected using structured questionnaire and EMR. Venous blood (4ml) collected into EDTA anticoagulants bottle for malaria rapid diagnosis confirmed by microscopy and density count including CD4+ estimation using flow cytometry standards methods.Data were analyzed using SPSS . Analysis of CD4+ T cells was based on three CD4+ cells measurements: at baseline, follow-up and current CD4+ cell using mixed design repeated measures ANOVA. Statistical significant difference set at $p < 0.05$.

Results: Of the 1,521 participants, majority 70.6% were females. Mean (SD) age was 37.30± (10.41) and ranged 18 -78 years. Dual infection prevalence 25.4% with 99% Plasmodium falciparum species. Mean malaria density was 265 ±31.8 (SD) cells/µl and ranged 20 to 2,500 cells/µl. Mean CD4+ SE estimate (Confidence interval-CI) compared by HIV and malaria co-infected at baseline, 188±9-(170-206) VS 266±11-(245-287 follow-up 321±13-(295-346) VS 386±21 -(346-427) and current CD4+ estimate 387±23- (341-433) VS 409±28 -(354-464) group & time p=0.001.Mean CD4+ SE compared ART status at baseline 216±5 -(205-227) VS 310±6 (298-322), follow-up 404±7-(389-419) VS 459±13-(433-485) current 483±15-(454-513) VS 538±18-(503-573) group and time p=0.001.

Conclusion: There was statistical significant difference in mean CD4+T cells count by ART and HIV & malaria status over time. CD4+ T cells count in HIV mono-infected significantly and consistently increased in over time, while among co-infected there was an initial rise at follow-up followed by marginal increase at third measurement. Current CD4+ T cells count was significantly different between HIV mono-infected compared to HIV and malaria co-infected.

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Evaluation of VISITECT CD4 rapid test kit to improve CD4 uptake across strenthening integrated delivery of HIV/AID serivices (SIDHAS) project in Akwa Ibom State

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Background: To improve CD4 uptake towards quality of care and treatment continuum of client newly diagnosed with HIV. Innovations of diagnostic capacity was prioritized to ensure CD4 test is made available at the very first point of diagnosis. Current HIV program implementation approach to ensure early diagnosis of Advance HIV Diseases (AHD), indicates CD4 test results as a key predictor that defines if a patient has AHD and requires rapid intervention. To ensure proper clinical decision in patient management, for patient suspected with AHD, same day CD4 results is very key, and this led to the introduction of VISITECT CD4 semi-quantitative rapid test kit. The use of the test kit was piloted in (SIDHAS) project- Akwa Ibom State, in January 2021. To ensure accuracy of test results from the VISITECH CD4 test kit. A comparative evaluation with results from CD4 flowcytometry autoanalyzer (BD FACS presto machine) was carried out.

Materials and Methods: 26 samples from newly diagnosed HIV positive clients were tested using VISITECH CD4 rapid test kit and flowcytometry method simultaneously. Samples were tested same day of collection within 4 hours.

Result: 8 samples had <200cells/mm3 with VISITECT CD4 rapid test and same 8 samples had absolute values <200cells/mm3 with flowcytometry method. 18 samples had >200cells/mm3 with VISITECT, and flowcytometry had corresponding absolute values >200cells/mm3. VISITECT CD4 rapid test kit performance characteristics showed 100% accuracy, reliability, sensitivity, and specificity as compared to flowcytometry.

Conclusion: Expanding the use of VISITECT CD4 rapid test kit to all facilities providing comprehensive ART program will lead to rapid diagnosis, faster decision-making, reduce results turnaround time, improved patient retention and ensure initiation of patients with AHD for OI investigations earlier, thereby reducing mortality.

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An Assessment of Viral Load Monitoring Among People Living With HIV Across Selected Health Facilities in Manicaland and Midlands Provinces of Zimbabwe Before and During COVID-19 Era.

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Background: It is critical to monitor viral load (VL) testing coverage, turnaround time (TAT) of results and suppression rates among ART clients. A secondary analysis of VL data was conducted to assess VL testing coverage, results turnaround time and suppression rates for the period October 2019 to September 2020 in all health facilities of Manicaland and Midlands provinces of Zimbabwe.

Methods: We extracted VL testing data from laboratory database and retrospectively calculated VL testing coverage, results turnaround times and suppression rates. Turnaround times were assessed for the time periods between sample collection and result dispatch from laboratories. Linear regression

analysis was used to assess association between turnaround times and district of sample origin or location of processing laboratory.

Results: We analysed 127,205 VL results and the overall median TAT from sample collection to results dispatch was 13 days (IQR, 6-25) for Midlands and 21 days (IQR 9-54) for Manicaland. The longest TAT was from sample collection to receipt at the laboratory; 5 days (IQR, 2-11) for Midlands and 12 days (IQR, 4-58) for Manicaland. Intra-laboratory TAT was 4 days (IQR, 2-7) for Midlands and 8 days (IQR, 4-17) for Manicaland. VL testing coverage was 48% for Manicaland and 37% for Midlands. Districts without viral load machines had turnaround times which were 12 to 20 times longer compared to districts with viral load machines. Among the patients with viral load results, viral load suppression ranged between 84% and 91%

Conclusion: Overall VL TAT, testing coverage and suppression rates did not meet national targets. We recommend strengthening of the integrated sample transportation system to expedite delivery of samples to testing laboratories.

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Factors Associated With Cytopenia, Bicytopenia and Pancytopenia in HIV-Infected Adults on Haart in Cameroon

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Background: Hematological complications are a common cause of mortality in HIV infected patients. Cytopenias are frequent during the advanced stage of disease and are often fatal. Many of the drugs used in the management of HIV-infected individuals are myelosuppressive and can both cause and exacerbate cytopenias. The aim of this study was to assess the prevalence and characteristics of cytopenias in HIV infected adults at Douala General Hospital (DGH) in Cameroon.

Methods: A cross sectional study was conducted among 174 HIV-infected adults on Highly Active Antiretroviral Therapy (HAART), visiting DGH. Blood parameters, CD4 counts, HAART status and Cotrimoxazole Preventive Therapy (CPT) were recorded at recruitment. HIV infection classification and anemia were defined according to WHO guidelines. We have used Harrison's Principles of Internal Medicine (Vol.1) reference ranges to define leucopenia if white blood cell count <4 ×103 cells/µl and thrombocytopenia if platelets <150 ×103 cells/µl. Chi-square tests were performed to establish relationships between the categorical or binary variables.

Results: Across the study population, the mean duration (SD) of antiretroviral therapy is 7.3 (3.9) years and 41% of subjects are on AZT-based HAART. We found 68% of cytopenias with anemia (51%) as the most common. Respectively, leucopenia and thrombocytopenia occurred in 34% and 9.8%. We observed bicytopenia in 25.0% and pancytopenia in 2.9%. According to the occurrence of cytopenias, participants with CD4 counts<60 cells/µl (14%) and advanced clinical stages (17%) have a significant correlation with any of cytopenia ($p<0.05$). Anemia and thrombocytopenia are more prevalent in females, subjects aged above 55 years and those on CPT.

Conclusions: Prevalence of cytopenias in HIV infection is augmented in female, low CD4 counts and advanced clinical stages. Though ARTs are beneficial to HIV-infected patients, studies involving larger cohorts of hematological complications are needed to further develop optimal strategies to improve biological follow-up.

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The Impact of Automated Sample Review and Verification on Review Turn-Around Time in CD4 Testing Laboratories in South Africa Using the Beckman Coulter Aquios Platform

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Background: Turn-around time (TAT) is used to monitor laboratory performance and efficiency. It is calculated using electronic system generated date /time stamps from venepuncture to result review. The National Health Laboratory Service reports total TAT from the sample's first capture on the laboratory information system (LIS) to when a result is verified/released for patient intervention. Pre-analytical and analytical TAT contribute >95% of total TAT, with post-analytical TAT (testing to review) <5%.

Objective: This study assessed the impact of auto-review and verification on post-analytical TAT (RevTAT) for CD4 testing across South Africa using the Coulter Aquios platform, with build-in algorithms identifying analytical errors.

Method: The onboard quality control criteria (system/protocol checkpoints, instrument performance and accurate CD4 enumeration) for Aquios auto-review were tested on 200 random samples at the Charlotte Maxeke Johannesburg Academic laboratory. Failing samples were flagged requiring operator intervention. All results were visually inspected for accurate flagging. After local refining, auto-review and verification rules were implemented on the laboratory information system (LIS) and launched at 39 Aquios CD4 laboratories in April 2020. Retrospective RevTAT data was extracted from the corporate data warehouse for calendar years 2019 to 2021. The median and 75th percentile RevTAT in minutes was analyzed per month and categorized into three phases: pre (January 2019 to March 2020), implementation (April 2020) and post (May 2020 to December 2021). The RevTAT was compared to testing by 18 MPL/CellMek sites that did not implement auto-review.

Results: Accuracy testing confirmed >95% of 200 Aquios tested samples passed all internal checks; <5% needed operator intervention. Overall, 7.4million samples were analysed; 47% for the pre, 2.4% from implementation and 50.5% post-implementation. The 75th percentile RevTAT declined from 26.3 minutes pre- to zero post-implementation. For non-Aquios testing, the 75th percentile RevTAT showed a slight increase from 58 to 63 minutes.

Conclusion: Auto-review/verification is routinely used in high-volume automated laboratories with skills-limited settings. This application became available for routine CD4 testing after implementing the Aquios platform. The automated steps significantly decreased review TAT, especially manual result review by lessor qualified staff; avoiding long waiting periods for senior staff input, and optimizing workflow.

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Prévalence et caractérisation de l'anémie chez les patients vivants avec le VIH/SIDA : Cas hôpital de District de New-Bell Douala-Cameroun

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Introduction: L'infection par le virus du VIH/SIDA est une pathologie d'autant plus sévère qu'elle s'attaque à différents systèmes de l'organisme. Notre étude avait donc pour objet de décrire le profil et la prévalence de l'anémie chez les personnes vivantes avec le VIH/SIDA à l'hôpital du district de New-Bell (HDNB).

Matériel et méthodes: D'avril 2021 à Juin 2021, nous avons conduit une étude descriptive transversale au laboratoire de biologie clinique de l'HDNB .Le patient n'était pas retenu s'il ne désirait pas participer. Après obtention des autorisations administratives et consentement des patients, avec la technique non probabiliste et accidentelle, 188 patients ont été enregistrés. Ceux-ci ont été soumis à un questionnaire et 3ml de leur sang sur tube EDTA K3 prélevés puis analysés automatiquement sur compteur hématologique (URIT 3800) et compteur des CD4 (PIMA). Les données ont été enregistrées dans Excel 2013, puis transférées dans SPSS version 20.0 pour analyses statistiques au seuil significatif de P<0 ,05.

Résultats: Au total sur les 188 patients, 131(70%) étaient de sexe féminin contre 57 (30%) masculin. La moyenne d'âge était de 31ans et variant de 4 ans minimum et 73 ans maximum. Le sexe ratio était de 2,33 en faveur des femmes. L'étude de la prévalence de l'anémie révèle un taux global de 103/188 (54, 8%) , dominé significativement par que le sexe féminin (P<0 ,05) est le plus affecté avec plus de 62% pour seulement 36% chez le sexe masculin et l'on a des raisons de croire que la fréquentation des structures hospitalières majoritairement par le sexe féminin n'est pas en reste sur cette prévalence. Également plus de 20% de la totalité de patients avaient un taux d'hémoglobine inférieur à 10g/dl pour un taux de CD4 deux fois inférieurs à la valeur minimale soit 350 mm³ (P<0 ,05). L'anémie microcytaire était très représentée avec 89% contre 10% pour normocytaire.

Conclusion: Nous avons relevé une prévalence élevée de l'anémie majoritairement microcytaire chez les PVVIH de l'HDNB. Cette anémie était statistiquement significative chez les patients à taux de CD4 deux fois inférieurs à la valeur normale minimale.

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COVID-19 Effects on Timely Delivery of STI Results To The SUUBI+ADHERENCE-R2 Study in Uganda

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Background: Suubi+Adherence-Round 2 is a study to examine the longitudinal HIV treatment adherence among youth living with HIV transitioning into young adulthood in Southern Uganda through socio-behavioral interventions to improve their HIV medication adherence through financial literacy, financial incentives, physical and mental healthcare. Mildmay Uganda is a study site and supplier of laboratory services of HIV viral load and urine STI PCR testing (Neisseria gonorrhea, Chlamydia trachomatis and Trichomonas vaginalis) to the study. COVID-19 affected Mildmay laboratory services (MUg) from April through November 2021 during Year 6 of the cohort study.

Methods: MUg authored Standard Operating Procedures (SOPs) for guiding protocol implementation then staff trained on the lab SOPs. During performance, the increased Turn-Around-Time (TAT) from the standard 2 weeks to over one month to dispatch of urine STI PCR results led to assessment of the factors influencing TAT changes including local at the site, regional within Africa and globally.
Weekly reporting on the study from April through November 2021 documented risks and issues during the COVID-19 surge from June through October 2021.

Results: COVID-19 influenced laboratory performance:

- Site: longer lead times for procurement of STI reagents; limited suppliers; disruption of freight costs in shipment of supplies; absence of application specialist for direct support; additional local resources for troubleshooting rather than remotely from manufacturer; shift cover challenges and need for reserve funds for bulk purchases due to high price volatility.
- Africa: need for increased research and routine use of molecular technology for the STIs to ensure competitive environment among suppliers and that the optimal comparative diagnostics for resource-limited settings go to scale.
- Global: Lack of equitable Access Programs for resource-limited settings to afford use of molecular technology for routine STI screening and diagnosis.
- The outcome of STI results compared to current standard of care; an increase in sensitivity for the STI tests.

Conclusions: The Mildmay experience highlights the need for ongoing monitoring of COVID-19 effects on laboratory services and advocacy to provide PCR testing, ensure availability of related supplies, and availability of application specialists to support laboratories in trouble shooting for new platforms in diagnosis.

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Using Root Cause Analysis to Improve HIV Viral Load Coverage Among HIV Clients in Western Ghana: Gaps and Lessons Learned

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Issue/Background: The USAID Strengthening the Care Continuum Project, implemented by JSI Research & Training Institute, Inc., works with the Ghana Health Service to support 58 ART sites in two regions of Ghana to improve HIV viral load (VL) management practices. Data on VL sample collection showed 84% of clients testing for viral load at the end of FY21 Q4, below the 95% international benchmark. Project staff undertook a root cause analysis auditing records to determine leading causes of low coverage VL testing.

Description: Files of all clients in 58 sites in Western and 2 sites in Western North regions visiting the facilities between July and December 2021 were reviewed to validate and document reasons why viral load samples were not taken. A total of 2,075 clients' files were retrieved, reviewed and reasons documented. Results from the file review together with the ART Team revealed multiple reasons for the initial low performance related to the implementation of differentiated service delivery (DSD) and interruption in treatment (IIT):

Failure to synchronize viral load sample collection with multi-month dispensing (MMD) visits (54%).

Ineligibility for VL testing due to interruption in treatment (IIT) and insufficient time on ART (16% of client files).

Delayed or missing request in the viral load data management system (VLDMS) (14%).

Third party refill pick up by spouses, relatives and/or case managers of civil society partner organizations means that clients were not physically present to provide a blood sample (7%).

Next Steps: DSD is a vital strategy, particularly in light of COVID-19 health facility constraints, but requires careful coordination with laboratory services. Based on the factors identified, the project will continue to mentor facility ART and lab teams to improve synchronization of MMD visits and sample collection or community-based sample collection for third party refill services. Additional efforts will be needed to prevent IIT and ensure comprehensive use of the VLDMS by all providers.

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KIR2DL1 Gene Could Play a Major Role Against Infections in HIV-1 Exposed Uninfected Infants in Cameroon

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HIV-exposed uninfected infants (HEU) experience greater morbidity and mortality from infections compared to HIV-unexposed uninfected (HUU). The reason(s) for these poor outcomes are uncertain, but could be related to an altered immune system state. Hence the immune deficit underlying it is not well known. To address this breach, we determined the distribution of Killer Cells Immunoglobulin-Like Receptor (KIR) genes between HEU and HUU infants from Yaoundé-Cameroon.

A pilot cohort study was conducted during 12 months and we analysed types of infection, mother confounding factors and determined the presence or absence of 15 KIR genes in 27 HUU and 39 HEU infants using the sequence specific primer polymerase chain reaction (PCR-SSP) method.

We found at least 19 hospitalizations due to infection in 66 infants of both groups. 15 (35.8%) HEU and 4 (14.8%) HUU hospitalizations occurred during the first 6 months of follow-up. Among infants who completed follow-up to 12 months (39 HEU and 27 HUU), the RR for Infection-associated hospitalizations was 2.42 (0,928-5,823) times greater for HEU than HUU with OR 3.59 (1.037-12.448). We report here the frequencies of 15 KIR genes and 66 KIR genotypes among Cameroonian infants. KIR2DL1 gene was significantly more frequent in HUU than in the HEU (OR= 0.183, 95%CI: 0.053-0.629; P=0.003). Our study shows that, KIR2DL1 gene may have a protective role against infections in HIV-1 exposed uninfected infants of Cameroon.

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Earlier Antiretroviral Initiation Is Independently Associated With Better Arterial Stiffness in Children Living With Perinatally-Acquired HIV With Sustained Viral Suppression in Mozambique

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Introduction: Cardiovascular disease is a major driver of morbidity and mortality in adults living with HIV. The drivers of cardiovascular disease in children living with perinatally-acquired HIV (PHIV) with sustained HIV viral suppression are unclear. We explored the contribution of HIV-specific risk factors to arterial stiffness independently of traditional risk factors (metabolic syndrome, MetS) in pre-pubertal PHIV with sustained viral suppression in a low-income country in Africa.

Methods: For this cross-sectional analysis, arterial stiffness was assessed by Pulse Wave Velocity z-score (PWVz) measured using a Vicorder® device. MetS components were measured. We retrospectively collected antiretroviral therapy (ART) exposures, HIV stage, CD4 count and HIV viral load. A multivariate linear regression model was constructed for MetS components, retaining age and gender as obligatory variables. HIV-related metrics were then added to assess whether these had an independent or additive effect.

Result: We studied 77 virally-suppressed PHIV without evidence of cardiovascular disease (from medical history and physical examination). In the initial model, PWVz was independently associated with each MetS component. PWVz was higher in participants with proportionally greater visceral fat (waist-

height ratio), elevated lipids (triglyceride-HDL ratio) and insulin resistance (log HOMA). The addition of age at ART initiation increased the model r2 value from 0.36 to 0.43. In the resulting model, younger age at ART initiation was independently associated with better PWVz ($p<0.001$).

Conclusion: Earlier ART initiation was independently associated with lower large artery stiffness. This effect was independent of the effect of elevated lipids, visceral fat and insulin resistance.

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Factors Associated With Viral Non-suppression Among HIV Positive Children and Adolescents Enrolled to the Orphans and Vulnerable Program in Uganda

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Background: The orphans and vulnerable children (OVC) program is an intervention supported by the U.S. President's Emergency Plan for AIDS Relief to prevent and mitigate the impact of HIV among children and adolescents C/ALHIV aged 0-19 years. Mildmay Uganda has been implementing the OVC program in Mubende region of rural Uganda since April 2017 to address the social factors that hinder adherence among C/ALHIV. However, the viral load (VL) suppression rate of these C/ALHIV is 85%, which is below the expected 95%. The aim of this assessment was to determine the factors associated with viral non-suppression among C/ALHIV on the OVC program.

Methods: We conducted a cross sectional review of data for C/ALHIV on the OVC program in the supported districts. We included C/ALHIV with VL results within 6 months. We collected data on VL status, patient ART regimen and demographic characteristics, VL non-suppression was defined as any VL> 1000 copies/ml. We performed logistic regression analysis for association of VL non-suppression. Data analysis was carried out using STATA version 15.0.

Results: Of the 2048 C/ALHIV in the program, 1627 (79%) had a VL result within 6 months. Of these, 877 (53.9%) were female, 1106 (68%) were aged 5 – 14 years and 692 (42.5%) received care from a low-level health facility (HC III). The mean duration on ART was 5.7 years (s.d. 2.9 years, range 0.5 to 18 years) and mean duration in the OVC program was 1.5 years (s.d. 1 year, range 0.2 - 4.5 years). A total of 248 (15.2%) individuals were virally non-suppressed. Factors associated with VL non suppression included living in Kiboga district (OR (Odds ratio) =1.97; 95% CI (Confidence Interval): 1.22,3.19), receiving care from a lower-level health facility (HC III) (OR=1.65; 95% CI: 1.15,2.36), being male (OR=1.5; 95% CI: 1.12,1.99) and taking ART regimen containing a protease inhibitor (OR= 3.05; 95% CI: 2.15,4.33).

Recommendations: The assessment recommends strengthening of the capacity of lower health facilities-to provide ART to children and adolescents, use of a more effective ART regimen containing dolutegravir and finding innovative interventions to support VL suppression for the male child.

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Using Routinely Collected Data to Assess HIV Early Infant Diagnosis Turnaround Time in Manicaland and Midlands Provinces of Zimbabwe, 2021

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Background: HIV early infant diagnosis (EID) is a key strategy in the elimination of mother-to-child transmission of HIV (eMTCT). National EID program in Zimbabwe is largely centralized, with dry blood spots (DBS) samples being tested in selected regional laboratories in Harare, Mutare and Bulawayo. Although the country has started testing EID samples using point-of-care (POC) machines, these are limited to a few health facilities.

Methods: Secondary analysis of data from conventional EID testing laboratories for the period January to December 2020 was conducted focusing on health facilities in Manicaland and Midlands provinces of Zimbabwe. Median turnaround time (TAT) in days was measured for each segment of the EID process (pre-analytical, analytical and post-analytical). Proportions of HIV positive tests were measured, and TAT for all segments of EID process were compared across provinces and districts.

Results: We analysed data for 5,468 DNA polymerase chain reaction (PCR) samples. The overall median TAT from sample collection to results dispatch by the lab was 35 days (IQR 25-54) for Midlands and 19 days (IQR 13-30) for Manicaland province. The longest TAT was between sample collection and receipt at the laboratory which ranged between 6 and 46 days. Overall, 3% (144/5,468) of the samples were HIV positive. Buhera and Gokwe South districts had the highest positivity of 4% while Gweru, Chipinge and Makoni districts had the lowest (2%). Fifty-two (0.9%) of the samples were rejected due to poor quality.

Conclusions: The overall EID TAT did not meet the national standard. We recommend strengthening integrated sample transportation (IST) system to improve EID TAT, as well as capacitation of other regional laboratories to process DNA PCR samples for EID.

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Health Benefits of Integrating Early Childhood Development Into PMTCT Programs in Malawi

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Background: We assessed the feasibility, acceptability, and potential HIV-related health benefits for mothers and children of including Early Childhood Development (ECD) in government and NGO prevention-of-mother-to-child-transmission (PMTCT) services in Malawi.

Methods: We conducted a programmatic, observational cohort study with mother-infant pairs (MIPs) enrolled in PMTCT programs at 6 facilities in Malawi. The intervention incorporated ECD messaging from the WHO/UNICEF Care for Child Development package into routine PMTCT clinic visits. ECD activities were offered during clinic waiting times prior to ART consultations. Attendance at ECD sessions was not mandatory and mothers could opt to access ART services only. ECD sessions covered responsive caregiving and infant stimulationWe emphasized the importance of play in the early years for nurturing healthy brain development and building learninginteractions between mothers and infants. We conducted medical chart reviews 12-months after enrollment. Primary outcomes were mothers' ART retention at 12-months and infant HIV testing at 6-weeks and 12-months. Facility-level, routine data from 6 comparison facilities were also collected during the same time-period.

Results: A total of 607 MIPs were enrolled in the integrated PMTCT-ECD intervention between June 2018—December 2019 (see Figure 1). Approximately 85% of MIPS who attended a health facility during that time and

were eligible for the intervention were enrolled. The average age of the mothers and faints was 30 years and 7 weeks respectively. Most (76%) mothers attended more than 25% of ECD sessions -- 74% of mothers attended >5 of the 8 ECD sessions over the course of 12-months. There were significant differences between retention of mothers and HIV testing of babies between MIP in the PMTCT-ECD program and MIPs in comparison clinics; 88% of program mothers were retained versus 59%, and 96% and 80% of program infants were tested for HIV by 6 weeks compared to 66% of infants in comparison clinics

Conclusions: ECD integrated into PMTCT programs was feasible and acceptable, and resulted in better clinical outcomes for both mothers and infants. Further investigation is required to determine optimal delivery design for scale-up.

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Understanding Facility and Community Pediatric HIV Case Finding Outcomes in Anambra South-Eastern Nigeria

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Background: In Nigeria, more than 75% of HIV-positive children and adolescents are not diagnosed. Only 13% of children and adolescents living with HIV in Anambra, the state in South-East Nigeria with the highest HIV burden, are on treatment. As a result, for these age groups, there is a critical gap in case identification and eventual optimal treatment. Understanding the differences in case finding outcomes in the community and in facilities may help to guide interventions to improve pediatric case finding yield.

Method: A retrospective record review was conducted on all children (0 – 9 years) and adolescents (aged 10 - 19 years) who were offered HIV testing in health facilities and communities in Anambra state, Nigeria between January, and December 2021.
For each pediatric sub-population category, (children 0 – 9 years) and adolescents (10 -19 years) Chi-square test was used to explore the differences among HIV testing yield (positive persons identified) and testing stream (facility or community), and odd ratios calculated to assess the association between the two categorical variables.

Results: A total of 16518 children (0 – 9 years) were offered HIV testing with a positivity yield of 0.8% (0.7% for health facility and 1.5% for community testing).
Community HIV testing is likely to yield more positives for children between 0 and 9 years than facility testing (P = 0.001; OR: 0.470, 95% confidence interval 0.297 – 0.746).

A total of 40084 adolescents (10 – 19 years) were offered HIV testing with a positivity yield of 0.7% (1.1% for health facility and 0.3% for community testing).
Also, community HIV testing was found to likely to yield more positives for adolescents than facility testing (P = 0.000; OR: 0.280, 95% confidence interval 0.213 – 0.369)

Conclusion: This study suggests that improving community HIV case finding strategies for children and adolescents will aid in closing the diagnostic and treatment gaps for these critical populations.

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Mentor mother of hope: ameliorating retention of young mothers among PLWHIV in HIV care at a key population friendly PMTCT clinic in Kenya

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Background: New HIV infections among children declined by more than half(53%) from 2010 to 2020(2021 UNAIDS global AIDS update), mainly due to the increased provision of Antiretroviral therapy to pregnant and breastfeeding women living with HIV.However, that momentum has slowed considerably,leaving particularly large gaps in some parts of Africa. Eliminating vertical (mother-to-child) transmission of HIV and ending AIDS among children are among the global priorities highlighted in the new Global AIDS Strategy 2021–2026:End Inequalities,End AIDS.

Objective: 1.To determine if mentor mothers are effective at retaining mothers living with HIV on ARVs after the birth of the child.
2.To determine if mentor mothers increased rate of retention in mothers living with HIV.

Method: A retrospective observational cohort study was conducted among young women between the ages of 18-35years over a period of 18 months. 50 Mothers were put into two groups of 25, by picking their CCC No. from a pot. The test group had a mentor mother assigned to each mother, while the control group had no intervention by mentor mothers. The date of diagnosis and the date of ART initiation for each participant was noted. Clinical appointment dates and the exact dates of picking drugs were pulled from their clinical data .
Retention was gotten by calculating the proportion of clients who had a drug pick up in time in the year of assessment. ART Rates of retention of PLHIV on treatment at 6, 12, 18 and 24 months were assessed.

Results: ART initiation increased from 82% to 97%.Retention of mothers at month 6,12,18 and 24 increased by 76%,85%,94% and 96 %respectively. Documentation of HEI outcomes improved by 30% from 55% for the 1st and 2nd PCR recording ,no seroconversion during the study period.

Conclusions: active mentor mother involvement with tailored interventions into a PMTCT program are effective.this will contribute in achieving UNAIDS 2025 target Commitment to ensure 95% of pregnant and breastfeeding women have access to combination HIV prevention,antenatal testing and re-testing;95% of women living with HIV achieve and sustain viral suppression before delivery and during breastfeeding;and 95% of HIV-exposed children are tested within two months and, if HIV-positive,are provided with optimized treatment.

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Ensuring Timely Access to Nevirapine at Birth for HIV Exposed Infants (Hei) Whose Mothers Attend Antenatal Care Services at Antiretroviral Therapy Clinics Without Delivery Services, a TASO Mbale CoE Experience.

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Background: Annually over 120,000 HIV Exposed infants (HEI) are born in Uganda (EGPAF, 2018). The World Health Organisation recommends all HEIs receive Nevirapine (NVP) prophylaxis as a preventive measure for HIV infection at birth. However, TASO Mbale by March 2021 only 50% of the HEI born to mothers receiving ART care had NVP at birth; this is because TASO offers antenatal care (ANC) services but not maternity services. Most mothers deliver from public health facilities, which sometime lack supplies such as the NVP syrups. This gap was identified and addressed through continuous quality improvement with an objective; increasing the proportion of HEI receiving NVP at birth monthly from 50% by March 2021 to 100% by Sept 2021.

Description: Pregnant HIV positive women were cohorted by age of pregnancy and expected delivery date (EDD) in 7 monthly cohorts (March to September 2021). The women were tracked and monitored during ANC visits. Their phone numbers and physical addresses were regularly updated and NVP syrups dispensed at last ANC visits. The NVP syrup was pre-packed in the 'mama kit' and health talks on administering the prescription delivered. Follow-up phone calls were made around the EDD to confirm delivery and initiation of the NVP.

Results: The facility's proportion of HEI receiving NVP at birth monthly improved from 50% by March 2021 to 100% by Sept 2021.
Discussions: The improved performance was majorly attributed to the, frequent data use, health talks to mothers about the importance of giving NVP timely at birth plus administering process coupled with the actual dispensing of the syrup during last ANC visit among other changes; especially during the COVID-19 period where there were restricted travels affecting access of the ART clinic for this specific prescription.

Conclusions: Timely dispensing of necessary prescriptions (NVP in this case) coupled with enough sensitization of its benefits and demonstration of administering procedure to the end users is key in yielding positive health outcomes.

Lessons learnt: 'Cohorting', monitoring and tracking all pregnant mothers and follow-up phone calls helps in booking for timely 1st PCR. The reminder phone calls and follow-up create a good 'doctor-client' relationship.

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Killer-Cell Immunoglobulin-Like Receptors (KIR) in HIVExposed Infants in Cameroon

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The biological reason(s) behind persistent mother-to-child transmission (MTCT) of HIV (albeit at reduced rate compared to the preantiretroviral therapy era) in spite of the successful implementation of advanced control measures in many African countries remains a priority concern to many HIV/AIDS control programs. This may be partly due to differences in host immunogenetic factors in highly polymorphic regions of the human genome such as those encoding the killer-cell immunoglobulin-like receptor (KIR) molecules which modulate the activities of natural killer cells. The primary aim of this study was to determine the variants of KIR genes that may have a role to play in MTCT in a cohort of infants born to HIV-infected mothers in Yaoundé, Cameroon.

We designed a cross-sectional study to molecularly determine the frequencies of 15 KIR genes in 14 HIV-exposed infected (HEI), 39 HIV-exposed/uninfected (HEU), and 27 HIV-unexposed/uninfected (HUU) infants using the sequence specific primer polymerase chain reaction (PCR-SSP) method.

We found that all 15 KIR genes were present in our cohort. The frequency of KIR2DL1 was significantly higher in the unexposed (control) group than in the HIV-exposed group (OR=0:22, P =0 :006). Stratifying analysis by infection status but focusing only on exposed infants revealed that KIR2DL5, KIR2DS1, and KIR2DS5 were significantly overrepresented among the HIV-exposed/uninfected compared to infected infants (OR=0:20, P= 0:006). Similarly, the frequencies of KIR2DS1, KIR2DS5, and KIR2DL5 were significantly different between infants perinatally infected with HIV (HIV+ by 6 months of age) and HIV-negative infants.
Our study demonstrates that KIR genes may have differential effects with regard to MTCT of HIV-1.

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Continuous Quality Improvement Projects Improved HIV Testing in Inpatient Departments at 20 Rural Healthcare Facilities in Uganda

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Introduction: The primary source of HIV infection in children is mother to child transmission of HIV and accounts for 18% of all new infections in Uganda. In 2018, the estimated new annual paediatric HIV infection was 466 per 100,000 live births. The Uganda Ministry of Health guides that as a priority children and adolescents in the inpatient department (IPD) should be tested for HIV. Baseline data on HIV testing in the inpatient departments in 20 rural healthcare facilities supported by the "Unfinished Business" project of Mildmay Uganda was at 13%.

Objective: The objective of the study was to improve HIV testing in inpatient departments for children and adolescents at 20 rural healthcare facilities supported by the "Unfinished Business (UB)" project of Mildmay Uganda.

Methodology: Continuous quality improvement (CQI) projects were started in 20 UB project sites from July 2021 to September 2021. Tested changes in the CQI projects included: (1) conducting continuous medical education on HIV testing in IPD; (2) creating an extra column in the IPD register to document HIV test results; and appointing a focal person to ensure complete documentation of HIV test results for children and adolescents in the inpatient department. Data were abstracted from the CQI project documentation journals.

Results: All the 20 healthcare facilities had inpatients from July 2021 to September 2021. HIV testing in IPD improved from 13% (125/975 admissions) at baseline to 60% (427/712 admissions) by September 2021. There was a decline in the HIV positivity yield from 4% (5/125 tests) at baseline to 1% (3/427 tests).

Conclusion: CQI projects improved HIV testing in IPD for children and adolescents although the HIV positivity yield declined.

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Acceptabilité ET Faisabilité de L'Autotest du VIH Chez Les Adolescents de la Rue AU Togo en 2021

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Objectifs: L'autotest du VIH est une stratégie complémentaire de dépistage surtout pour les populations qui ont un accès limité aux structures de soins comme c'est le cas pour les adolescents de la rue. L'objectif de cette étude était d'évaluer l'acceptabilité et la faisabilité de l'autotest du VIH chez les adolescents de la rue au Togo.

Matériels et méthodes: Une étude transversale a été réalisée en juillet 2021, dans la ville de Lomé (Togo). Les adolescents des deux sexes, en situation de rue depuis au moins 03 mois, âgés de 13 à 19 ans ont été inclus. Un questionnaire a été administré en face à face pour collecter les informations sur les connaissances et les pratiques en matière de santé sexuelle et reproductive (SSR). Un prélèvement sanguin a été réalisé pour le dépistage du VIH selon les stratégies nationales. De plus, un autotest (OraQuick®) a été utilisé. L'acceptabilité est la proportion de

participants qui ont réalisé l'autotest. La faisabilité est la proportion d'adolescents de la rue qui ont rapporté des résultats d'autotest valides.

Résultats: Au total, 307 adolescents de la rue d'âge médian 15 ans, intervalle interquartile (IIQ) [14-17], dont 5,2% (n=16) de sexe féminin ont été inclus dans cette étude. Près de 7 adolescents sur 10 (69,5%) étaient sexuellement actifs, parmi lesquels 71,2% (n=221) ont déclaré ne pas avoir utilisé de préservatif lors de leur dernier rapport sexuel. Un antécédent de dépistage du VIH avait été déclaré par 16,6% (n=51) des adolescents. La prévalence du VIH a été estimée à 1,0% (n=4), intervalle de confiance à 95% (IC95%) [0,3-3,1]. L'autotest a été proposé à 171 adolescents de la rue. L'acceptabilité était de 91,9% IC95% [86,5-95,3] et la faisabilité de 97,5% IC95% [93,2-99,2]. Les résultats de l'autotest ont été correctement interprétés par les adolescents dans 96,8% (148/153) des cas.

Conclusion: L'autotest semble acceptable et faisable chez les adolescents de la rue à Lomé. L'implémentation de l'autotest notamment à travers les centres d'écoute avancés pourrait contribuer à améliorer l'accès aux services de dépistage et permettre une prise en charge rapide de ces enfants.

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The Mother-To-Child Transmission of HIV-1 and Profile of Viral Reservoirs in Pediatric Population: A Meta-Analysis of the Cameroonian Data

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Background: The mother-to-child transmission of HIV-1 (MTCT) remains on the major route of HIV-transmission among pediatric populations in Africa. Though a prevention of MTCT (PMTCT) high-priority country, data on the MTCT burdens in Cameroon remains fragmented. Our objectives were to assess the pooled MTCT rate, its risk-factors, and to characterize viral reservoirs of infected-children in Cameroon.

Methods: All relevant observational cohort and cross-sectional studies conducted in Cameroon were searched from PubMed, African Journals Online, Google scholar, ScienceDirect and academic medical education databases. Heterogeneity and publication bias were respectively assessed by the I2 statistic and the Egger/funnel plot test. Meta-analysis was performed using the random effects model. MTCT rate >5% was considered as "high". This review was registered in the Prospero database, CRD42021224497.

Results: We included a total of 29 studies and analyzed 46 684 children born from HIV-positive mothers. The overall rate of MTCT was 7.00% (95% CI = 6.07-8.51). According to regions, the highest burden was in Adamaoua-region (17.51% [95% CI:14.21-21.07]) with only one study found. PMTCT option-B+ resulted in about 25% reduction of MTCT (8.97% [95% CI: 8.71-9.24] without option-B+ versus 2.88% [95% CI: 5.03-9.34] with option-B+). Regarding risk-factors, MTCT was significantly associated with the absence of PMTCT-interventions both in children (OR:5.40 [95% CI: 2.58-11.27]) and mothers (OR: 3.59 [95% CI: 2.15-5.99]). Regarding viral reservoirs, a pro-viral DNA mean of 3.34±1.05 log10/mL was observed among 5/57 children and archived HIV drug resistance mutations were identified in pro-viral DNA marker among 21/79 infected-children.

Conclusion: In spite of the dropdown in MTCT following option-B+ implementation, MTCT remains high in Cameroon, with substantial disparities across regions. Thus, in this era of option-B+, achieving MTCT elimination requires interventions in northern-Cameroon.

MTCT was driven by no PMTCT-intervention among mothers and child. The variation in pro-viral load in infected-children underlines the relevance of characterizing viral reservoirs for possible infection control in tropical settings.

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Assessment of Healthcare-Worker Adherence to Viral Load Monitoring Algorithm for HIV Positive Pregnant and Breast-Feeding Women on ART in Manicaland and Midlands Provinces of Zimbabwe During the COVID-19 Pandemic, 2021

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Background: HIV positive pregnant and breastfeeding women should have a viral load (VL) test three months after starting antiretroviral therapy (ART) or at the point of antenatal care (ANC) booking if they have been on ART for more than three months, and every 6 months thereafter until cessation of breastfeeding. We assessed healthcare worker adherence to the VL monitoring algorithm for pregnant and breastfeeding women in selected health facilities of Manicaland and Midlands provinces of Zimbabwe.

Methods: We analyzed routinely collected data from maternal registers to identify HIV positive pregnant and breastfeeding women. Viral load data were extracted from patient's ART folders and viral load databases. Data for all HIV positive women registering for ANC or postnatal care (PNC) from 1 October to 31 December 2020 were analyzed. Cluster random sampling was used to select health facilities from Midlands and Manicaland provinces. Data were analyzed using Stata 15, and the assessment was covered by a research ethics committee approved non-research determination protocol.

Results: We analyzed data for 247 HIV positive clients and 49% (121/247) had at least one VL test done during pregnancy and breastfeeding periods. The median time from ANC/PNC registration to performance of VL was 94 days (IQR 25-134), and the average turnaround time from VL sample collection to receipt of results was 141 days. Of the 121 pregnant and breastfeeding women with a VL done, 60(48.6%) received their results and 91% (54/60) had a suppressed VL i.e., less than 1000 copies/ml. Of the six clients who had unsuppressed VL, two had enhanced adherence counselling (EAC) done, and the repeat VL was suppressed. One client was switched to 2ndline ART regimen without repeat VL, one client was yet to complete EAC and two did not have any outcome specified.

Conclusions: VL coverage and suppression was suboptimal among pregnant and breastfeeding women. We recommend prioritization of pregnant and breastfeeding women in VL monitoring, and healthcare worker capacity building on management of clients with unsuppressed VL.

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HIV Positive Infant Audit-Based Approach to Identify and Mitigate MTCT in Homa Bay, Kenya.

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Background: Mother-to-child transmission (MTCT) of HIV rates in Kenya are 10.8% nationally and 9.1% in Homa Bay County. In 2017, the Western Kenya Prevention of Mother to Child Transmission (PMTCT

)Technical Working group developed a standardized early infant diagnosis (EID) audit tool to identify gaps in prevention of PMTCT service delivery and inform mitigation measures.

Methods: We e analyzed data collected from all infants aged <12 months with a positive HIV PCR test in Oct. 2020–Sept. 2021 at 34 Elizabeth Glaser Pediatric AIDS Foundation supported sites in Homa Bay County. Audits were conducted by a multidisciplinary provider team within 2 weeks of infant HIV diagnosis. Data were collected using the standardized EID audit tool and included: mother/infant HIV testing and results; antenatal care; skilled delivery services received; maternal antiretroviral therapy; infant prophylaxis and adherence; viral load; and infant feeding methods. We calculated frequencies and proportions to describe mother-infant characteristics and gaps in services received.

Results: A total of 41 HIV-positive infants were identified. The median age of infants was 6 months; twenty-one(51%) were females, 21(51%) mixed fed, and 20 (49%) received infant prophylaxis. The majority of infants of women with seroconversion (n=4) were first diagnosed with HIV between ages 3-12 months. Of the 41 infants, all had mother's status documented in the chart. Of the 41 infant mothers 20(49%) were newly diagnosed with HIV in pregnancy. Fourteen (34%) mothers were first diagnosed with HIV late in the antenatal period (third trimester). Ten (24%) mothers were lost to follow-up (LTFU) and not engaged in care for a significant period of up to 2 years. Eight (20%) women sero-converted during pregnancy or postpartum. Twelve women received ART; however, seven (17%) women were noted to have poor adherence and 5% (n=2) who identified as HIV-positive declined to initiate ART.

Conclusion: LTFU during pregnancy and postpartum, sero-conversion during pregnancy and breastfeeding, and poor uptake of infant prophylaxis and poor adherence to maternal ART were factors contributing to continued MTCT in Kenya. The audit tool was successfully utilized to identify existing PMTCT program gaps to prioritize program initiatives and address missed PMTCT opportunities.

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Factors Associated with low HIV Early Infant Diagnosis (EID) coverage in Ghana

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Background: Early Infant Diagnosis (EID) of HIV coverage is very low in sub-Saharan Africa, including Ghana. Although inadequate service provision substantially contributes to low uptake, there is a paucity of literature on healthcare provider perception of the factors associated with accessibility of EID in HIV services. We use a qualitative approach to access factors associated with EID in HIV services from the view point of service providers in two regions of Ghana.

Methods: This cross-sectional exploratory qualitative research study was conducted by the USAID Strengthening the Care Continuum project (Care Continuum), implemented by JSI Research & Training Institute, Inc. The study focused on 58 supported ART sites in the Western and Western North regions from October to December 2021. Health care workers (HCW) (n=60) at these ART sites who provide EID services were purposively sampled and engaged in in-depth interviews. Thematic analysis was used to identify findings.

Results: Logistical challenges such as lack of or frequent breakdown of Polymerase Chain Reaction (PCR) machines and services, long turnaround time for results of initial samples taken, and lack of and expired dried blood spot (DBS) cards were the main barriers to EID service uptake identified. From the staffing side, factors include burnout and frequent turnover of trained staff, and lack of

cooperation from mothers due to denial, fear of stigma, or a mother's own mental instability. Client-side factors include last-mile challenges such as distance and lack of financial means to access EID services for their exposed infants. Interestingly none of the HCW interviewed mentioned poor provider attitudes as a barrier, although it is a common theme in studies that explore the lived experiences of mothers with exposed infants.

Conclusions: Service provider challenges are key in addressing the low utilization of EID in Ghana. There is need to deal with individual level barriers for both the client and provider as well as the structural level barriers. This calls for more research studies adopting a socio-ecological approach, if Ghana is to move from the current 21% transmission of HIV from mother to child, to the aspired international benchmark of (5% or less).

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Improving Early Infant Diagnosis (EID) Final Outcome at 24 Months for HIV Exposed Infants at Kanyama General Hospital in Lusaka, Zambia.

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Background: Early infant Diagnosis (EID) and timely intervention in HIV Exposed Infants (HEI) is critical in prevention of Mother to Child Transmission (PMTCT) of HIV. The Zambia consolidated guidelines for treatment and prevention of HIV infection (ZCG 2022), recommends that all HIV exposed infants should have their HIV status known at 24 months. PMTCT services such as ,following up of all HIV Exposed Infants cohorts up to the age of 24 months and viral load monitoring of HIV Positive mothers are key in improving the overall health outcomes of pregnant and breastfeeding women living with HIV as well as HIV exposed infant through their life course. It is from this background that Kanyama General Hospital initiated a Quality improvement project so as to improve the final outcome of HIV exposed infants.

Methodology: The data was extracted from Facility Ministry of Health medical records, DHIS2 and Smart care. The project enrolled a total number of 395 HIV exposed infants born from Jan-June 2019 followed up to Jan-Jun 2021.

Quality improvement project Interventions employed included pairing of Mentor Mothers with HIV positive women and their babies, intensified community follow up of mother/baby pair, Mothers and infants were screened and managed at the same time implying that viral load monitoring of mothers and infants blood sample collection were done simultaneously, Alignment of Mother/ baby appointment system "one stop shop approach"

Results: Proportion of infants with documented final outcome at 24 months improved from 42% to 97% Jan-June 2021,Out of 395 HIV exposed infants 385 had their final out at 24 months. Additionally the Posivity yield from the enrolled HIV exposed infants reduced from 9% to 1 %.

Conclusion: Health strengthening system is key in improving final outcome of HIV exposed infants' Continuous quality improvement implementation and intervention is required to sustain this gain. These interventions have increased the proportion of infants that have a known HIV status at 24 months by almost double.

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Psychological Distress Among Adolescents With HIV and Insights of Health Care Workers on Available Facilities for Holistic Support

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Introduction: Adolescents Living with HIV (ALHIV) experience tough life events that could affect their psychological well-being. Too little research has been done to ascertain the mental health of these adolescents and the social supports available for them particularly in poorly- resourced and HIV endemic communities.
Objectives: To assess the prevalence and associated factors of psychological distress; identify health facility and social supports available for adolescents living with HIV in Sokoto State, Nigeria.

Materials and Methods: we conducted a cross sectional study with mixed methods of data collection among 236 adolescent- caregiver pairs. Psychological distress and social support were measured using the strengths and difficulties questionnaire and multidimensional perceived social support scale respectively. Key informant interviews (KIIs) were conducted among 4 Health Care Workers (HCWs). Quantitative data were analyzed using IBM SPSS version 23 while content analysis was done for qualitative data along thematic lines.

Results: Mean age of adolescents was 14.6 2.2 years while mean age of caregivers was 37.9 7.2 years. Prevalence of psychological distress was 6.4% (child report) and 15.2% (caregiver report). Viral Suppression was the only determinant of psychological distress. Eleven (4.7%) adolescents reported having low social support, 136 (57.6%) had moderate and 89 (37.7%) high social support. Almost all the adolescents (98.7%) reported receiving counselling, 114 (48.3%) had access to support group and 46 (19.5%) had home visits. During the KIIs, most of the HCWs mentioned that they identified psychologically distressed adolescents by observing their moods when they come for clinic visits and asking questions or through the parents' complaints. The supports rendered to psychologically distressed adolescents were counselling and referral to psychiatrists. HCWs cited limited funding and stigma as barriers to home visits.

Conclusion and recommendations: The level of psychological distress was low and the caregiver report of adolescent psychological distress was higher than self-report. Almost all the adolescents reported receiving counselling while a small proportion had home visits.
The Sokoto State ministry of Health and other organizations supporting HIV programs should ensure community enlightenment programs on HIV in order to reduce stigma associated with the disease.

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Circonstances de la transmission du VIH de la mère à l'enfant, sur trois générations au Sénégal en 2020

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Objectifs: Au Sénégal, le programme national de PTME prévoit depuis 2001, le dépistage systématique en consultation prénatale et le traitement immédiat des femmes VIH+. Néanmoins des cas de transmission du VIH de la mère à l'enfant persistent, notamment en contexte décentralisé.

Méthode: L'étude anthropologique « Echec thérapeutique chez les enfants et adolescents vivant avec le VIH au Sénégal, hors de Dakar [ETEA-VIH, ANRS 12421] » a été menée en 2020 dans 14 hôpitaux régionaux et centres de santé. Des entretiens semi-directifs ont concerné 85 enfants/adolescents VIH+, 92 parents/tuteurs et 47 acteurs de santé. La

transmission inter-générationnelle du VIH a fait l'objet d'une analyse spécifique.

Résultat: Différentes circonstances ont conduit à des transmissions de l'infection l'enfant par de jeunes mères, elles-mêmes nées avec le VIH.
De jeunes filles, à qui l'annonce de la maladie a été faite tardivement, se sont mariées sans avoir pour autant accepté leur statut sérologique ni intégré la nécessité du traitement ARV. Pendant la grossesse et l'allaitement, elles ont eu des écarts d'observance aux ARV souvent pour cacher l'infection. De plus, la pression familiale a entravé un sevrage précoce.
D'autres ont eu une grossesse non désirée, hors mariage, dans un contexte d'accès limité à la contraception et de pénalisation de l'avortement. La grossesse a entrainé une exclusion de la famille. Elles ont vécu la grossesse et l'accouchement dans une quasi clandestinité, sans suivi médical.
Dans un autre cas, la mère, née avec le VIH ignorait sa maladie, sa propre mère étant décédée dans le plus grand secret. L'infection de l'enfant a été diagnostiquée au cours d'un épisode de maladie.

Conclusion: Ces transmissions du VIH sur trois générations sont liées à une combinaison de facteurs socio-culturels et de défaillance du dispositif de santé : le secret entourant la maladie, les normes sociales et familiales sur la sexualité, l'absence de dépistage lors des consultations prénatales. Ces situations doivent être évitées par un renforcement du dispositif de soins, un meilleur accompagnement des jeunes nés avec le VIH, l'accès confidentiel à la contraception, des médiations familiales en cas de grossesse hors mariage.

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Incidence du VIH et des infections sexuellement transmissibles chez des hommes ayant des rapports sexuels avec d'autres hommes sous prophylaxie preexposition a Abidjan, cote d'ivoire

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Introduction: Depuis 2018, la prescription de la prophylaxie préexposition (PrEP) en routine est effective en Côte d'Ivoire. A ce jour dans notre contexte, peu de données sont disponibles sur l'incidence des infections sexuellement transmissibles (ISTs) chez les usagers de la PrEP.
L'objectif de ce travail était d'estimer l'incidence des ISTs chez les Hommes ayant des rapports sexuels avec des Hommes (HSH) suivis à la Clinique de Confiance de l'ONG espace confiance à Abidjan.

Patients et méthodes: Il s'agissait d'une cohorte retroprospective de janvier 2018 à juin 2020. Les HSH sous PrEP, de plus de 18 ans, disposant de données biologiques sur au moins deux visites ont été inclus. Le dépistage des ISTs a été réalisé par la technique de PCR à M0 puis tous les 6 mois. Le dépistage du VIH et des hépatites s'est fait selon l'algorithme national.

Résultats: Au total, 96 participants ont été inclus, composés en majorité d'élèves et étudiants 66,7 % (n= 64) avec un âge moyen de 28,2 ans ± 5,7 écartype. Une consommation de substances psychoactives a été notée chez 41,7% (n= 40). L'utilisation du préservatif était systématique chez seulement 41,4%. Des rapports sexuels rémunérés étaient pratiqués par 30,2% (n= 29). Près de la moitié des HSH 49 % (n= 47) était bisexuel.
Une préférence pour la PrEP à la demande a été notifiée chez 68,7% (n= 66). Au cours du suivi, 6 cas (6,2%) de nouvelle infection à VIH et 03 cas d'hépatite virale B ont été dépistés. La prévalence à M0 des ISTs était de 15,3%. Au

terme de douze mois, 46 cas d'ISTs ont été diagnostiqués chez 93 HSH testés. L'incidence annuelle était respectivement de 24,7% (n=23) pour la gonococcie, de 20,4% (n=19) pour la chlamydiose, de 3,2 (n=03) pour la syphilis et de 1,1% (n=01) pour la trichomonose. Des kits de traitement ont été remis pour la prise en charge.

Conclusion: L'incidence du VIH et la prévalence des ISTs restent élevées chez cette population. Des activités de sensibilisation d'observance à la PrEP et à l'usage des préservatifs doivent être intensifiées avec l'aide des communautaires.

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Cohorte de Consommateurs de Drogues Injectables à Dakar Premiers Résultats (codisen-anrs12334)

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Contexte: En 2011, l'enquête UDSEN ANRS 1224 a estimé à 1324 le nombre de Consommateurs de Drogues Injectables (CDI) dans la région de Dakar avec une séroprévalence du VIH, VHC et VHB de respectivement 5,2%, 23,3% et 7,9%). Le Centre de Prise en Charge Intégrée des Addictions de Dakar (CEPIAD), créé en 2014, a été le premier centre de substitution aux opiacés (TSO) d'Afrique de l'Ouest. Le projet CODISEN, débuté en Août 2016 au sein du CEPIAD, associe un volet clinique, addictologique et socio-anthropologique.

Méthodes: CODISEN est une étude de cohorte, prospective, monocentrique. Une consultation somatique, une évaluation addicto-psychiatrique, un recueil d'informations socio-comportementales, des examens radiologiques et biologiques sont proposés aux personnes suivies par le CEPIAD, répondant aux critères d'inclusion (être CDI ou sous méthadone, majeur, habiter la région de Dakar). Une étude anthropologique y est associée. Les personnes incluses dans l'étude sont suivies pendant trois ans, avec évaluation semestrielle.

Résultats: 208 CDI sont inclus dont 7,2% de femmes. L'âge moyen est de 46,7 ans. Les patients inclus vivent dans la précarité, 57% des patients ont moins de 76€ par mois et 41% sont sans activité. Les séroprévalences du VHB, VHC et VIH sont respectivement de 12%, 4,3% et 3,8%. Les patients VIH+, sont tous traités par antirétroviral (ARV) avec des charges virales <50 copies/ml. Le dépistage sérologique VHB proposé systématiquement a permis à 89 CDI de bénéficier d'une vaccination contre l'hépatite B(les patients qui bénéficient de la vaccination ont l' AgHbs négatif et les Ac Hbs et Ac Hbc négatifs). Les patients avec une hépatite c chronique ont bénéficié d'un traitement à base de sofosbuvir + velpatasvir pendant 3 mois. Toutes les charges virales de contrôle sont revenues négatives.

Conclusion: CODISEN est la première cohorte de CDI mise en place au Sénégal. L'inclusion des femmes, encore minoritaires dans la cohorte et des jeunes reste un défi essentiel. CODISEN fournira un ensemble unique de données sur l'impact d'une approche intégrée pour la gestion des CDI. Ce programme innovant devrait contribuer à l'élaboration des futures politiques de santé publique concernant la prévention du VIH et des hépatites chez les CDI.

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Optimizing Access to HIV prevention and Treatment Services for Adolescent Girls

and Young Women through a Peer Mentor Approach in Homabay County, Kenya

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Background: While there are gains in HIV diagnosis and treatment in Kenya, youth < 25 years contribute to half of new infections, mother-to-child transmission rates have increased from 8.3% in 2015 to 12.3% in 2019 accompanied by increasing adolescent pregnancies. This study's aim was to assess acceptability of a peer-mentor approach, introduced in September 2020, complementing clinical care through screening, linkage and follow-up for pregnancy and HIV prevention and treatment services among adolescent girls and young women (AGYW).

Methods: From August to September 2021, 25 in-depth interviews (IDIs) with pregnant or breastfeeding (PBF) AGYW 10-24 years receiving peer mentor services and four focus group discussions with peer mentors were conducted in 37 health facilities in western Kenya. Ten AGYW were HIV-positive, 11 pregnant and five ≤ 15 years. Interviews were transcribed and IDIs translated from Dholuo to English. Transcripts were coded in NVIVO and thematic analysis was used.

Results: AGYW appreciated services offered by peer-mentors. Support navigating services, ease of service access and appointment reminders helped AGYW keep their appointments for ANC and HIV clinic visits. Mentors addressed important yet rarely expressed needs among AGYW including providing home visits and nursing care immediately after delivery. Household follow-up with HIV-positive AGYW enabled identification of adherence challenges at home and ways to address them. Training enhanced mentor confidence in supporting AGYW and phone consultations among mentors at different health facilities facilitated support on difficult cases. Challenges included losing AGYW to care based on cultural practices during pregnancies, like being taken away from home until delivery and poor communication from clients. Gender-based violence (GBV) was challenging to address by some mentors, as follow-up actions by health care providers were not documented on registers and suspected GBV cases were not always reported by young girls, often preventing further legal action.

Conclusions: The peer case mentor approach supports PBF AGYW to more easily access services at facilities and fulfills needs such as post-delivery care and adherence support for HIV-positive AGYW. Peer-mentor training and support networks have facilitated implementation of this approach. Further support in responding to GBV and tailored strategies for younger girls is needed.

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Patient Preferences in Feedback Delivery From Collection of Dried Blood Spot Tenofovir Diphosphate Concentrations Among a Cohort of South Africans On ART

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Background: Tenofovir diphosphate (TFV-DP) in Dried Blood Spots (DBS) is an objective measure of adherence shown to be predictive of future viral breakthrough. Research is needed to explore patient preferences in receiving DBS feedback: in which setting, through which mechanism (e.g., SMS, clinic visit, phone call), and from which type of health care provider. The aim of this study was to determine preferences of DBS collection

and feedback methods, via fingerstick, among a South African cohort of people living with HIV (PLWH) on ART.

Methods: The participant sample consisted of 224 virally suppressed (<50 copies/ml) adult PLWH from four primary health clinics in Cape Town taking part in a larger study examining DBS's utility in predicting viral breakthrough. Participants were administered an exit interview on their last monthly visit of a 13-visit study. Descriptive statistics were used to characterize the study sample and results were analyzed from a series of 5-point Likert-scale and multiple-choice type questions of preferences.

Results: Among the sample of 224 PLWH, mean (SD) age was 36 (10.43); mean duration on ART at study entry was 10 (5) months; 78% were women. Participants indicated a willingness for clinic staff to use a fingerstick (80%) to collect DBS. Most participants preferred collection by a doctor or a nurse (75% total – 29% and 45% respectively). Sixty-two percent indicated they were not willing for a pharmacist to perform testing, and 70% indicated they were not willing for a community health worker to perform testing. When asked about self-testing on a Likert scale, a majority 48% of participants indicated they were not willing to perform finger-stick testing themselves. The majority preferred to receive results in person at the clinic (52%), followed by receiving an SMS (25%), receiving a phone call (16%), or a home visit (4%).

Conclusion: Among this sample of 224 South African PLWH, overall acceptability of undergoing a finger stick in a clinic setting was high but certain clinic staff professions and methods were preferred. Most preferred results to be delivered in person. Understanding patient preferences is fundamental to realize the clinical utility of DBS for adherence monitoring.

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Experiences of Sero Status Disclosure Among Discordant Couples in Mbarara City, Southwestern Uganda

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Background: People living with HIV(PLWHIV) deal with the challenges of living with an incurable disease and also the dilemma of whether or not to disclose their status to their partners, families, and friends. Fear of enacted stigma (violence, abandonment, and divorce) negatively affects rates of partner disclosure which can lead to HIV transmission among sero discordant couples if appropriate prevention strategies are not adopted.

Objective: To explore lived experiences of sero status disclosure among discordant couples in Mbarara city, South Western Uganda

Methods: This study employed a phenomenological qualitative design that was conducted at Mbarara City Health Centre IV, Kakooba HCIII and Nyamitanga HCIII. 12 participants were purposively enrolled into the study. In-depth interviews were conducted with help of interview guide and audio recorded. Data were analysed using thematic content analysis. I obtained approval from Mbarara University Research Ethics Committee and administrative clearance from the city clerk, Mbarara city.

Results: Five themes emerged as experienced benefits of sero status disclosure and these included: social support and care, health child bearing, preventive measures, positive living and ease of disclosure. The challenges associated with sero status disclosure were summarized into one theme: family misunderstandings among the couples

Conclusions: HIV sero status disclosure to the partner should be done immediately after testing HIV positive, PLWHIV should choose the easiest way of disclosing, and encouraged to continue with routine HIV preventive measures, with the help from health workers and counsellors and all other stake holders in HIV care system.
Recommendations: Measure to improve HIV disclosure among discordant couples, concordant couples and all PLWHIV should be implemented to help in the fight against HIV stigma and HIV epidermic.

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Developing Interventions to Improve ART Initiation and Retention Among Men Living With HIV in Malawi: A Qualitative Study Across the Treatment Cascade

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Background: Men in sub-Saharan Africa are underrepresented in both antiretroviral therapy (ART) initiation and retention, yet there are few interventions that reach men across the treatment cascade. Interventions across the cascade should be prioritized, as they may improve overall engagement and program scalability. We examined similarities and differences in barriers and facilitators to men's engagement across ART initiation and retention in Malawi to identify which cross-continuum interventions may work for men.

Methods: In-depth interviews (IDIs) were conducted with HIV-positive men >18 years in 2016-2017. Medical chart reviews were used to identify potential participants from 10 health facilities in Central and Southern Malawi. We interviewed two categories: men who have never initiated ART or who initiated ART late (>14 days after testing HIV-positive); and men who initiated ART > 6 months ago but were late for a recent ART appointment. Audio recordings were transcribed, translated to English, and coded using Atlas.ti v8. We conducted a secondary analysis of data using constant comparison methods.

Findings: Forty men living with HIV were interviewed—19 in the initiation category (never initiated or initiated late) and 21 in the retention category (on ART >6 months and late for an ART appointment). Mean age was 35 years, 87% were married, and 89% had children. Long wait times, being required to attend multiple facility visits, lack of privacy at clinics, and fear of unwanted disclosure were major barriers to HIV care for both initiation and retention. Poor knowledge of ART was frequently discussed as a barrier to ART initiation, while unexpected or prolonged travel was primarily mentioned as a barrier to retention. Key facilitators for both initiation and retention included previous positive experiences with health facilities and providers. Facilitators unique to initiation included having examples of men who successfully engaged in ART; unique facilitators for retention included having support from a spouse or male friends/relatives.

Conclusion: Men face similar barriers and facilitators for both ART initiation and retention. Holistic interventions that incorporate fast, convenient, and private service delivery strategies, as well as positive patient-provider interactions and peer support, may effectively improve men's engagement across the treatment cascade.

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Early Sexual Debut and Associated Behavioral Outcomes in Adults in Kisumu County, Western Kenya.

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Introduction: In many settings, early sexual debut (ESD) increases the risk for HIV and other sexually transmitted infections (STIs) and has been associated with risky sexual behaviours later in life. Differing global sociocultural contexts of sexual relationships influence age at first sexual intercourse with potentially long-lasting region-specific effects. Updated data from sub-Saharan Africa would inform risk stratification tools for individuals and HIV prevention strategies.

Methodology: Men and women aged 18-35 years were screened for potential enrolment into an observational study of HIV incidence in Kombewa, Kenya. Medical history, physical examination, and HIV testing were performed. HIV risk behavior was assessed via questionnaire, and participants who reported their age at first sexual intercourse were included in these analyses. Robust Poisson regression was used to estimate prevalence ratios (PR) and 95% confidence intervals (95% CIs) for factors potentially associated with ESD.

Results: Of 1057 participants, 542 (51%) were female and 876 (82.9%) had at least primary education. Their median age at study screening was 25 years (interquartile range [IQR]: 22, 29), and at sexual debut was 16 years (IQR: 14,17). ESD was reported by 504 (47.7%) participants; 42.6% of females and 53.0% of males. After controlling for other factors, ESD was less common among females (PR 0.78, CI 0.67, 0.90) and those with a higher education level (PR 0.56, CI 0.47,0.66). ESD was more common in participants with history of drug use compared to those without (PR 1.28, CI 1.10-1.49). An interaction effect was observed between education and drug use, indicating that the association between ESD and education is mediated by drug use. The reduction in prevalence of ESD among higher educated participants compared to no education was reduced to non-significant difference when drug use was present (High education, no drug use: PR 0.72, CI 0.61- 0.85 vs high education, drug use: PR 0.94, CI 0.74-1.18). There was no significant association between ESD and transactional sex, multiple partners, STIs, or HIV.

Conclusion: ESD was associated with lower educational attainment and increased likelihood of drug use. Comprehensive sexual education may be beneficial before the age of 14 years, particularly for males.

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Psycho-Sexual Violence in Intimate Relationships and Its Implications for HIV Control: Experiences of Undergraduate Students in Sagamu Campus, Nigeria

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Background: Intimate partner violence (IPV) is a global epidemic with far-reaching consequences on mental, social and physical well-being of victims and their families. There is an established link between IPV and vulnerability to HIV infection. IPV is common among young people including undergraduate students who are oftentimes ill-prepared for its effects on their well-being. This population is also highly vulnerable to new HIV infections. This study therefore assessed the psycho-sexual forms of IPV and associated factors among undergraduate students in Sagamu.

Materials and Methods: A cross-sectional study was conducted among 500 undergraduate students in the Sagamu campus, Ogun state, southwest Nigeria, selected via multi-stage sampling technique. Data were collected using a validated semi-structured, self-administered questionnaire. Data analysis was carried out using SPSS 20.0. Frequencies, proportions and means were

calculated. Chi square test was used to ascertain association between categorical variables, with level of significant (p) < 0.05. Participation was fully voluntary and strictly confidential.

Result: The mean age of participants was 22 ± 3.4 years. The experience of at least one form of IPV was reported by 25% of respondents of which 76% were females and 24% were males. Psycho-sexual violence accounted for 29% of all reported IPV cases. Specific forms experienced include: sexual coercion; forced to watch pornography; nudity recorded without permission; accused of infidelity; derogatory language; prevents victims from seeing family members; shouts at victims; withholds sex from victims. Consequences of IPV reported include: sexually transmitted infections (6%); unwanted pregnancy (5.7%); genital laceration (4%); musculoskeletal injuries (5%) depressive symptoms (8.3%). Only 24.8% tried leaving the relationship. IPV was associated with younger age; level of study; substance use by partner and female gender (p<0.05).

Conclusion: The prevalence of psycho-sexual IPV was fairly high among respondents, with a female preponderance. The vulnerability of victims to HIV infection is thereby increased. Undergraduate students need to be equipped with skills to prevent IPV and report such appropriately. Health education on the relationship between uncontrolled IPV and HIV infection should be available to all persons on university campuses in Nigeria.

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Awareness and Acceptability of Undetectable=Untransmittable Among a National Sample of HIV-Negative Young Adults in Nigeria

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Background: Despite widespread support for the U=U statement as an empowering initiative aimed at raising awareness about treatment as prevention (TasP) and ending stigma towards PLWH, information about its reach and impact in developing countries is sparse. In our study, we described the socio-demographic characteristics and sexual behaviors that are associated with awareness of and trusting U=U in a Nigerian national sample of HIV-negative participants.

Methods: Cross-sectional cohort analysis of an internet-based survey of HIV-negative young adults in Nigeria (n = 1,016) between February and September 2021. Measures included socio-demographics, sexual behaviors, and awareness of and trust in U=U. Descriptive statistics and multivariable logistic regression were used to identify the characteristics associated with awareness of and trust in U=U, as well as patterns of willingness to engage in condomless sex based on trust in U=U.

Results: The participants' mean age was 26.94±4.68 years. Of the participants, 52.1% of participants reported having heard of U=U. Among those who were aware of U=U, 51.0% reported they trusted it, 20.4% did not trust it, and 28.5% were unsure. Gender identity, sexual orientation, and having tested for HIV in the last 6 months were significantly associated with being aware of U=U. Non-gay participants were 2 times more likely to be aware of the U=U message (OR =2.99; 95% CI: 1.08–8.25) than gay participants. Similarly, gender identity, sexual orientation, and having tested for HIV in the last 6 months were significantly associated with trust in U=U. No significant differences were observed by age, level of education, geographic region, or recent condomless sex in the study. Overall, participants were more likely to engage in condomless sex with HIV-negative partners than with HIV-positive partners. However, willingness to engage in condomless sex with an HIV-positive but undetectable partner was associated with trust in U=U.

Conclusions: Although we observed moderate U=U awareness and trust in this cohort, crucial populations and minorities are still unaware and distrustful of the U=U message. This study will serve as a basis for further elaborate studies and to develop community-based health education and awareness initiatives regarding U=U in Nigeria.

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Social Networks and Barriers to ART Adherence Among Young Adults (18-24 years) Living with HIV at Selected Primary Health Facilities of South-Western Uganda: A Qualitative Study

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Background: Young adults living with HIV (YALWH) struggle to maintain high levels of adherence to antiretroviral therapy (ART) because of numerous barriers. This study describes the social networks of YALWH (18-24 years), their barriers to ART adherence, and the perceived role of social networks in overcoming those barriers.

Methods: This study used a qualitative descriptive research design. Twenty-three (23) YALWH who were on ART for a period of greater than one (1) month and had consented to participate in the study were purposively selected from two primary health care facilities in southwestern Uganda. We held four (4) focus group discussions with the YALWH over 5 weeks between the 24th of July and 7th September 2020. Data were audio recorded, transcribed, and entered in Microsoft word 2010. Using the content analysis techniques, data were inductively coded and categories or themes developed.

Results: Most YALWH belonged to bonding (family, friends, and neighbors), followed by bridging (informal groups), and linking (health professionals) social networks, respectively. Most YALWH, irrespective of gender, had close connections with their mothers or elder sisters. The commonest form of bridging networks was informal community groups that provided financial services, whereas the linking ones comprised health professionals' directly involved in HIV patient care such as nurses, counselors, and their affiliates (expert clients or clinic based peer supporters), who occasionally acted as bonding networks. Structural barriers to ART adherence (eg, stigma) were the most cited, followed by medication- (eg, pill burden), and patient-related barriers (eg, non-disclosure of HIV status). Bonding networks were perceived to help overcome patient, medication, and structural barriers to ART adherence. Bridging networks overcame structural and medication-related barriers to ART adherence. Linking networks were perceived to help overcome some health systems and medication-related barriers to ART adherence.

Conclusion: Bonding social networks seem to play a prominent role in overcoming numerous barriers to ART adherence compared with bridging and linking social networks.

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Barriers and Facilitators to Use of Male Friendly Clinical Services in Quelimane, Zambézia province, Mozambique: Results of a qualitative study, 2021

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Background: Programmatic data in Mozambique have shown that access to health services and chronic disease treatment outcomes are better among women than men. A National Strategy for Male Engagement in Health Care, including the provision of male-friendly services (MFS) was launched in 2018. In Quelimane, MFS were provided through male-friendly clinics, dedicated to male patients only, where predominantly male healthcare providers provided care through a one-stop model outside of normal clinic hours. This evaluation aimed to identify facilitators and barriers influencing utilization of these services.

Methods: A qualitative study was done between February-April 2021 at three health facilities providing MFS in Quelimane. All participants were selected via convenience sampling. In-depth interviews (IDI) were conducted among male and female HIV-positive patients and their healthcare providers. Focus group discussions (FGD) were performed with male community members and male employees of two companies in Quelimane. Sessions were done in Portuguese or Chuabo (local language). All recordings were transcribed in Portuguese and coded by two independent investigators. Thematic analysis was performed.

Results: Eighty-three IDI (41 male and 24 female patients, 18 healthcare providers) and five FGD (three involving community members, two involving company employees) were conducted. Barriers to uptake MFS included: not knowing such services were available; poor health care seeking behavior; competing priorities (e.g., work responsibilities); perception that poor quality care would be received; and prolonged wait times. Healthcare providers highlighted barriers such as limited human resources, equipment (e.g., sphygmomanometers) or infrastructure (e.g., confidential space), and long distances (for patients and providers) from home to the health facility, which could compromise one's safety after dark. Among the facilitators for MFS uptake, all groups mentioned extended hours, one-stop-model, and male providers as program elements which increased patient comfort and willingness to share personal/confidential information.

Conclusion: Male friendly services are an acceptable means of offering male-centered care, especially for patients not able to visit the health facility during routine hours. Demand creation messaging is needed to improve awareness of MFS in the communities. Given the acceptance of the model, MFS could cover screening and management of infectious disease (e.g., HIV/AIDS) as well as non-communicable disease.

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"From a Christian Perspective, I Would Not Advise the Youth, but as a Normal Citizen I Would" – Religious Leaders Willingness to Promote HIV Pre-exposure Prophylaxis (PrEP) in Eswatini

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Background: Community Leaders have highlighted the crucial role Religious Leaders (RLs) play in community acceptance of HIV prevention services in Eswatini. Understanding RLs acceptance and willingness to promote PrEP can improve future PrEP scale up and community acceptance.

Methods: From November 2021 to present, we have conducted online and in person in-depth-interviews with (n=22) purposefully selected RLs from Eswatini. As the data

collection is ongoing, observational, reflexive and debriefing notes, managed using NVivo 12 and coded following a general inductive approach, are used to inform the presented results.

Results: We identify RLs as having a strong inter-role conflict (personal vs. professional) regarding their willingness and ability to actively promote PrEP in their church community. The interviewed RLs could talk openly about HIV prevention and sex, they support PrEP and highlight its importance and positive impact for Eswatini. However, their biblical ethics forbid them to directly promote PrEP within their church community. PrEP can only be advised to married couples because an unmarried person must abstain from sex. Even if the RLs are aware of the youth being sexually active, they do not advise them to take PrEP as they fear breaking their ethics and inadvertently empowering youth to engage in premarital sex. As an individual, the RLs would like to promote PrEP within the whole community, but, as a RL they can only advise PrEP for a married person. The RLs highlighted that they can only talk about PrEP in a smaller, unofficial settings and not during church services.

Conclusion: RLs can play an important role in the acceptance and use of PrEP but are conflicted in their personal versus professional roles. Ensuring that RLs are engaged in PrEP promotion in a way that is most appropriate for them, and prevents their internal conflict from confusing or stigmatising messaging, must be an essential component of their training and education. At a time when clear, consistent, and trusted health messaging is more important than ever, recognising where RLs can and cannot support PrEP promotion requires action to ensure PrEP can be accessed by those who need it most.

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Perspectives About Transition Readiness Among Adolescents and Young People Living With Perinatally Acquired HIV in Rural, Southwestern Uganda: A Qualitative Study

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Background: Although availability of antiretroviral therapy has enabled children born with HIV to grow into adolescence and young adulthood, treatment outcomes are worse among adolescents and young adults living with HIV (AYLHIV) compared with other age groups. These disparities are magnified during the transition from paediatric to adult-based HIV care.

Methods: We conducted in-depth interviews with adolescents and young adults living with perinatally acquired HIV aged 15-24 years (n=30), their caregivers (n=10), and health care providers (n=10) from the HIV clinic at the Mbarara Regional Referral Hospital. All participants provided written assent and/or informed consent to enrol. Thematic content analysis was used to identify and analyse themes relevant to transition readiness.

Results: AYLHIV preparing to transition to adult HIV care required more information about their illness and self-advocacy skills. Communication between health care providers helped AYLHIV in becoming more familiar with the adult HIV clinic's care processes, while caregiver and health care provider support assisted them in navigating the transition to adult HIV care.

Conclusions: AYLHIV in sub-Saharan Africa who are facing a transition to adult HIV care should be assessed for their readiness to transition so that they can be equipped with the necessary skills to remain engaged in HIV care.

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Challenges and Fears of Adolescents and Young People Living With HIV Facing the Transition to Adult HIV Care in Southwestern Uganda

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Introduction: Adolescents and young people living with HIV (AYLHIV) face numerous challenges that hinder their ability to seek care and advocate for themselves. AYLHIV have worse treatment outcomes compared with adults, with increased rates of disengagement from care, poor adherence to treatment, and mortality, especially during the transition from paediatric to adult HIV care. The challenges facing AYLHIV transitioning from paediatric to adult HIV clinic in rural Uganda are not well described.

Methods: We conducted in-depth interviews with AYLHIV (n=30), caregivers (n=20), and healthcare providers (n=10) to understand the challenges facing AYLHIV during their transition to adult HIV care. We used an interview guide that included questions about transition challenges, planning, timing, and the role of healthcare providers and caregivers. Interviews were audio recorded and transcribed directly into English. Themes related to the challenges and fears of AYLHIV transitioning to adult HIV care were identified by thematic content analysis.

Results: AYLHIV described a dread of interacting with new healthcare providers and adult patients at the adult HIV clinic and were concerned about navigating care at the adult HIV clinic without preparation. Fears about involuntary disclosure of their seropositivity and consequent HIV stigma and discrimination were attributed to perceived lack of privacy at the adult HIV clinic. Study participants voiced concern that approaching and interacting with adults would cause them to be isolated from their peers in the paediatric HIV clinic. Many AYLHIV expressed worries about the loss of support from caregivers and health care providers after transitioning to adult HIV care.

Conclusion: AYLHIV feel they need preparation and support to navigate adult HIV care after transitioning from paediatric HIV clinics.
Key words: Adolescents, HIV care cascade, transition, challenges, fears, Uganda.

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Health Utility and Health-related Quality of life of HIV Patients in a Malaysian State Hospital

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Background: The COVID-19 pandemic affects the people living with HIV (PLHIV)through anxiety and fear of contracting COVID-19, separation from the community due to stay-at-home orders besides the existing stigma. To understand the impact, an assessment of the health-related quality of life (HRQOL), health utility (HU) and self-perceived health (SPH) must be done. There is a lack of studies investigating both measures simultaneously. This study aims to determine the factors that significantly influenced the HRQOL, HU and SPH.

Methods: This is a cross-sectional study using a self-administrated questionnaire among PLHIV receiving treatment in the HIV clinic of a state hospital of Perlis, Malaysia. Potential subjects were approached in the waiting areas during their routine clinic visit by investigators while waiting to be seen by the doctors.

Interested subjects were invited to a private counselling room and were briefed on the study. The self-administered Malay language questionnaire consists of sociodemographics, WHOQOL-HIV BREF to measure HRQOL, EQ-5D-5L to measure HU and EQ-VAS to measure SPH. Spearman's correlations and multiple linear regressions (MLRs) were used to assess the association between the domains of HRQOL, HU, SPH and sociodemographics.

Results: Of 69 respondents recruited, most were male (65.2%), Malay (44.9%), single (44.9%), secondary school leavers (50.7%), worked full time (42.0%), household income of <RM2500 (≈USD597, 73.9%) and contracted through sex (46.4%). The mean age was 42.9±13.02 years old. The mean HRQOL was 74.6±13.21, HU 0.9±0.10 and SPH 89.6±12.67. In the MLR model, an increase in age, being employed full-time or unemployed, household income >RM2500 caused an increase in HRQOL. In contrast, being male, Malay, non-tertiary educated, having income <RM2500 and >RM3164 increases HU. Being Malay, non-single and having a household income of <RM2500 increased SPH. There was a significant low correlation between HRQOL and HU (r=0.339, p=0.004); non-significant little correlation between HRQOL and SPH (r=0.215, p=0.075), HU and SPH (r=0.088, p=0.474).

Conclusions: Our HIV patients had higher mean HRQOL than SPH scores with a good HU at 0.9, affected by different factors. Increase in age, without working part time increased HRQOL only. Being Malay and having income <RM2500 increased both HU and SPH.

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Anticipated Stigma Among Recently Diagnosed HIV Clients in the UTT Era in Johannesburg, South Africa

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Background: Anticipated stigma – the fear that HIV diagnosis and status disclosure could have negative social implications – may adversely affect engagement with HIV care and treatment, despite universal eligibility for treatment under universal-test-and-treat (UTT). We aimed to determine prevalence and predictors of anticipated stigma among newly HIV-diagnosed individuals under the UTT policy in Johannesburg, South Africa.

Methods: We analyzed a cross-sectional survey of 652 newly HIV-diagnosed adults (≥18 years) (64.1% female, median age was 33 years, interquartile range [IQR]: 28–39)) enrolled in a cohort study from October 2017 to August 2018 from four primary clinics in Johannesburg. Participants were interviewed immediately after receiving their HIV test results. We used an adapted five-item, four-point scale measuring agreement with statements regarding HIV disclosure concerns and HIV status concealment (Cronbach's alpha =0.82). Mean scores were categorized as "low-to-medium" (score<=2.5), or "high" (score>2.5). We used Modified Poisson regression to assess for predictors of high anticipated stigma and report adjusted risk ratios (aRR) with 95% confidence intervals (CIs).

Results: Overall, 55% of study participants had high anticipated stigma; 55.8% for males, 61.1% for 18–29-year-olds, and 43% for those married. Unmarried individuals who were in a relationship had a higher risk of high anticipated stigma than those married (aRR 1.10, 95% CI: 1.01-1.18). Risk of high anticipated stigma was lower among: older individuals (aRR 0.94 for being 30-39 vs 18-29 years, 95% CI: 0.88-0.99), those having a primary house in another province/rural (aRR 0.82 for primary house in another country vs current house, 95% CI: 0.78-0.87), (aRR 0.83 for primary house in another country vs current house, 95% CI: 0.78-0.88), those living in current homes for ≥5 years (aRR 0.93 for >5 years vs <1 year, 95% CI: 0.88-0.99), those with

low ART concerns (aRR 0.86, 95 % CI: 0.82-0.90), and those with low perceived social-support (aRR 0.79 for low vs high, 95 % CI: 0.70-0.88).

Conclusion: Over 50% of adults diagnosed with HIV in the UTT era experienced high anticipated stigma. Findings highlight the need to address factors that continue to drive anticipated stigma, to mitigate the potential impact on engagement in HIV care.

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"The Way the Nurse Talked to Me I Will Not Go There Again:" A Qualitative Comparative Analysis of the Reasons for Interruption in Care of People Living with HIV in Ghana

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Background: Understanding how people perceive and conceptualize health system challenges is important when considering the effectiveness of solutions for public health challenges. There is increasing acceptance in contemporary literature of the competition between powerful expert technical views and the lived experiences of clients This is a comparative analysis of competing views among three health system actors: 1) health care providers, 2) civil society organizations (CSOs), 3) and people living with HIV, concerning the reasons for why HIV clients in Ghana experienced interruptions in care.

Methods: The study is a cross-sectional exploratory qualitative research conducted by the USAID Strengthening the Care Continuum project (Care Continuum), implemented by JSI Research & Training Institute, Inc., supported ART sites in two regions of Ghana: Western and Western North. From October to December 2020, healthcare staff (n=10), clients (n=10) who had interrupted care, and CSO staff (n=8) were selected and engaged in in-depth interviews to inform the Care Continuum's back to care campaign. A thematic comparative data analysis approach was employed.

Results: Analysis of the data showed a clear divergence in opinions among the three groups. While clients expressed a lack of satisfaction with care due to the condescending attitude of health care staff, coupled with last mile issues such as distance and lack of financial means, health care staff blamed clients for being worrisome, superstitious and engaged in harmful health seeking behaviors. CSO staff attributed the high levels of interruption in care to structural factors, such as the lack of differentiated service delivery modalities, and called for more collaboration with heath facilities to roll out community ARV delivery, to address challenges.

Conclusions: The results of the study highlight the need for researchers and consumers of research to conscientiously coalesce the views of various actors and take into account differing interests and power dynamics when finding practical solutions to pressing public health problems. The lived experiences of clients deserve particular attention.

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"We tested together": Experiences of PLHIV Delivering HIVST to Partners of Unknown HIV Status in Kenya.

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Background: HIV testing for partners of persons living with HIV (PLHIV) is an important starting point for HIV prevention and treatment, for those unaware of their HIV status or their partners' HIV positive status. PLHIV find it difficult to negotiate for partner HIV testing. HIV self-tests (HIVST) provide a unique opportunity for partners to test in privacy and could encourage PLHIV to disclose their HIV status. We explored the experiences of PLHIV delivering HIVST to their partners.

Methods: The Partner HIVST Study evaluated the impact of HIVST distribution by PLHIV with partners of unknown status on identifying individuals who could benefit from HIV prevention services at two comprehensive care clinics in Central Kenya. We interviewed 21 PLHIV, 12 who successfully delivered HIVST, and nine who did not. We analyzed data thematically using inductive and deductive approaches to capture concepts related to HIVST delivery and partners' HIV testing experiences.

Results: Participants' median antiretroviral therapy (ART) use was 18 months (IQR 8-108), 15 were female, and 13 had previously disclosed their HIV status. Participants who delivered HIVST reported that they were happy as it was more convenient and offered privacy compared to clinic-based testing. Many PLHIV reported that they either assisted their partners to test or partners tested in their presence. Participants who had previously disclosed their HIV status reported that it was easy for them to deliver HIVST because they had been to the clinic together and received regular counselling. Whereas some participants reported that HIVST helped them disclose their HIV status which made it easier to take their medication, some reported conflict, and relationship dissolution. Participants who had not disclosed their HIV status reported that they were worried about delivering HIVST for fear of potential conflict or separation.

Conclusion: Secondary delivery of HIVST by PLHIV to partners was acceptable, promoted partner testing, and helped PHLIV adhere to their medication, but success was majorly influenced by HIV status disclosure. These data suggest that integrating HIVST has potential to synergize treatment and prevention programs but must be paired with effective strategies to support PLHIV with status disclosure to fully realize its impact.

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Assessment of the Effect of Community Differentiated Service Delivery Models on Viral Load Suppression Among Children and Adolescents Living With HIV in Uganda.

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Background: Viral load suppression (VLS) for Children and Adolescents Living with HIV (CALHIV) in Uganda has improved but remains low at 74% compared to that of adults (91%), DHIS2 2021. This has been due to suboptimal ARV regimens, non-adherence to treatment due to psychosocial and drug administration challenges. With support from PEPFAR, Uganda started implementing community Differentiated Services Delivery (DSD) models for children (>2 years) and adolescents (10-19 years) living with HIV in 2020. Facility models include; |Facility-based individual management model (FBIM), Facility-based groups (FBGs), Fast track drug refill (FTDR) while community models include; Community Drug Distribution Point (CDDP) and Community Client Led ART Distribution (CCLAD). A DSD dashboard was developed to monitor VLS among clients on DSD models, by DSD type. We set to assess the effect of community DSD models on VLS among CALHIV in Uganda.

Methods: We retrospectively analyzed data for CALHIV from the DSD dashboard for all HIV antiretroviral (ART) clinics in Uganda from July 2021 to September 2021. This dashboard pulls

data from DHIS2 the national reporting system on a quarterly basis. Descriptive analysis included data on demographics and VLS for community DSD models.

Results: Among 92,562 CALHIV active on ART during July 2021 to September 2021, 56.2% were females and 43.8% were males. Of these, 74.4% were in Facility-based models, 21.0% were in community models, 4.6% uncategorized; 28.9% were in FBIM, 45.5% in FBGs, 17.9% in FTDR, 1.6% in CDDP, 1.5% in CCLAD. VLS among community DSD models did not differ by sex (Males = 67.0% vs Females = 66.0%, p-value >0.05) and by community DSD type CCLAD (62.0%) vs CDDP (61.0%), p-value>0.05). Among children, VLS (<1000 copies) was 62.0% and 75.0% among adolescents living with HIV receiving ART under a community DSD model.

Conclusion: We observed lower viral load suppression for children and a comparable VLS for adolescents in community DSD models, compared to the national VLS. However, there was no significant difference in VLS among the two community DSD models. Children and adolescents living with HIV can still benefit from community DSD models, however, psychosocial support should be strengthened, especially for children.

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Do Health Facility-Based HIV Testing Strategies Equitably Reach All Men?

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Background: Men remain under-represented in HIV testing strategies. Health facility (HF)-based HIV testing strategies in sub-Saharan Africa are cost-effective, scalable and promote immediate linkage to care. Yet it is unclear if particular groups of men are missed by HF-based strategies and what entry points are most equitable for reaching men.

Methods: We used data from a 2019 community-representative survey with men in Malawi to examine factors associated with HF attendance in the last 12 months. We tested three categories of potential predictors: beliefs regarding gender norms and masculinity; socioeconomic indicators; and quality of care in local HFs. We investigated visits made primarily for participant's health (client visits) and visits made primarily for the health of others (caregiver visit). Variables with p-value ≤0.10 in univariate analysis were included in multivariate regressions, controlling for random effects.

Results: We included 1,116 men who had never tested HIV-positive. Median age was 34 (IQ 23-43), 73% had children, 74% were married, and 82% attended a HF <12 months ago (63% as clients and 47% as caregivers). Neither gender norm beliefs nor socioeconomic factors were independent predictors of attending a client visit. Quality of care problems in local HFs (aOR 0.291, 95%CI 0.103—0.823) and good health (aOR 0.665, 95%CI 0.459—0.962) were negatively associated with client visits. For caregiver visits, being married (aOR 2.404, 95%CI:1.203–4.801), aged >50 (aOR 0.549, 95%CI:0.506—0.983), and holding harmful beliefs regarding three types of gender norms (aOR ranging from 0.661–0.710) were independently predictive. Socioeconomic indicators were not associated with either type of HF visits.

Conclusion: Client visits were equitably distributed across all men except those who lived in areas with poor service quality, while older men and those with harmful gender norms were less likely to make caregiver visits. HF-based HIV interventions can reach most men without missing key sub-groups.

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Risk Factors Associated With Late Presentation to HIV Care in the "Treat All " Era in Sub-Saharan Africa: A Systematic Literature Review.

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Introduction: Late presentation to HIV care (with CD4 count < 350cells or WHO clinical stage 3 or 4) remains a norm in sub-Saharan Africa. This is despite the 2016 World Health Organization HIV guidelines recommending the initiation of antiretroviral therapy (ART) in all people living with HIV regardless of clinical and immunological status.
The aim of this systematic review was to describe the prevalence and demographics of adults aged >15 years who are late to present to HIV care in sub Saharan Africa

Methods: PubMed, Embase, ISI web of knowledge, Health System Evidence Global Index Medicus databases, web engines and conference websites were searched for relevant studies, grey literature and abstracts conducted between 2015 and 2020.

Results: 9 studies were included in the review. Males represented 58% of the total 714, 929 participants aged >15. The prevalence of late presentation to care was 44%, (95% CI: 37–51). The odds of late presentation to care for males was 1.54 (95% CI: 1.05 – 2.36); aged > 36 was 1.55 (95% CI: 0.98 – 2.69); not being married was 1.065 (95% CI: 0.99 – 1.15).

Conclusion: Late presentation to HIV care remains high among adults living with HIV in sub Saharan Africa. Being male, not married, and being above 35 years of age were found to be associated with higher odds of late presentation to care. Strategies that allow early HIV detection and treatment and innovative approaches targeting population at risk are needed to achieve expected HIV program outcome of the treat all policy.

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Uptake of COVID-19 Vaccine Among Health Care Workers in Malawi

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Background: Malawi rolled out vaccination for COVID-19 to all frontline health care workers in March 2021. Little is known about the uptake of COVID-19 vaccine in low- and middle-income countries, including those hardest-hit by the pandemic, such as health care workers (HCWs).

Methods: At the start of the national COVID-19 vaccination campaign in Malawi, we surveyed attitudes towards the COVID-19 vaccine and its uptake among Malawian HCWs. Informed by a World Health Organization model of factors associated with vaccine uptake, we collected data on "what people think and feel" about the COVID-19 vaccine, motivation to vaccinate and encourage others to vaccinate, and vaccine acceptance. We included clinical and lay cadre HCWs aged ≥18 years who provided outpatient HIV care during the three months preceding data collection. We stratified HCWs by cadre and randomly selected one individual per stratum to invite for participation; we repeated this process until up to 14 participants per facility were invited to participate. We collected data in April - May 2021.

Results: 400 HCWs (34.3% clinical staff, 65.7% lay cadres) were included in this analysis from 32 health facilities; median age was 32 (IQR: 28-38), 55.3% were male and 77.8% reported no comorbidities i.e. high blood pressure, diabetes, lung or heart disease. All had been offered at least one dose of the Astra-Zeneca

vaccine and 82.5% had received the first dose. Uptake was significantly higher among those reporting high motivation to vaccinate (eagerness to be vaccinated aOR 12.2, 95% CI 6.02, 24.8; and likely encouragement of loved ones to get vaccinated aOR 16.5, 95%CI 8.3, 33.0). Confidence in benefits and safety of COVID-19 vaccine were strongly associated with motivation to be vaccinated, but perceived risk of COVID-19 infection was not. Respondents reported high exposure to negative information about the vaccine – primarily from social contacts and social media. Being exposed to more negative information was associated with less willingness to encourage loved ones to vaccinate (aOR 0.8, 95%CI 0.7, 0.9).

Conclusions: Our findings about factors associated with Covid-19 vaccine uptake may help designing effective implementation strategies and behavioral interventions to ensure high vaccine coverage among HCWs.

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Implementation of Family-Based Index Case Testing to Identify Children With HIV and Its Determinants in Southwest Ethiopia, a Multilevel Mixed-Effect Analysis

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Background: In 2020, there were 1.7 million children living with HIV globally. The most recent estimates suggest that only 54% of children living with HIV are on treatment. This is far below the 90-90-90 targets by 2020. Increasing number of children living with HIV on care and support has been challenging. A key challenge is to identify children who are living with HIV who have been missed through routine testing services. The new family-based index cases testing approach is a potentially high-yield identification strategy. We evaluated the implementation of index case testing and identified barriers to it.

Methods and materials: The study was conducted on randomly selected 948 recently diagnosed HIV-positive clients in health facilities of southwest Ethiopia. Data were collected using a standardized tool. A multilevel binary logistic regression was fitted to identify the significant determinants of index case in contact referral. The Intra-class Correlation Coefficient and proportional change in variance were used for assessing the clustering effect. Variables with a p-value < 0.2 in the bi-variable analysis were considered in the multivariable analysis. Adjusted Odds Ratio (AOR) with 95% Confidence Interval (CI) was reported to declare statistically significant determinants for index case-based contact referral.

Result: The index case contact referral was 58.6% (95% CI: 56.7, 61.4%). Over a period of one year, 71 children were identified as HIV positive. Untrained provider (AOR = 1.79, 95% CI: 1.12, 2.88), denial of HIV status (AOR = 1.25, 95% CI: 1.14, 1.79), and fear of intimate partner violence (AOR = 6.85, 95% CI: 3.69, 12.70) were significantly associated with lower odds of index case contact referral. On the other hand, availability of job aids (AOR = 0.67, 95% CI: 0.47, 0.95), availability of HIV self-test kits (AOR = 0.34, 95% CI: 0.15, 0.74), and Building relationships with primary client (AOR = 0.38, 95% CI: 0.24, 0.58) were significantly associated with higher odds of index case contact referral.

Conclusion: Despite the index case-based contact referral in the study area being low compared to the target the testing showed a high yield of cases. Structural and social factors challenged index case-based contact referral.

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Development of an Intervention to Reduce Intersectional Internalized Stigma Among Sexual and Gender Minorities at Risk for or Living With HIV in Lagos, Nigeria

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Background: High levels of internalized stigma, related both to identifying as a sexual or gender minority (SGM) as well as living with HIV, are increasingly documented in the African setting. This "intersectional" internalized stigma has proven a barrier to uptake of HIV prevention options including pre-exposure prophylaxis (PrEP), and positive HIV care outcomes. Yet there are currently no interventions explicitly focused on reducing intersectional internalized stigma among SGM in the African setting. We developed such an intervention for men who have sex with men (MSM) and transgender women (TGW) at risk for or living with HIV in Lagos, where our team is already delivering SGM-friendly HIV services.

Description: We reviewed interventions described in the peer-reviewed/grey literature that sought to reduce internalized stigma related to SGM and/or HIV status. Only a few explicitly targeted intersectional internalized stigma; none in Africa. Cognitive behavioral therapy (CBT) was the most common and promising approach. Several interventions (most in North America) offered group-based CBT sessions, of interest for the Nigerian setting given the shortage of psychological counselors. Also critical in the Nigerian setting was ensuring safety within a punitive legal environment.

Lessons learned: Resulting from this process was a group-based affirmative CBT intervention, with four weekly sessions, each three hours long. The structure and topical areas are based on an evidence-based group CBT intervention for SGM youth in Canada, with additional content from other programs, including two from African countries with content concerning HIV-related stigma and human rights among SGM. Sessions include: Stigma related to different identities, and human rights; CBT - using thoughts to change feelings; Coping strategies; and Developing supportive networks. Multiple safety measures were outlined, related to recruitment, venue, group divisions, maintaining confidentiality, and immediate referrals to a staff psychologist.

Conclusions/next steps: The intervention is being pretested and will be implemented in early 2022. It will be evaluated via a delayed intervention group randomized design (n=300), assessing acceptability and preliminary efficacy in reducing intersectional internalized stigma, PrEP uptake and HIV treatment self-efficacy. Moving forward, we will be attentive to future scalability in the Nigerian context, and potential transferability to other African countries.

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Qualitative Findings Informing the Development of an Adolescent Psychosocial Attrition Risk Assessment (APARA) Tool to Predict Attrition from HIV Care in Uganda

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Background: In Uganda, in 2019 the HIV retention rate for adolescents was 67% and the

proportion of those in care who were virally suppressed was low at 41%. For adolescents, retention in care is largely influenced by psychosocial factors and impacts medication adherence and viral suppression. A systematic process to assess psychosocial factors impacting adolescents' retention in HIV care does not currently exist in country. This study aims to develop an adolescent psychosocial attrition risk assessment (APARA) tool through literature review and qualitative research that can predict attrition from HIV care.

Methods: A 16-question APARA tool with 13 domains was developed by reviewing literature and other validated tools. Twelve focus group discussions (FGDs) were conducted with adolescents aged 15-19 years and 19 interviews were conducted with healthcare workers (HCWs) across 12 facilities in Central and Western Uganda. Structured moderator guides were used to facilitate discussions on barriers and facilitators to retention in HIV care for adolescents and gather feedback on the APARA tool. Comprehensive notes were translated to English following each session and reviewed for common themes. Codes and summaries were developed and reviewed by two team members.

Results: Adolescents reported common barriers and facilitators to retention in HIV care retention, including school discrimination, food security, future goals, HIV treatment knowledge, and transportation. HCWs also reported common barriers and facilitators for adolescent retention, including romantic relationship disclosure, facility environment, economic stability, and stable housing. Overlapping themes among both groups include HCW attitude, parental support, peer engagement, and stigma. Adolescents most frequently mentioned food security as the most important domain on the tool while HCWs mentioned disclosure and home environment the most. Four new questions were added relating to parental support and disclosure in romantic relationships based on findings, and others were rephrased to improve comprehension.

Conclusion: Findings informed development of the final APARA tool with 20 domains that influence retention among adolescents aged 15-19 years living with HIV in Western and Central Uganda. Enrollment for phase two began in November 2021 and will assess and validate the APARA tool's ability to predict adolescents' risk of attrition from HIV care.

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Scaling Sauti ya Vijana (SYV: The Voice of Youth): Lessons From a Peer-Group Leader Training in Tanzania

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Background: Sauti ya Vijana (SYV:The Voice of Youth) is a peer-led, group-based, mental health and life skills intervention for adolescents and young adults (10-24 years of age) living with HIV (AYALWH) in Tanzania. SYV shows promise to improve antiretroviral therapy adherence and HIV outcomes by addressing mental health challenges, coping, and providing hope for the future.

Description: SYV uses components of evidence-based psychotherapy in 10 group-based sessions (2 including caregivers) and 2 individual sessions. Session content was designed with AYALWH to address common challenges and worries. The SYV intervention is being scaled across four regions of Tanzania (Ifakara, Morogoro; Moshi, Kilimanjaro; Mwanza; Mbeya). An all-site, 2-week training was held October 25- November 5, 2021 in Moshi, Tanzania with 25 young adult (23-29 years of age) group leaders (GLs), 4 research assistants, and 4 site supervisors. Training was

conducted by Tanzanian collaborators in the national language, Kiswahili.

Lessons learned: Scaling up a peer-led mental health intervention is challenging. In addition to positive feedback from anonymous electronic surveys, we learned critical lessons to improve future training of peer GLs. Time: GLs were highly engaged, but questions had to be limited due to time. GLs used a suggestion box to submit questions which were collated and answered at the end of each day. Confidentiality: Use of a microphone was necessary for GLs to hear the discussion, but threatened confidentiality when GLs shared personal experiences. Sharing was encouraged with the microphone being optional. A GL's decision around HIV disclosure to participants is a personal choice. Care must be taken in public facing project details and among co-GLs to not inadvertently disclose a fellow GL's status. Traumatic experiences. GLs demonstrated improved self-confidence, but discussing hard memories during the intervention was challenging. GLs needed time to process their own stories and life history before being capable of supporting others. Having mental health experts on site to support GLs during training was critical.

Conclusions/Next steps: As peer-led mentoring and interventions are scaled, key challenges young adults face in this important role must be realized. Intensive supervision and attention to GLs' mental health is critical to program success.

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Influential Role of Key HIV Stakeholders in Ghana: A Mendelow's Matrix Stakeholder Analysis

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Issue: The Ghana AIDS Commission's management of the national HIV and AIDS response is done in partnership and/ in collaboration with four key stakeholders. It is very important that Commission understands the different roles each stakeholder plays in contributing to the national HIV response. Effective mapping and management of these stakeholders helps the Commission better develop policies, strategic planning, advocacy, promotion of research, monitoring, evaluation and resource mobilization for the national HIV response

Description: The Ghana AIDS Commission actively works with all stakeholders in carrying out its mandate of management and coordination of HIV and AIDS activities in the country. The four key stakeholders the Commission collaborates with are; Development Partners that support the government of Ghana with financial and technical assistance towards the improvement of our health systems, Ministry of Health who are implementing partners providing treatment care and support services to persons living with HIV, Local Government coordinate the decentralized HIV response and Civil Society Groups who provide community based HIV engagements.
Mendelow's matrix (Mm) stakeholder analysis has been adopted by the Commission to manage the expectations of its key stakeholders.

Lessons learnt: Mm level of interest and power analysis;
i. Development Partners are key players in Ghana's HIV response. They provide about 70% of the resources for HIV activities and are very interested in achieving desired results.
ii. The Ministry of Health are key players in the implementation of HIV projects. They have the human resource and expertise in HIV treatment, care and support services. They are committed to improving the health of persons living with HIV.
iii. Local Government are by law required to support the decentralized HIV response. keeping them satisfied provides the platform

for good and effective coordination of HIV activities at the decentralized levels
iv. Civil Society Organizations provide a linkage between the health sector and the community. They are very interested in community level HIV engagement activities and are to be informed and involved in all HIV programme developments

Conclusions: Mendelow's matrix for stakeholder analysis helps the Commission to provide leadership and effectively coordinate the national HIV response.

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"Culture Shock Under the New Normal" Integrating Covid-19 into HIV Programming for PLHIV in Zimbabwe.

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Background: Zimbabwe has an estimated 1.2 million People living with HIV (PLHIV) with an estimated prevalence of 11.9% in 2020 as well as 94% of adults and 70% of =p;n Anti-retroviral Treatment respectively. (Ministry of Health and Child Care, 2021, Global AIIDS Response Progress Response). Before COVID, National AIDS Council had managed to establish MIPA Forums where PLHIV would have physical meetings at district, provincial and national levels would have a team of PLHIV visiting selected health facilities to assess availability of medicines. In March 2020 the country had its first lockdown which ran up to July 2020. This disrupted the interactions and psychosocial support that PLHIV provided to each other.

Description: To circumvent the restrictions brought about the COVID-19 restrictions, National AIDS Council established regional MIPA Forums and where by the country's 10 provinces were broken down into two regions of 5 provinces each and establishing regional WhatsApp platforms where PLHIV would share information about COVID-19, medication and providing each other with psycho-social support. The national network of PLHIV also established a call centre whereby PLHIV could make distress calls where-ever they are as they report stock outs and other problems affecting them

Lessons leant:

- Regional MIPA Forums' WhatsApp groups and Regional meetings have reduced the cost of conducting meeting as well as facilitating closer interactions between PLHIV as they tackle regional access problems that are closer to them.
- The establishment of a call centre has replaced physical community monitoring by PLHIV and has made it easier to report stock outs and allow corrective action to be taken at national level at then shortest possible time.
- The HIV structures have made it easy to integrate COVID-19 into HIV programming using already established structures.
- Fight against Stigma and discrimination under HIV has made it easier to fight against COVID-19 stigma.

Conclusion: COVID-19 has presented new challenges but decentralisation of MIPA Forums, establishment of call centre and use of HIV experiences has made it easier for PLHIV to deal with COVID-19.

Acknowledge the contribution by PLHIV

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Impact du statut nutritionnel sur la réponse virologique des personnes vivant avec le VIH (PVVIH) sous traitement antirétroviral (TARV) de 1ère ligne suivies à l'Hôpital Central de Yaoundé (HCY), Cameroun

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Introduction: La prise en charge efficace de l'infection au VIH passe également par l'accès à un régime alimentaire sain. Cette étude transversale recherchait l'impact du profil alimentaire et du statut nutritionnel sur la charge virale des PVVIH sous TARV suivies à l'HCY.

Méthodologie: Une étude prospective-transversale fut menée d'Août à Septembre 2021 ciblant les PVVIH sous TARV, suivis à l'Hôpital Central de Yaoundé. La charge virale (CV) a été déterminée par RT-qPCR. L'état nutritionnel sur la base de l'indice de masse corporelle (IMC), l'albuminémie et la consommation alimentaire par des questionnaires de fréquence alimentaire ont été évalués. L'analyse des données s'est faite avec le logiciel SPSS 18.1. Seuil de significativité 5%.

Résultats: Sur 98 patients inclus, 74,5% (73/98) de femmes, l'âge moyen était de 45,86 ± 9,44 ans [min : 27 et max : 72] ; la durée moyenne de la thérapie ARV était de 9,6±5,1 ans [min : 1 et max : 19] ; 51 % des participants étaient sous TLD (Tenofovir + Lamivudine + Dolutegravir) et 48,9% sous TELE (Tenofovir + lamivudine + Efavirenz) et 91,8% avaient une CV indétectable (<40 copie/ml). Aussi, 71,4% (70/98) étaient en surpoids/obésité suivant les valeurs de l'IMC. Le sexe-féminin (p=0,027), un TARV de plus de 5ans (p=0,023), les combinaisons TELE (p=0,043) et TLD (p=0,046), un nombre de repas supérieur ou égale à 3 par jour (p=0,005) et la non-consommation de tubercules les 24 h précédentes (p=0,005) étaient des facteurs associés à cet état de surcharge pondérale. Aucune association significative n'a été trouvée entre l'albuminémie, le protocole thérapeutique et la charge virale. Cependant, les patients obèses semblaient présenter majoritairement des charges virales détectables (10% obèses vs 3,6% non-obèses p=0.458). Grignoter habituellement des sucreries a été associé à une charge virale détectable (15.9% vs 2% p=0.049).

Conclusion: Les régimes alimentaires trop sucrés impacteraient négativement la charge virale des PVVIH. Il serait donc important d'intensifier les interventions d'éducation nutritionnelle chez les personnes infectées par le VIH en promouvant une alimentation saine et équilibrée, moins sucrée ainsi qu'une bonne gestion de la masse corporelle notamment par une activité physique régulière.

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Etude de la performance des équipements « PIMATM » et « FACSPrestoTM» comparée au « BD FACScount TM » dans la numération des lymphocytes TCD4 pour le suivi des PVVIH-1 au Bénin

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Contexte: L'avènement des point of care a permis d'offrir la numération des CD4 aux patients des régions les plus éloignées. Ceci a permis de se passer du BD FACSCount. Deux de ces "point of care" sont le PIMATM et le FACSPrestoTM. Le Bénin a acquis en 2015, 45 PIMATM et 58 FACSPrestoTM pour le suivi des PVVIH-1.

Le travail vise à évaluer la performance des équipements «PIMATM» et de FACSPrestoTM comparée au «BD FACSCount TM ».

Matériels et méthodes: La numération des LTCD4 a été réalisée sur 216 et 232 patients infectés par le VIH-1sur le FACSCountTM au laboratoire du PSLS et sur le PIMATM et FACSPrestoTM au Laboratoire du LBPCI respectivement.
Les diagrammes (Bland Altman, Pollock et le Passing-Bablok) ont été réalisés avec le logiciel GraphPad Prism 9.

Résultats: Les LTCD4 s'étendent de 2 à 1560 cellules /µl et de 1 à 1600 cellules/µl respectivement pour le PIMA™ et pour le FACSPrestoTM. Les valeurs entre 1 à 350 et supérieures ou égales à 500 cellules/µl sont élevées avec des taux de 46% et 43% respectivement pour le PIMA™ et le FACSPrestoTM. Les moyennes des différences des LTCD4 sont de (+0,5 ; -1,9) [-10,7 à 11,6] et [-23,4 à 19,6] avec Pollock respectivement pour le PIMA™ et le FACSPrestoTM. Les moyennes des différences des LTCD4 sont de (+3,7 ; -1,5) [-52,7 à 60,1) et [-45,7 à 42,7] avec le Bland Altman pour le PIMA™ et le FACSPrestoTM. R2= 0,99 pour chaque équipement.
1,8% (PIMA™) et 3% (FACSPrestoTM) des échantillons sont mal classifiés à 350. Aucun échantillon n'est mal classifié pour le seuil de 500 pour le PIMA™. 1,3% le sont pour le seuil à 500 (FACSPrestoTM). Les sensibilité et spécificité du PIMA™ et du FACSPrestoTM pour le seuil de 350 sont respectivement de (98,96% ; 98,02%) et (97,50% ; 96,18%) avec des VPP de (96,94% ; 95,19%) et VPN de (99,15% ; 98,44%). Au seuil de 500, les sensibilités, les spécificités, les VPP et les VPN sont de (100% ; 98%) respectivement pour le PIMA™ et le FACSPrestoTM

Conclusion: Le PIMATM et le FACSPrestoTM possèdent de meilleures caractéristiques de performance.

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Evaluation de la Qualité de la Prise en Charge Psychosociale Chez Les Personnes Vivant Avec Le VIH (PvVIH) À L'Hôpital de Jour de Donka, Guinée

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Objectifs: La prise en charge d'une personne infectée par le VIH nécessite un dispositif multidisciplinaire dont le but est d'améliorer leur qualité de vie, de leur famille et de leur communauté. L'angoisse dramatique et l'annonce du diagnostic, le vécu de la maladie et l'incidence de ses complications sur la vie psychique et sociale rendent incontournable leur prise en charge (PEC) médicale et psychosociale. L'objectif de ce travail était d'évaluer la PEC psychosociale des PvVIH à l'hôpital de Jour de Donka.

Matériels et Méthodes: Il s'agissait d'une étude transversale portant sur les PvVIH à l'hôpital de Jour de Donka réalisée sur une période de six mois. Les données ont été collectées en réalisant des interview sémi-structurées par des questionnaires administrés aux PvVIH, aux membres de l'association de PvVIH et au personnel de soins. Nous
avons constitué des focus-groups dans lequel l'enquêteur a joué le rôle d'animateur en se servant d'une grille d'intervention afin de maintenir les débats à l'intérieur des thèmes : observance, counseling, éducation thérapeutique. Les entretiens ont eu lieu
en français et dans les langues nationales et transcrits conformément aux dires des intervenants.

Résultats: Nous avons interviewer 124 PvVIH. La majorité des patients soit respectivement 95,5%, 98,3% et 100% était satisfait de la qualité de l'accueil, de la disponibilité des prestataires et de la confidentialité des

entretiens. Les réactions après l'annonce du résultat étaient faite d'acceptation des résultats (27,4%), de pleur (22,5%) et de désespoir (21,7%). La majorité des patients (99,1%) a affirmé pouvoir faire face à la stigmatisation et à la discrimination. Plus de la moitié des patients (53,2%) avaient révéler son statut sérologique à son entourage et parmi ceux-ci 57,5% étaient accepté. La religion avait un impact sur le statut dans 24,1% des cas. L'appréciation du site de prise en charge était bonne selon 82,2% des patients.

Conclusion: Cette étude nous a permis de connaitre le niveau de satisfaction des PvVIH bénéficiant de la PEC psychosociale ainsi que les difficultés auxquelles ils pourraient être confrontés.

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Evaluation of HIV Drug Resistance in Virally Suppressed Patients in Cameroon.

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Objectives: Viral suppression (Viral load < 1000copies/ml) is considered a therapeutic success in resource limited settings. However, several studies have shown the presence of resistance mutations at residual viral loads, which could compromise long-term therapeutic response. We sought to assess the effectiveness of sequencing and determine the HIV drug resistance genotypic profile in virally suppressed patients (VSP) in Cameroon.

Methods: A cross-sectional and analytical study was conducted at the Chantal BIYA International Reference Centre from January 2020 to August 2021 among VSP. Sequencing was performed in the reverse-transcriptase and protease regions. Sequences were analysed using the Stanford HIVDBv9.0 algorithm, and molecular phylogeny done using MEGAX. Sequencing success rate and occurrence of drug resistance mutations were assessed by viremia, with P<0.05 considered statistically significant.

Results: In total, 132 participants were retained; median age [IQR]: 43[33-51] years; 69% female. The median duration on antiretroviral therapy (ART) was 19 [12-34.4] months. The amplification rate was 39 (CI95%, 21.93-38.11) %, and the sequencing success rate 28.8% (38/132), thus 97.4% of amplicons. Genotyping was more effective for patients with viremia ≥ 200 copies/ml, 47.2% (25/53) versus 16.5% (13/79) for viremia ≤ 200 copies/ml, p<0.001. Of the 38 sequences generated, the overall resistance rate was 89.74%, with 79.9% NRTI resistance, 79.4% NNRTI resistance and 15.3% PI/r resistance. This resistance rate was higher in patients with viremia ≥ 200 copies/ml, 32.0% versus viremia ≤ 200 copies/ml (7.7%), OR 5.65; p=0.13. Seven viral clades were identified with predominance of CRF02_AG (64%). M184V (74.3%) and K103N (45.7%) were the most frequent mutations in reverse transcriptase and M46I 14.2% in protease. The viral susceptibility profile revealed 41.1% (14/38) of participants on suboptimal therapies despite virological suppression.

Conclusion: In the Cameroonian context with broad HIV genetic diversity, sequencing appears to be effective in half of the virally suppressed patients with a viremia of at least 200 copies/ml. Moreover, the emergence of major resistance mutations in these patients would be more considerable with a viral load ≥ 200 copies/ml. In these virally suppressed patients, nearly 4 out of 10 would need to optimise their therapy for long-term therapeutic success.

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Comparison of Practicability and Effectiveness of HIV Self-Testing Kits (HIVST) in Young Women (15-25) Years Living in Central Uganda.

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Background: HIV prevalence is almost four times higher among young women aged 15 to 25 than young men of the same age. The issues faced by this demographic include gender-based violence (including sexual abuse) and a lack of access to education, health services, social protection, and information about how they cope with these inequities and injustices. Indeed, young Central Ugandan women who have experienced intimate partner violence are 50% more likely to have acquired HIV than women who had not experienced violence. In this study we examined the barriers and delivery preferences of HIV Self-testing Kits (HIVST) in order to implement an effective intervention in Uganda since Voluntary HIV testing rates are still low in African countries.

Methods: From September 2020 to November 2021, 50 in-depth interviews were conducted with young women aged 15-25 years and at risk of HIV infection. Participants were purposively sampled based on ethnicity, age, and testing behavior. Participants were requested for their views on HIV testing, factors affecting HIVST use, and their preferred HIVST service delivery model. Practicability was defined as successfully performing the test and correctly interpreting the result.

Results: Most participants preferred HIVST for its convenience, privacy, and anonymity but some still preferred conventional testing. Low self-perceived risk, low awareness and self-efficacy for HIVST, and non-comprehensive tests for other STIs were reported as barriers to HIVST. There were mixed opinions on kit preference. A blood-based kit was favored for higher accuracy, while the oral-fluid-based kit was favored for ease of use. Participants wanted a human touch for post-test counseling and linkage to care only if they self-tested positive.

Conclusion: The results of this study indicate that HIVST is practicable and effective among individuals at high risk for HIV infection in central Uganda. However, additional support tools need to be assessed to improve the interpretation of the self-test results when using the blood-based kit. A locally acceptable and feasible HIVST intervention must address the barriers and facilitators of using HIVST in order to improve HIV testing rates among this at-risk population who might otherwise delay or fail to present for testing.

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Assessment of Cardiovascular Disease Risk Factors Among Obese Women With HIV

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Background: The risk of significant weight gain and obesity associated with recently adopted integrase strand transfer inhibitors has been shown to be particularly higher among the black race, and female gender who are traditionally at lower risk of cardiovascular diseases (CVDs) compared to their male counterparts. Herein, we evaluated and compared subclinical markers of CVD risk between apparently healthy obese and normal BMI women with HIV (WWH) at Federal Teaching Hospital Gombe, Nigeria.

Method: This was a comparative cross-sectional study of young obese (BMI ≥30kg/m2) and age matched normal BMI (18.5-24.9kg/m2) WWH on antiretroviral therapy (ART) with suppressed viral load. Conventional two-dimensional

echocardiography with doppler imaging parameters, lipid profile, and high sensitivity C-reactive protein (hsCRP) measures were compared between the two groups. Independent t test was used to compare variables in the 2 groups, and multivariable regression analysis was done to determine the association of BMI with cardiac structures and function.

Results: A total of 60 women were evaluated: 30 in each group. The mean age of the participants and duration on ART was 36.26±5.71and 10.23±5.04 (years) respectively. There was no statistical difference (p=0.94) in age (years) between the obese (36.32±5.63) and normal BMI (36.21±5.89) participants. Similarly, no significant (p=0.85) difference in mean duration (years) with HIV on ART between the obese (10.36±5.49) and normal BMI (10.10±4.66) subjects. Measured hsCRP, total cholesterol, and low-density lipoproteins were significantly (p=0.002, p=0.044, and p=0.016 respectively) elevated in the obese group. Obese WWH had higher left atrial diameter, left atrial volume, left atrial area, aortic diameter, left ventricular mass (LVM), left ventricular mass index (LVMI), intraventricular septum in systole/diastole, left ventricular posterior wall (LVPW) in diastole, and LVPW in systole (p<0.0001, p=0.018, p=0.004, p=0.025, p<0001, p=0.019, p<0.0001, p=0.020, and p=0.021 respectively). On multivariable regression analysis, LVM and LVMI were independently associated (p=0.001 and p=0.022 respectively) with BMI, F(11, 47) = 8.059, p<0.0005, R2 = .654.

Conclusion: Obese WWH had higher subclinical biomarkers of CVDs and alterations in left ventricular structure that may increase their risk for adverse cardiovascular outcomes. This finding emphasizes the need for weight gain preventive measures among WWH.

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Using a Robust Approach to Rapidly Scale up Integration of Cervical Cancer Screening and Treatment of Pre-cancerous Lesions in HIV Clinics

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Background: Cervical cancer (CxCa) is the second most common cancer among women worldwide, causing significant mortality. In 2020, an estimated 604,237 women were diagnosed with CxCa globally. In Uganda, CxCa is the leading cause of cancer death. Women living with HIV (WLHIV) are 4-5 times more likely to develop CxCa. In October 2020, with support from CDC/PEPFAR, Mildmay Uganda (MUg) started implementing CxCa screening and treatment of precancerous lesions among WLHIV in central Uganda. This paper describes MUg's experience and successes in implementing the program.

Methods: The CxCa screening program was implemented in 49 health facilities (HFs) in 8 districts of central Uganda. The program implemented from October 2020 to September 2021 targeted to reach 17,464 WLHIV aged 25 to 49 years. A needs assessment conducted to identify hindrances to CxCa screening found that HFs lacked equipment for screening and health workers lacked technical capacity to conduct screening and treatment of precancerous lesions. Mildmay provided the equipment, trained, and mentored the health workers. Two screening approaches used were visual inspection under acetic acid (VIA) at all HFs and Human Papilloma Virus (HPV) testing at 4 HFs with GeneXpert capacity.

Results: A total of 250 health workers from 49 participating HFs were trained on CxCa screening and treatment of precancerous lesions.
The number of WLHIV screened for CxCa markedly improved from 560 (3.2%) in Jan-March to 14,101 (81%) in July-September 2021. The positivity rate was 7% and treatment

rate 83%. Twenty-one women with suspicious lesions were supported to access biopsies. Five had invasive carcinoma and were referred for further management.
The scale up of differentiated service delivery models and multi- month dispensing of ARVs and COVID-19 lockdown restrictions affecting access to HFs by clients and health workers were key challenges. Strategies implemented to mitigate these included pre-appointment reminders, screening at community drug distribution points, cancer camps, mentorship, and flexi -hours for HPV testing and treatment.

Conclusions: It is feasible to integrate CxCa screening into HIV care using the screen & treat approach. The roll out was able to achieve 81% of the target despite the challenges from COVID-19.

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The Impacts of COVID-19 Social Distancing Measures on Sexual and Reproductive Health Services in Botswana, a High HIV Prevalence Setting

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Background: Universal access to effective contraception is a health and human right, and has a multitude of benefits, including reduced maternal mortality and vertical HIV transmission, by enabling safe pregnancy planning and spacing. In Botswana, 26.3% of women of reproductive age live with HIV; supporting them to access sexual and reproductive health (SRH) services to avoid unintended pregnancy and HIV transmission is essential. We evaluated the effects of COVID-19 social distancing measures (SDMs) on SRH service access for people living with HIV (PLWH) in Botswana.

Methods: This observational, cross-sectional study was conducted in Botswana between 17th January and 22nd February 2021. Data were collected through a web-based questionnaire disseminated on social media as part of the International Sexual Health and REproductive Health (I-SHARE) Survey. Respondents answered questions on SRH and wellbeing, before and during Botswana's COVID-19 SDMs.

Results: Of the 409 survey respondents (female 82.2%, male 17.6%), 65 were PLWH (80% female, 20% male). Compared to the HIV-negative group, more PLWH used condoms as their primary contraceptive method (54.2% vs 47.2%). Women living with HIV had lower use of long-acting reversible contraception (e.g. implant, intrauterine device, intrauterine system) (6.9% vs. 10%) and dual contraception (6.9% vs. 11.1%). PLWH were more likely to always use contraception (69.0% vs 50.6%) and less likely to never use contraception (17.2% vs 29.8%), than HIV-negative participants. During SDMs, PLWH reported decreased condom use of 17.1% with steady and 26.7% with casual partners. Similar proportions in both groups encountered problems accessing condoms (23.63% vs. 21.18%) and their regular form of contraception (16.67% vs. 15.08%). Those obtaining contraception from hospitals during SDMs increased by 66.7% in PLWH but decreased by 61.5% in people without HIV. 7.1% of PLWH obtained contraception from their HIV clinic, reducing to 0% during SDMs.

Conclusion: Our findings show COVID-19 SDMs disrupted access to contraception and SRH services for PLWH. Integrating SRH services with Botswana's well-developed HIV infrastructure, to deliver continuous access to highly-effective contraceptive methods, could improve health system capacity and resilience, and reduce unintended pregnancies and HIV transmission.

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Retention in Care in Pregnant HIV Positive Kaposi Sarcoma (KS) Patients Seen at a Tertiary Hospital in Harare, Zimbabwe: A Case Control Study.

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Introduction: Evidence is required to guide chemotherapy treatment of HIV positive pregnant patients on antiretroviral therapy with concurrent KS. We sought to document completion outcomes in pregnant HIV positive patients with KS compared to age and stage-matched non-pregnant HIV positive female counterparts at a university-affiliated hospital in Harare, Zimbabwe.

Methodology: From January 1994 to January 2020, records of all female participants who received care in the KS clinic whilst pregnant were analysed retrospectively. Age and stage-matched non-pregnant controls were identified and matched in a ratio of 1:3. The primary outcome was loss-to-care after initiation of therapy. Multivariate analysis was performed to identify significant predictors of loss-to-care. The short-term foetal consequences were a secondary outcome.

Results: A total of 23 cases and 76 controls were enrolled for this study. 81% of the total participants were on antiretroviral therapy (ART), with 76% of the controls and 91% of the cases on ART. There was no difference in chemotherapy administered between the two groups. A total of 67(67.7%) patients were lost to follow-up with no statistical difference between the cases and controls [69.6% of cases and 67.1 controls (p=0.825)]. There was no statistical difference in the outcome between cases and controls based on baseline CD4+, current CD4+ count and viral load [OR-1.00(0.998-1.00)p=0.342; OR- 1.00(0.996-1.00) p=0.276; OR- 1.00(0.999-1.00)p=0.367]. Pregnant women in WHO HIV Clinical stage 3 and 4 were not at a higher risk of loss to follow up than their non-pregnant counterparts [OR-1.87(0.24-14.65)p=0.553; OR-1.70(0.24-11.95)p=0.592]. Concurrent hypertension or tuberculosis had no statistical difference in outcome between the cases and controls [OR-0.49(0.03-8.13)p=0.620; OR-0.91(0.32-2.57)p=0.859]. There was one documented foetal stillbirth.

Conclusion: There is no difference in loss to follow up in HIV positive pregnant KS patients receiving chemotherapy treatment in comparison to non-pregnant age and stage-matched female patients with KS. Baseline CD4+, current CD4+ count, viral load or HIV clinical stage had no bearing on retention to care between pregnant and non-pregnant HIV positive KS patients.

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HIV- And AIDS -Associated Neurocognitive Functioning in Zambia – A Perspective Based on Differences Between the Genders

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Human immunodeficiency virus (HIV) infection and acquired immune deficiency syndrome (AIDS) are frequently associated with neurocognitive impairment (NCI). However, few studies have examined the interrelationship between gender and NCI in the HIV and AIDS population. This cross-sectional study examined the neurocognitive (NC) functioning of HIV-infected male and female adults from urban Zambia. The participants included 266 HIV seropositive (HIV+) adults (males [n=107] and females [n=159]). Participants completed NC assessment by means of a comprehensive test battery using normative data from 324 HIV-

seronegative (HIV−) controls. The cognitive domains measured included: attention/working memory (learning and delayed recall), executive function, verbal fluency, processing speed, verbal and visual episodic memory, and fine motor skills. An overall comparison of the HIV+ male and female participants yielded no statistically significant differences. Analysis of covariance results controlling for disease characteristics showed that HIV+ female participants had worse delayed recall scores than males, $F(1,117) = 9.70$, $P=0.002$, partial $\eta 2=0.077$. The females also evidenced a trend toward greater impairment on learning efficiency ($P=0.015$). The findings suggest that there are gender-related differences in NCI after controlling for disease characteristics. It was observed that although the HIV+ females enjoyed better health compared to their HIV+ male counterparts, they still had worse performance on the neuropsychological tests. This implies that HIV may have more NC consequences for Zambian females than males.

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Relationship Between Food Insecurity, HIV and Adverse Birth Outcomes in Botswana

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Background: Pregnant women living with HIV (WLWHIV) have lower gestational weight gain (GWG) and higher risk of adverse birth outcomes. We explored whether increased food insecurity could help explain worse birth outcomes and lower GWG among WLWHIV.

Methods: We enrolled pregnant women between 20-28 weeks gestation at 2 sites in Botswana. Participants completed the Household Food Insecurity Access Scale (HFIAS) at enrollment, and height and weight were measured at each visit. 'Any' food insecurity was defined using answers on the HFIAS scale of "rarely", "sometimes", or "often" while food insecurity was 'frequent' if answers were "sometimes" or "often". GWG was the average kg/wk difference between 20 (+/-2) and 34 (+/-2) weeks. Any adverse birth outcome included preterm delivery (<37weeks), small for gestational age (SGA <10%tile), stillbirth, or neonatal death. Any severe adverse birth outcome included very preterm delivery (<32weeks), very SGA (<3rd %tile), stillbirth or neonatal death. We used log binomial regression to assess associations between food insecurity and adverse birth outcomes overall and stratified by HIV status.

Results: From July 2017-March 2021, 300 women enrolled, 12 miscarried, and 2 were LTFU. This analysis includes 286 women, 223 WLWHIV and 63 without HIV. Thirty-four percent reported 'any' and 21% reported 'frequent' food insecurity. Average GWG was lower (0.29kg/wk vs. 0.44kg/wk) and adverse birth outcomes (37% vs. 29%), severe adverse birth outcomes (18% vs. 3%) and preterm delivery (17% vs. 15%) were higher among WLWHIV. Food insecurity was less common among WLWHIV (32%) than women without HIV (42%). Median weekly GWG did not differ by food insecurity status overall (yes: 0.34kg/wk vs. no: 0.32kg/wk) or among WLWHIV (yes: 0.29kg.wk vs. no: 0.29kg/wk). Food insecurity was not associated with adverse birth outcomes overall, but there was increased risk of any adverse birth outcome and preterm delivery among WLWHIV who had any vs. no food insecurity, and significant interaction between food insecurity and HIV status for these outcomes.

Conclusion: Food insecurity was common among all women, and was associated with worse birth outcomes in WLHIV. However, food insecurity but did not explain the disparity in GWG or birth outcomes by maternal HIV status.

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Women Living With HIV's Knowledge About Dolutegravir and Their Perceptions About Dolutegravir Counselling: A Qualitative Study

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Introduction: In 2018, the Malawi Ministry of Health (MoH) adopted the recommendation to switch first-line antiretroviral therapy (ART) from an efavirenz-based to a dolutegravir-based regimen. Little is known about patients' experience during this transition. We conducted an exploratory qualitative study to explore dolutegravir-related counselling challenges among providers of HIV care and the factors they perceived to be influencing regimen-switch or non-switch among women living with HIV in Lilongwe, Malawi.

Methods: Between February-July 2020, we recruited participants who underwent dolutegravir counselling at two government health facilities providing HIV care, either Area 18 Health Center or Bwaila District Hospital, in Lilongwe, Malawi. We aimed to purposively interview up to 10 women living with HIV who remained on an efavirenz-based regimen after counselling, 10 women who switched to a dolutegravir-based regimen, and 10 HIV care providers who provided the counselling. In-depth interviews were used to collect the qualitative data. Interview data were coded for themes using inductive and deductive codes. Data matrices were used for analysis and thematic extraction.

Results: We interviewed 8 women who remained on efavirenz-based therapy, 10 women who switched to dolutegravir-based therapy and 10 HIV care providers who conducted the counselling. Most women were well-versed on dolutegravir's potential side effects and felt well-counselled on the benefits of switching, such as faster viral load suppression. Many women associated dolutegravir with birth defects and expressed concern about the risk of birth defects in general. However, the primary reason for not switching was concern with potential side effects of a new medication when they were already tolerating their current regimen well. Almost all providers expressed difficulty providing dolutegravir counselling. Their primary reasons included feeling inadequately trained and/or not having resources to use during counselling, such as diagrams or brochures. Nonetheless, the general observation by health care providers was that women responded well to dolutegravir counselling.

Conclusion: Dolutegravir counselling was well accepted by women. Providers felt they were not adequately trained or well-equipped to provide the best counselling. MoH should consider intensifying training and other supports on dolutegravir counselling to address the concerns raised by both patients and provider participants in this study.

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Epistemologies of HIV Education: How pregnant women are reshaping HIV Education in Zimbabwe

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Background: This article finds that women are key influencers in helping their spouses to go for HIV testing during pregnancy. Voluntary testing and counselling have now been innovatively replaced by wife-husband disclosure. To this end, women are now the 'news breakers' and pseudo-counsellors for their husbands.

Methods and Materials: This qualitative research used in-depth interviews targeting 10 key informants and 20 male and female interviewees in Harare. Documentary exploitation was used to gather secondary data on the reasons why women are forced to undergo HIV tests yet the hospitals do not have the strength to invite men to be compulsorily tested. As researchers with a research background in HIV issues in Zimbabwe, purposive sampling was used because the key informants with information relevant to the study were easily identified as partners of the National Aids Council.(NAC) Additionally, community-based organizations that deal with HIV/AIDS receive their funds from NAC because NAC is a sub-recipient of global funds on HIV responses in Zimbabwe.

Results: This study found that women are reshaping HIV education even to the point of risking facing abuse in their attempt to disseminate HIV+. The other finding is that institutions such as the National Aids Council (NAC) adopt specific sector-based programs like 'Sister-Sister' and 'Brother-Brother' mentorship. This is because there are no laws in Zimbabwe that empower NAC to compel women and men to be tested for HIV or even to disclose their status. Statistically, there are about 1.3 million people in Zimbabwe who are HIV+. About 1.2 million are on anti-retroviral drugs. Another 100000 defaulted. In contradistinction, the Ministry of Health and Child Care forces pregnant women to be tested for HIV to prevent mother to child transmission of HIV, albeit leaving women to shoulder the responsibility to disclose their status to their husbands.

Conclusions/next steps: Conclusively, the HIV testing policy in Zimbabwe does not protect the privacy and security of women. It exposes them to various forms of abuse and insecurities associated with HIV disclosure. Coherence is among bodies that deal with HIV testing is needed if women are to be protected.

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Communication, Knowledge and Understanding of Arv Risks Among Women Living With HIV, Healthcare Workers and Program Managers in Homabay County, Kenya

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Background: Dolutegravir (DTG) is an effective first-line medication for HIV, though there have been concerns of slightly higher incidence of teratogenic birth outcomes. The study aimed to describe knowledge and risk tolerance for HIV treatment, including DTG, during pregnancy among women living with HIV (WLHIV), healthcare workers and county managers.

Methods: We conducted 30 in-depth interviews (IDI) with 15-49 year-old HIV-positive women (15 pregnant, 15 non-pregnant), 12 IDIs with healthcare workers (HCW) providing HIV services and 6 IDIs with managers in 5 randomly selected facilities in Homabay County in August 2020. HCWs and managers were purposively selected; WLHIV were consecutively enrolled to desired sample. Audio recordings were transcribed and translated from Dholuo into English, coded using NVIVO 12 software and thematically analyzed by participant group.

Results: Of 30 WLHIV, mean age was 28 years (SD 6.2); 11 were ≤ 25 years. Mean parity was 2.4 births (SD 1.9). 70% knew their HIV status for < 5 years and 72% were on treatment < 5 years. Ten women had been diagnosed with HIV and on treatment for < 1 year.
Most WLHIV were aware about which medication they were using. Women obtained information about HIV medication risks from HCWs, community members and family. WLHIV relied heavily on HCWs information as they considered them well informed. Among

those counseled by HCWs, some expressed concern at information received regarding ARV risks. ARV counseling mainly focused on adherence, with some WLHIV informed of pregnancy related risks of ARV medication. From community, information on risks provided to WLHIV included being HIV positive and non-adherence to HIV medication were causes of negative birth outcomes like preterm births, stillbirths and birth defects. Some HCWs withheld risks, indicating women presented late in pregnancy beyond the risk period for that particular pregnancy or concerns that information would negatively affect adherence.

Conclusions: HCWs need to provide comprehensive information on HIV medication risks, as WLHIV are heavily reliant on them. Continuous guidance on empowering women with information on HIV medication, including risks, needs to be provided to HCW, and to ensure accurate information is disseminated to WLHIV through community platforms.

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The Burden of Non-utilization of Antenatal Care (ANC) And Associated HIV Transmission Risk Among Postpartum Women in Chitungwiza, Zimbabwe

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Background: Despite the availability of free biomedical services to prevent mother-to-child transmission of HIV in Zimbabwe, some pregnant women at high risk for HIV transmission still fail to access these services. It is therefore important to determine the proportion of women who both fail to access antenatal care (ANC) throughout pregnancy (unbooked) and are also living with HIV, in the city of Chitungwiza. These data are important in order to inform health services planning towards the elimination of pediatric HIV infection.

Material and Methods: A cross-sectional survey was performed through abstraction of data from maternity registers at 4 urban public sector maternity clinics in Chitungwiza. We extracted age, HIV status, and ANC booking status for women who received postnatal care from 01 January 2017 to 31 Dec 2017.
The data were summarized using frequencies and percentages. We used bivariate analysis to show variables associated with unbooking. Multivariate analysis was performed on variables that showed association with unbooking in the bivariate analysis. Statistical tests decisions were concluded at 5% level of significance. Statistical analysis was performed in STATA software package version 13.

Results: A total of 4400 women received postnatal care at the clinics during the one-year study period. Of these, 820 (19%) were unbooked, 470 (11%) had HIV infection, and 118 (3%) were both unbooked and had HIV.
Unbooking was associated with HIV infection, 25 % of women with HIV were unbooked compared to only 18% who were unbooked among women without HIV, p< 0.001.
In multivariate analysis, women with HIV were 0.24 times less likely to book for ANC compared to women without HIV, OR 0.76, 95% CI (0.61-0.98) P=0. 037.

Conclusions: The burden of women not accessing ANC throughout pregnancy is very high in Chitungwiza city and is triple the national estimate of 6%. These women seem to be at a higher risk of being HIV positive, hence higher risk for mother-to-child transmission of HIV. The percentage of women both unbooked and with HIV of 3% shows that more needs to be done to reduce the proportion of these women in order to reduce pediatric HIV infection.

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Barriers to Accesss to Viral Load Testing and Related Services for Women Living With HIV in Zimbabwe.

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Background: There is sub-optimal access to HIV viral load testing (VLT) in Zimbabwe with about half of people living with HIV consistently accessing VLT services. This study sought to identify the barriers to accessing to services for women living with HIV in their diversity.
Objectives;

- To document key models that can contribute towards improved access to viral load testing and related services;
- To provide recommendations around how women living with HIV can advocate for improved access to viral load testing and related services among women living with HIV in Zimbabwe.

Materials and Methods: The study was conducted in October 2019 using a qualitative, consultative and participatory design which ensured full participation of women living with HIV and other key stakeholders. The process included inception discussions, refinement of the study design, methodology and sampling. To ensure meaningful involvement of WLHIV, the study included a component on capacity building of WLHIV to conduct research especially data collection. The study was conducted in seven districts. A total of 14 focus group discussions were conducted with 112 women living with HIV. Out of the 112 WLHIV, 40 were aged between 18-24 years while the remaining 72 were aged 25 years and above. In addition, 19 key informant interviews were conducted with health service providers.

Results: Viral load monitoring is still supply driven with minimal community involvement especially around demand creation. Health facilities have put in place some mechanisms to encourage communities to demand viral load testing but these have not been highly effective. There is also limited knowledge of VLT by WLHIV especially in rural areas and older age groups

Conclusions: The findings inform the strengthening of both the supply and the demand side of VLT. This will facilitate the achievement of the third 90 on the 90-90-90 cascade. The research generated evidence that is useful for enhanced involvement of WLHIV in key processes including strategic planning, resource mobilization and community monitoring on VL cascade and VLT advocacy.

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Predictors of current CD4+ T-cell count among women of reproductive age on antiretroviral therapy in public hospitals, Southwest Ethiopia

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Background: HIV/AIDS is one of the major global public health problems. CD4 is a glycoprotein found on the surface of different immune cells. CD4 cell counts determine the need for screening and prophylactic interventions against common opportunistic infections in those with advanced HIV disease. Thus, this study aimed to assess the predictors of current CD4+ T-cell count among women of reproductive age on antiretroviral therapy in public hospitals, southwest Ethiopia.

Methods: A cross-sectional study was conducted from February to April 2018. A total of 422 participants in the three public hospitals were selected using a systematic random sampling method. Linear regression analyses were used to determine the important

predictors of current CD4+ T-cell count at p-values of <0.05.

Results: A total of 422 women with a median age of 37.00 years participated in this study. More than one in ten (12.8%) respondents experienced immunological failure. An increased current CD4+ T-cell count was observed among patients with a tertiary level of education [β = 56.45, 95% CI (3.5, 109.4)], baseline WHO clinical stage II [β = 44.06, 95% CI (5.3, 82.9)], initial regimen of AZT+3TC+EFV [β = 167.23, 95% CI (100.4, 234.1)], with increased
baseline CD4+ T-cell count [β = 0.35, 95% CI (0.2, 0.5)], and with increased time duration on ART [β = 14.36, 95% CI (6.304, 22.4)]. On the other hand, the current CD4+ T-cell count was lower among patients with poor baseline adherence, opportunistic infection, and viral load of ≥1000 by 181.06 cells/mm3, 101.62 cells/mm3
, and 137.53 cells/mm3 compared to good baseline adherence, no opportunistic infection, an undetectable viral load, respectively.

Conclusion: The immunological failure was relatively low. Maintaining adherence, early identification and treatment of opportunistic infections, and minimizing viral load to undetectable levels may further decrease immunological failure.

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Young Adolescent Girls Who Received Sexual Reproductive Health Education Had Better Comprehensive Knowledge on HIV – A Cross Sectional Study in Rural Eastern Ethiopia

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Background: Comprehensive Knowledge on sexual and reproductive health (SRH) including HIV/AIDS is a key to adopting preventive sexual behaviors. However, evidence on the effect of comprehensive SRH education in rural Ethiopia is limited. This study examined the association between Sexual and reproductive health education and comprehensive HIV knowledge among young adolescent girls in rural Eastern Ethiopia.

Method: This paper analyzed data from a large quasi-experimental study. The study used multi-stage sampling method to select 3420 adolescent girls. Data on comprehensive knowledge on HIV tool was adopted from the demographic and health survey questionnaire. STATA/SE version 14 was used to clean and analyze the data. Multi-level mixed-effect logistic regression analysis was employed to examine associations.

Results: A total of 3290 (96.2% response rate) adolescent girls aged 13 – 17 years old were included in the current analysis. Adolescent girls who had Comprehensive knowledge on HIV/AIDS were 14.84% (95% CI: 13.4.%, 16.39%). The odds of having comprehensive HIV/AIDS knowledge was 36% higher among adolescents girls who received sexual and reproductive (SRH) education compared to those who did not receive (Adjusted OR = 1.36, 95% CI: 1.01, 1.84)after controlling for selected potential confounders.

Conclusion and Recommendation: Comprehensive knowledge on HIV among young adolescent girls was very low. Provision of sexual and reproductive health education for young adolescent girls improved their comprehensive knowledge on HIV in rural Eastern Ethiopia. HIV knowledge related interventions on early adolescents can be effective in improving comprehensive knowledge on HIV.

Keywords: Adolescent girls, young girls, HIV, HIV Knowledge, SRH education