Abstract Book

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Abstracts
Oral Presentations

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What shapes resilience among people living with HIV? A multi-country analysis of data from the PLHIV Stigma Index 2.0

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Background: Among people living with HIV (PLHIV), resilience – positive adaptation within the context of significant adversity – improves quality of life and health outcomes, including via facilitating uptake of and adherence to antiretroviral therapy. Understanding factors associated with resilience among people living with HIV (PLHIV) is critical for informing programming. We examined the influence of multi-level factors on resilience in three countries, using the PLHIV Stigma Index 2.0 survey.

Methods: The PLHIV Stigma Index 2.0 was implemented from 2017-2018 in Cambodia (n=1,207), the Dominican Republic (DR, n=891), and Uganda (n=391). We measured resilience with a newly-developed 10-item PLHIV Resilience Scale (range -10 to +10), which asks about the effect of HIV status (negative, neutral, or positive) on attainment of needs, such as ability to cope with stress, find love, or contribute to one's community. We used hierarchical multiple regression to assess associations between individual, interpersonal and structural/policy-level factors and resilience, controlling for potential confounders. Individual-level factors examined included internalized stigma (scored 0-6), HIV-related enacted stigma from community, key population-related enacted stigma, experiencing a human rights abuse (such as being arrested due to HIV status), and food/housing insecurity. Interpersonal-level factors included being in an intimate partnership, supportive disclosure experiences with family and friends, and HIV-related stigma from close family. Structural/policy-level factors – which were aggregate variables at province/district level – included community-level HIV-related enacted stigma, awareness of existing legal protections for PLHIV against stigma/discrimination, and food/housing insecurity.

Results: About 60% of respondents in each country were female. Mean time since HIV diagnosis was 11 years in Cambodia and seven in the DR/Uganda; ≥95% were on antiretroviral therapy. Mean resilience scores were 1.50 in Cambodia, 0.25 in the DR, and 0.69 in Uganda, and varied substantially by the six provinces/districts within each country (all p<0.001). In multivariable analyses, at the individual level, higher resilience was associated with lower internalized stigma (all countries; p<0.05 to <0.001) and no experience of human rights abuses in the DR and Uganda (p<0.05; no association, Cambodia). At the interpersonal level, higher resilience was associated with less HIV-related stigma from family in the DR only (p<0.05). At the structural/policy level, higher resilience was associated with greater community-level awareness of legal protections for PLHIV (Cambodia/DR; p<0.01, p<0.05; no association, Uganda) and community-level experience of HIV-related stigma (lower in Cambodia, higher in DR; both p<0.01). The greatest amount of variance in resilience was explained by the set of structural/policy-level factors in Cambodia and the DR (10% and 3%, respectively), and individual-level in Uganda (6%).

Conclusions: Factors at multiple levels, especially internalized stigma and human rights abuses, are linked to whether PLHIV in Cambodia, the DR, and Uganda report resilience. The substantial geographic variation in resilience, between and within countries, underscores the likely import of structural/policy-level factors and warrants attention in future research. To promote resilience among PLHIV, multilevel interventions addressing individual factors, interpersonal dynamics, and the structural/policy environment are required. Reducing internalized stigma and promoting community-level awareness that there are laws protecting PLHIV from stigma/discrimination, may be particularly important goals for such interventions.

2

Cost-utility analysis of dolutegravir- versus efavirenz 400mg-based regimen for the initial treatment of HIV-infected patients in Cameroon: 96-week results from the NAMSAL ANRS 12313 trial

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Background: WHO recommends a Dolutegravir (DTG)-based regimen as the preferred first-line antiretroviral treatment and a low-dose Efavirenz (EFV400)-based regimen as an alternative. We conducted the first cost-utility analysis of DTG(50mg)+TDF/3TC versus EFV(400mg)+TDF/3TC using data obtained from a single randomized clinical trial in resource-constrained setting, the NAMSAL ANRS-12313 trial in Cameroon.

Material & Methods: The trial was conducted in three hospitals in Yaoundé, Cameroon. We used clinical data and patient-reported outcomes (PRO) collected in 613 HIV-infected treatment-naïve adults (66% female) over the first 96 weeks of follow-up (from July 2016 to July 2019). We relied on a generic health status instrument (the SF-12 scale) to compute utility scores and quality-adjusted life-years (QALYs). Other PRO included perceived symptoms, depression, anxiety and stress. Costs were assessed from a health-system perspective and included the following cost items: antiretroviral drugs, outpatient consultations, laboratory tests, concomitant drugs and hospitalizations. For each regimen, we estimated unadjusted and multivariate-adjusted mean costs (in $US) and QALYs per patient, as well as incremental costs and QALYs per patient. Multivariate models were adjusted for sex, age, CD4 count, HIV RNA level and utilities at baseline. Uncertainty was assessed using scenarios and cost-effective price threshold (CEPT) analyses which indicates which strategy would be preferred for any price combination of DTG- and EFV400-based regimens.

Results: All PRO significantly improved between baseline and week 48, then remained stable until week 96 (or slightly impaired for the stress scale in women in the DTG arm, p=0.0434). No significant differences by arm and gender were found at week 96. In the base-case analysis considering the current 2020 prices of generic fixed-dose combinations (FDC) ($5.3 for DTG and $5.5/month for EFV400), mean total costs per patient were very similar in both arms ($884.2 ± standard deviation (SD) 179.6 for DTG and $892 ± 202.3 for EFV400, p=0.61). Adjusted incremental costs and QALYs over 96 weeks were -$1.2 [95% confidence interval: -30.6; 28.2] and -0.006 [-0.038; 0.026], respectively, suggesting that the two strategies were equally cost-effective at current generic prices and various cost-effectiveness thresholds. The results were very similar in the per-protocol analysis excluding protocol deviations (n=546).
Results of the CEPT analysis showed that the DTG-FDC would be preferred (1) if its own price decreased by at least 49% (below $2.7/month) or (2) if the price of the EFV400-FDC increased by at least 47% (above $8.1/month), all other things being equal. Conversely, the EFV400-FDC would be preferred (1) if its own price decreased by at least 31% (below $3.8/month) or (2) if the price of the DTG-FDC increased by at least 36% (above $7.2/month).

Conclusions: 96-week economic evaluation results suggest that, at current 2020 prices for generic FDC, DTG- and EFV400-based regimens are equally preferred for the initial treatment of HIV-infected patients in Cameroon. However, as antiretroviral prices differ between countries, depending on access to generics, we identify strategies with the best economic value for a large range of price combinations.

3

The effect of hazardous drinking on key HIV outcomes among HIV-positive men: Results from six population-based HIV Impact Assessments completed in sub-Saharan Africa (2015-2018)

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Background: Alcohol use disorders in men are associated with disruptions in the Human Immunodeficiency Virus (HIV) care continuum. However, the impact has not been well defined. We estimated the impact of hazardous drinking on key HIV outcomes using population-level data.

Methods: We conducted a pooled weighted multi-country secondary data analysis of the 2015-2017 cross-sectional population-based HIV Impact Assessments (PHIAs) completed in Malawi, Namibia, Eswatini, Tanzania, Zambia, and Zimbabwe accounting for the PHIA survey designs. Our analysis included men aged 18-59 years old who consented to and completed rapid HIV testing, had a plasma or dried blood spot viral load result, and answered the World Health Organization's Alcohol Use Disorder Identification Tool-Concise (AUDIT-C) questions. Viral load suppression was defined as HIV-positive individuals having <1000 HIV RNA copies per milliliter of blood. The AUDIT-C tool is a three-question tool that identifies persons who are hazardous drinkers. Among 53,019 men that were eligible for the surveys, 84.2% participated in the household interview, of which 90.0% agreed to blood draw. Of the 40,211 men that consented to blood draw, 99.2% answered the AUDIT-C questions. Adjusted prevalence ratios (aPR) were calculated to compare HIV outcomes between hazardous versus non-hazardous drinkers, adjusting for urban or rural residence, wealth quintile, and age.

Results: Among the 39,878 men who answered the AUDIT-C questions, 15.9% (95% confidence interval (CI): 15.5-16.4) were categorized as hazardous drinkers. HIV prevalence among non-hazardous drinkers   was 6.9% (95% CI 6.5-7.2), while HIV prevalence among hazardous drinkers was 9.9% (95% CI 9.1-10.8). Among hazardous drinkers, mean age was 39.4 years old (95% CI 38.7-40.1), 74.5% (95% CI 70.8-78.3) were married/cohabitating/living with a partner, and 45.1% (95% CI 41.2-49.0) completed secondary education. In addition, 47.5% (95% CI 42.9-52.1) of HIV-positive hazardous drinkers were unaware of their HIV-positive status. Of the men with AUDIT-C responses who tested HIV positive, hazardous drinkers were more likely to be unaware of their HIV-positive status (aPR =1.54, 95% CI 1.36-1.75), not on antiretroviral therapy (ART) (aPR=1.47, 95% CI 1.33-1.63), and not virally suppressed (aPR=1.29, 95% CI 1.18-1.42), compared to non-hazardous drinkers.

Conclusion: Hazardous drinking in men was associated with being unaware of HIV-positive status, not being on ART, and not being virally suppressed. Based on these survey findings, the use of the AUDIT-C screening questions at the health facility may be an effective tool to optimize Provider-initiated Testing and Counseling for HIV and identifying alcohol dependency disorders. Broadening community HIV programs to reach this at-risk population for HIV testing and treatment and providing treatment for alcohol dependency should also be considered.

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The frequency and yield of cryptococcal antigen screening among newly diagnosed and anti-retroviral therapy experienced HIV patients in rural Uganda

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Background: The World Health Organisation recommends screening for the cryptococcal antigen (CrAg), a predictor of cryptococcal meningitis, among newly diagnosed HIV positive patients with a CD4 count of <100 cells/mm3. The frequency and yield of CrAg screening among antiretroviral therapy (ART) experienced HIV patients is not well established in programmatic settings. We compared the frequency and yield of CrAg screening among newly diagnosed HIV patients with CD4<100 cells/mm3 and ART-experienced patients with suspected virological failure attending rural public health facilities in central Uganda.

Methods: We reviewed routinely generated programmatic reports on cryptococcal disease screening from 108 health facilities in 8 rural districts of Uganda from January 2018 to June 2019. A serum CrAg is used to screen for cryptococcal disease in public health facilities in Uganda and ART response is monitored using a viral load (VL) measurement. We compared the frequency and yield of CrAg screening among newly diagnosed HIV patients with CD4<100 cells/mm3 and ART experienced patients with suspected virological failure (VL >1000 copies/ml) using Pearson's chi-square test.

Results: Among the 15,417 newly diagnosed HIV patients during the period under study, 37.1% were offered a CD4 count measurement of which 16.4% (937/5,719) had a CD4 <100 cells/mm3. Also, of 71,860 ART experienced HIV patients established in care, 10% were reported to have suspected virological failure. CrAg testing was performed among 891 (95.1%) and 830 (11.5%) (p<0.001) newly diagnosed HIV positive with CD4<100cells/mm3 and ART experienced with suspected virological failure respectively. CrAg positivity was reported to be 13.8% (123/891) and 10.5% (87/830) (p=0.035) among newly diagnosed HIV positive with CD4<100cells/mm3 and ART experienced patients with suspected virological failure respectively. CrAg positivity among newly diagnosed and ART experienced patients differed by district (p<0.001) and level of health facility (p<0.001).

Conclusion: There was a low frequency of screening and a high yield of CrAg positivity among ART experienced HIV patients with suspected virological failure. The lack of guidelines for the screening of cryptococcal disease in this population contributes to the low screening rate and thus a large proportion of these patients with cryptococcal disease is missed. We recommend an evaluation of the cost effectiveness of screening ART-experienced HIV patients with virological failure for cryptococcal disease.

5

HIGH LEVELS OF HIV DRUG RESISTANCE IN ADULT PATIENTS WITH UNSUPPRESSED VIRAL LOAD, MEASURED THROUGH ROUTINE VIRAL LOAD PROGRAMME MONITORING IN SOUTH AFRICA, 2019

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Background: HIV drug resistance (HIVDR) surveillance guides selection of optimal antiretroviral therapy (ART) regimens. In South Africa, viral load (VL) monitoring of patients receiving care is performed across 16 laboratories; national VL testing coverage rates are >80% and 13% of 3.3 million people with a VL test performed during 2018 had unsuppressed VL (>1,000 copies/ml). We implemented nationally representative surveillance of HIVDR in adult patients with unsuppressed VL using leftover specimens sourced from patients who had undergone routine VL monitoring.

Methods: Two-stage sampling was used: first we selected a systematic random sample from all specimens submitted for VL testing at each VL laboratory between May–July 2019. From these, we selected a random sample of unsuppressed VL specimens from adult patients by laboratory for HIVDR testing using next generation sequencing and drug level testing (DLT) using liquid chromatography mass spectrometry. VL results and patient age were extracted from the laboratory information system.

Results: Of the 8202 VL test specimens collected as part of first stage sampling, 1053 had unsuppressed VL. From these, a random sample of 779 unsuppressed VL specimens were selected for further testing. DLT confirmed that 428 (55%) specimens had detectable levels of ART. The proportion of specimens with HIVDR is listed below:

All specimens:
Total Resistance: 72.1% (95% CI 66.78% - 76.86%); PI Resistance: 2.17% (1.33% - 3.49%); NRTI Resistance: 48.99% (44.72% - 53.27%); NNRTI Resistance: 70.51% (64.73% - 75.71%)

Detectable levels of drug:
Total Resistance: 85.56% (95% CI 79.71% - 89.94%); PI Resistance: 3.14% (1.94% - 5.05%); NRTI Resistance: 72.69% (66.42% - 78.17%); NNRTI Resistance: 83.73% (77.67% - 88.39%)

Undetectable levels of drug:
Total Resistance: 55.6% (95% CI 46.62% - 64.23%), PI Resistance 0.97% (0.31% - 2.96%); NRTI Resistance 19.93% (15.6% - 25.12%); NNRTI Resistance: 54.31% (45.01% - 63.33%).

Conclusions: Our survey showed that 72% of patients with unsuppressed VL in the public sector harbor resistance to ART. HIVDR was lower in patients that had undetectable levels of ART, presumably due to lack of drug selection pressure (p<0.0000). Notably, 45% of patients on ART and presenting for routine VL testing had undetectable levels of ART. The use of leftover specimens proved advantageous in that it allowed for proportion to size sampling, and reduced collection time and cost. Laboratory information systems are not reliable systems in which to assess association of HIVDR to clinical and sociodemographic information

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Monitoring and management of treatment failure among people on antiretroviral therapy in Mozambique: lessons learned to improve treatment effectiveness

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Background: Mozambique has one of the highest HIV burdens in the world, with a prevalence of 13.2% among adults. By the end of 2019, it was estimated that 1.3 million people living with HIV (PLHIV) were on antiretroviral therapy (ART). As more PLHIV access ART, it is imperative to monitor treatment effectiveness and manage therapeutic failure. Factors influencing treatment failure are drug resistance, drug toxicity, and poor adherence to ART. Currently, viral load (VL) monitoring is the preferred approach to diagnose and confirm treatment failure, defined as two consecutive viral load test results >1,000 copies/ml within a three-month interval with confirmed adherence between measurements. Patients on 1st line regimens at high risk of treatment failure or experiencing treatment failure should be switched to second-line regimens. National guidelines recommend that PLHIV on ART obtain a VL test at 6 months and every year thereafter for patients with VL test results <1000 copies/ml. For patients with suspected treatment failure (two consecutive viral load tests within three months >1000 copies/ml) a regimen switch is recommended. The objective of this study was to identify gaps in VL monitoring and regimen switch for patient management

Methods: A retrospective cohort of adult patients who initiated ART between January 1, 2017 and October 1, 2018 was followed through June 2019. Demographic information, date of ART initiation, pharmacy pick-ups, and VL test results were reviewed. Patients were categorized by VL testing status (did\did not have a VL test), VL test results (≤1000 copies/ml or >1,000 copies/ml), and ARV regimen at time of each drug pick-up. We used R version 3.6.0 to conduct the analysis.

Results: Of 492,652 adult patients on ART, 65% (319,713) were female and 35% (172,939) were male. Only 36% (178,039) had a VL test during the study period, of which 76% (135,438) had a VL result of ≤1000 copies/ml. Of all patients with a VL test, 38% (66,814) had a VL test within 8 months of initiation of ARVs and 28% (11,981) had two VL results >1000 copies/ml within 6 months, making them eligible for a regimen switch due to suspected therapeutic failure. However, only 3% (333) of patients with two VL results >1000 copies/ml had a regimen switch.

Conclusion: Among PLHIV on ART in Mozambique VL testing does not occur at the frequency recommended by the national guidelines. Moreover, the large majority of patients who met the criteria to be switched to a 2nd line regimen did not switch regimens. There is an urgent need to increase VL coverage while improving VL monitoring to check for therapeutic failure.

7

RAPID ANTIRETROVIRAL THERAPY INITIATION AND THE RISK OF MORTALITY AND LOSS TO FOLLOW-UP IN CHILDREN WITH HIV

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Introduction: In 2017, WHO recommended rapid antiretroviral therapy (ART) initiation in adults and children living with HIV (CLHIV) following demonstration of retention, viral suppression and survival benefits in adults; however, data on these benefits in CLHIV are scarce. Such data would inform implementation of rapid ART initiation in children. We determined the association between rapid ART initiation in CLHIV and 24-month all-cause mortality or loss to follow-up (LTFU).

Methods: We pooled data of a cohort of CLHIV(0-14years) who initiated ART between 2014-2017 at seven Baylor clinics in Botswana, Eswatini, Lesotho, Malawi, Tanzania(2 clinics), and Uganda. Rapid ART initiation was defined as initiating ART on the same day or within 2-7 days of entry into care. Those who initiated within 8-90 days were the comparison group. The outcomes were all-cause mortality and LTFU (≥90 days late for the last clinic appointment). Follow-up time accrued from ART initiation date to the earliest of LTFU, death, transfer-out, 24-months follow-up or database closure date (31-December-2017). Considering death and LTFU as competing events, we determined the association between rapid ART initiation, and mortality or LTFU using the Fine and Gray's sub-distribution hazard regression, adjusting for known risk factors of mortality and LTFU.

Results: Of the 3,299 participants (50% girls; 40% aged <2 years), 46% initiated ART within 8-90 days, 20% within 2-7 days and 24% on the same-day. Over 57,153 person-months, 254 (7.7%) died, 306 (9.3%) children were LTFU, 315(9.6%) transferred care and 2424(73.5%) remained in care.
The adjusted hazard risk of mortality was similar between children who initiated ART on the same-day [adjusted sub distributional hazard risk (aSHR) =1.10, 95% CI 0.79, 1.75] and those who initiated within 2-7 days (aSHR=1.05, 95% CI 0.77, 1.43) compared to those who initiated within 8-90 days. However, the adjusted hazard risk of LTFU was higher in children who initiated ART on the same day (aSHR=1.86, 95% CI 1.39, 2.49) and those who initiated within 2-7 days (aSHR=1.83, 95% CI 1.38, 2.43) compared to those who initiated within 8-90 days. Co-variates adjusted for in the analysis included baseline age, CD4, WHO stage, haemoglobin level, period of ART initiation and country income level.

Conclusion: Rapid ART initiation in children is associated with an increased risk of LTFU but not mortality. These data suggest rapid ART initiation in children is feasible, but loss to follow-up should be addressed.

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Effect of same-day ART initiation on early retention in Rakai, Uganda

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Introduction: Retention in care is key to achieving good clinical outcomes. With support from the President's Emergency Plan for AIDS Relief (PEPFAR) and CDC-Uganda, the Rakai Health Sciences Program supports the provision of antiretroviral therapy (ART) to about 120,000 People Living with HIV in 12 Districts in south-central Uganda. We assessed differences in retention at the first ART initiation follow-up within one-month of ART initiation and subsequent retention after the first ART follow-up. HIV infected patients who start ART on the day of HIV diagnosis, and those who delayed initiation by 1-7 or 8+ days after HIV diagnosis.

Methods: We conducted a retrospective longitudinal analysis among HIV infected adults 18 years and older who initiated ART during the test and start program between April 2016 –September 2019 in 20 HIV clinics of Rakai district. The primary exposure was time from testing HIV positive to initiation of ART classified as same day initiation, 1-7-day or ≥8 days post-HIV test. HIV testing was conducted using rapid HIV tests. We used Poisson multivariable regression to estimate adjusted relative risk (aRR) and 95% CI of non-return within one month of ART initiation.

Results: Of 1873 HIV infected patients with known dates of HIV test and ART initiation, 1147(61%) initiated ART on the same day of testing, 397 (21%) initiated within 1-7 days and 329 (18%) initiated ART after 8 days of the positive HIV test. Failure to return at the first ART follow-up occurred in 17.9%, 8.3 % and 6.1% among same day, 1-7 days, and 8+ days ART initiators respectively. After adjusting for gender, age, rural/urban setting, year of HIV testing and type of health care service center, compared to 8+ days initiation, same day initiators were twice unlikely to return at second visit (aRR= 1.84, 95%CI= 1.2- 2.9). Time lapse from HIV test to ART initiation was not a significant predictor of long-term retention among those who returned for the second visit.

Conclusion: Given that clients initiating ART on the same day have poorer retention post ART initiation, retention strengthening strategies should be implemented in tandem with same-day ART initiation efforts.

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Creating a safe space for key populations within health facilities: Experience from Montserrado County, Liberia

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Background: Liberia's HIV prevalence is 2.1% but heavily skewed toward key populations (KPs), with 9.8% prevalence among female sex workers and 19.8% among men who have sex with men. KPs are the least likely to access HIV testing and lifesaving antiretroviral treatment due to pervasive stigma; therefore, inclusive approaches for KPs to freely access HIV services are needed. While designated community-based safe spaces or drop-in centers have been successful in other countries, they are deemed not viable in Liberia due to stigma and safety concerns. The USAID/PEPFAR-funded LINKAGES project led by FHI 360 presents a unique experience of creating "safe spaces" within existing health facilities.

Methods: LINKAGES uses an integrated, coordinated community and health facility model in Liberia. Nine civil society organizations were competitively selected to spearhead peer outreach and HIV testing, to partner with 11 high-burden health facilities in Montserrado County to ensure linkage to treatment for those who are HIV positive. Facility staff were trained and mentored to provide non-stigmatizing, KP-friendly HIV services, and linkage retention coordinators were hired for each facility to help KP individuals navigate HIV services including linkage to treatment.

Results: From May to September 2019, 6,946 KP individuals were reached with comprehensive HIV services in Montserrado County. For the first time a total of 2,364 KP individuals were recorded as openly accessing services in the 11 health facilities. Peer outreach workers collaborated with health facility staff to mobilize people for HIV testing and return to treatment those who had stopped. In the community and facilities, 4,250 KP individuals (76%) were tested for HIV, of whom 249 (6%) were diagnosed HIV positive and 242 (97%) initiated treatment. With the help of linkage retention coordinators and peer navigators, 793 PLHIV who had stopped treatment were successfully brought back to treatment.

Conclusions:
•   Partnerships between civil society organizations and health facility staff can lead to quick gains in getting all PLHIV on treatment and contribute to epidemic control.
•   Adequate sensitization and mentorship of health facility staff to be receptive to KPs has created health facilities that are "safe spaces" for KPs.

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Adverse event notification and tracking among HIV positive patients on ART: Lessons from a tele-health centre in Kampala.

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Background: Uganda made strides in achieving 95:95:95 UNAIDS strategy with 84% PLHIV knowing their status, 87% on antiretroviral treatment and 88% virally suppressed. Low retention in care remains a major driver for suboptimal viral suppression with factors like adverse drug reactions leading to treatment stoppage. Currently, there are no streamlined platforms for PLHIV to report ART adverse drug events (ADEs) for timely follow up support. We report lessons from a telehealth support centre for a large public health program covering 9 districts of Lango Subregion, Northern Uganda

Setting: The Medical Concierge Group supports HIV/AIDs care and treatment in the RHITES-North Lango project through provision of SMS and toll free voice lines for remote support. HIV positive clients consented for mobile health (mHealth) support, had their demographics including age, gender and ART care facility collected. Information on ADEs inquiries and advice offered was collected via electronic medical records and analysis done using MS Excel 2019 for data from January to December, 2018.

Results: 16,062 patients consented for mHealth support from 15 facilities across 9 districts of the Lango sub-region. 78% of ADEs reporting came through the voice platform and 22% through SMS. System categorization of ADEs were 31.4% CNS (dizziness, headaches, nightmares); 27.1% Musculoskeletal (joint pains, body weakness); 20.1% skin (rashes, discoloration); 10.7% GIT (nausea, vomiting, diarrhea, reduced appetite); 6.3% GUS (erectile dysfunction, urine discoloration) and 4.4% ENT/Eye complaints (itchiness, discoloration, discomfort). 80.4% complaints were remotely resolved, the remaining 19.6% referred and followed up for outcome.

Conclusion: mHealth approaches (SMS and voice call-ins) provide feasible means of tracking ADEs among HIV positive patients in real time. Scaling up mHealth platforms for routine care and support of ART patients will improve adherence hence help achieve the UNAIDS 95-95-95 target.

11

Does navigated linkage to care work? A cross-sectional study of active linkage to care within an integrated non-communicable disease-HIV testing centre for adults in Soweto, South Africa

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Background: South Africa is the HIV epidemic epicentre; however, non-communicable diseases (NCDs) are estimated to be the most common causes of death by 2030. Evidence-based strategies, including same-day treatment initiation, aim to improve medication initiation, care retention, and reduce morbidity/mortality. To improve identification and initiation of care for HIV and NCDs, we assessed linkage to care in a HIV Testing Services (HTS) Centre before and after integrated testing for NCDs with navigated linkage to care.

Materials & Methods: This two-phase prospective, cross-sectional study was conducted at an adult HTS Centre in Soweto, South Africa. Phase 1 (February-June 2018) utilised standard HTS services including blood pressure (BP), rapid HIV testing, sexually transmitted infections (STI)/Tuberculosis (TB) symptom screening, with passive referral for clients with abnormal results (BP ≤ 90/60 or ≥140/90 mm/Hg; HIV-infection; 1+ STI and/or TB symptom). Phase 2 (June 2018-March 2019) further integrated blood glucose, cholesterol, and chlamydia rapid testing, with optional navigated referral (ride to local referral clinic of choice for clients with abnormal results; HbA1c ≥ 6.5 mmol/L and/or random glucose ≥ 11 mmol/L; total cholesterol ≥5 mmol/L; chlamydia infection; multiple referrals were possible). Enrolled referred clients completed a structured telephonic follow-up survey to confirm linkage to care/treatment initiation ≤3 months post-screening. Socio-demographics, screening results, time to linkage to care/treatment initiation, and navigated referral uptake were reported. Data were analysed using Fisher's exact, chi-squared, Kruskal Wallis, and Student's T-tests. Thematic analysis was conducted for open-ended survey responses.

Results: Of 314 referred participants, the largest proportions were individuals between the ages of 35–44 years (32.5%), female (67.8%), single (69.7%), had some high school education (42.2%), and unemployed (43.2%). We recorded 320 referrals (82 Phase 1 and 238 Phase 2, six enrolled in both phases), of which 40.0% were for HIV-infections, 11.9% for STIs, 6.6% for TB, and 28.8% for high/low BP. Of the Phase 2 referred participants, 29.4% were for glucose and 23.5% for cholesterol. Integrated NCD-HTS had significantly more clients linked to care for HIV (76.7%[n=66/86] vs 52.4%[n=22/42], p=0.0052) and clients reached care within shorter average time (6-8 days [Interquartile range (IQR):1–18.5] vs 8–13 days [IQR:2–32]). Integrated NCD-HTS clients initiated HIV/STIs/BP treatment on average more quickly (5–8 days [IQR:1–21] vs 8–20 days [IQR:2–29]). More participants chose passive over active referral (89.1% vs 10.9%; p<0.0001). The main reason participants rejected active referral was preference for going alone (55.7% [n=39/70]). Reasons for not attending referrals were being busy (41.1% [n=39/95]) and not ready/refusing treatment (31.6% [n=30/95]). Reasons provided for not initiating treatment after attending referrals were normal results found at referral clinic (49.7% [n=98/196]), providers prescribed lifestyle modification/monitoring (30.9% [n=61/196]), and clinic's poor flow and congestion and/or further testing required (10.7% [n=21/196]).

Conclusions: Ensuring linkage to and initiation of care/treatment is critical to reduce disease-specific morbidity/mortality. Actual time to treatment is far longer than same-day across disease platforms, even with navigated referral. Strategies must address health systems barriers at the point of care. Additional research may identify best strategies for timely treatment initiation.

12

For Each Hour a Patient living with HIV spends in the Health Facility, the Probability of Being Retained in Care Decreases: Results from a Patients' Satisfaction Survey in Mozambique.

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Background: In Mozambique, twelve-month retention in care rates among antiretroviral therapy (ART)-treated adults was 68% with equally low early retention (six-month) rates also being reported (2018). As retention is known to be influenced by a myriad of factors, we sought to understand the relationship between time spent in the health facility (HF), patient satisfaction and six-month retention among those receiving HIV services in Zambézia Province, Mozambique.

Materials & Methods: HIV-positive adults (≥15 years of age) completed exit-interviews in 20 HF to assess their satisfaction with services between August 2017-January 2019. Patient data were extracted from electronic patient files. Overall patient satisfaction (covering eight items, scored using a Likert scale) was measured and correlated with self-reported time spent in HF (defined as time from arrival to exit at HF) via a generalized linear regression model. Restricted cubic splines were used to model the non-linear effect of overall satisfaction on retention, while adjusting for HF type and locale. Mediation analysis, with overall scores as the mediation variable, was used to estimate the indirect effect of time spent in HF on six-month retention (defined as having at least one ART pick-up in the period between five and a half and eight and a half months from interview date).

Results: Data of 4,388 adults were evaluated. Mean age was 32 years (standard deviation (sd) = 10); 3,264 (74%) were female; 3,291 (75%) resided in urban districts; and 950 (22%) had no formal education. Overall mean satisfaction score was 72% (sd 6%). Time spent in the health facility was inversely correlated with satisfaction (Spearman correlation = -0.63). Varying the time spent in HF from 1.7 to 4.0 hours (first to third quartile) led on average to a decrease in the overall satisfaction score of 18% (95%CI: 17%-19%). Using mediation analysis, we estimated that for each hour a patient spent in the HF, the probability of being retained in care at six months decreased by 7%.

Conclusions: Patient satisfaction was relatively high and driven largely by time spent at the health facility, which was also associated with retention in care. Differentiated models of care to decongest crowded health facilities (e.g. 3-monthly or community drug dispensation, 6-monthly clinical consultations, or other models) need to be urgently taken to scale to decrease patient wait times and time spent at health facilities.

13

Gaining traction: Promising shifts in gender norms and intimate partner violence during an HIV prevention trial in South Africa

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Background: HIV and violence prevention programs increasingly seek to transform gender norms among participants, yet how to do so at the community level, and subsequent pathways to behavior change, remain poorly understood. We assessed shifts in endorsement of equitable gender norms, and intimate partner violence (IPV), during a three-year community-based trial of an HIV 'treatment as prevention' intervention in rural South Africa.

Methods: Cross-sectional household surveys were conducted with men and women ages 18-49 years, in eight intervention and seven control communities, at 2014-baseline (n=1,149) and 2018-endline (n=1,189). Gender norms were measured by the GEM Scale. Intent-to-treat analyses assessed intervention effects and change over time. Qualitative research with 59 community members and 38 staff examined the change process.

Results: Two-thirds of men and half of women in intervention communities had heard of the intervention/seen the logo; half of these had attended two-day workshop(s). Regression analyses showed a 17% improvement in GEM score among men (p<0.001) over time, and a 13% improvement among women (p<0.001), irrespective of the intervention. Younger men (ages 18-29) also had decreased odds of reporting past-year IPV perpetration over time (aOR 0.40; p<0.05), while younger women had lower odds of reporting IPV over time in intervention vs. control communities (aOR 0.53; p<0.05). Qualitative data suggest that gender norms shifts may be linked to rapidly-increasing media access (e.g., "There is a change…it was rare to find DSTV [satellite TV service] in our community some years ago… But nowadays every household has DSTV, everyone owns smart phones") and consequent exposure to serial dramas modeling equitable relationships. A male community member said: "…in the television there are different stories of love, you see two people have different views in their relationship. You can see them having arguments then later they sit down to resolve their differences and plead for forgiveness to each other…[this] is able to unite two people…they end up enjoying their relationship again." Workshop activities that fostered couple-communication skill-building and critical reflection around gender norms further supported IPV reductions. Another male community member related, "According to what I have learned in [the program]…we must always communicate with each other. I was not communicating with her [before]… if I wanted to do something, I was doing it. She was always complaining, arguing and sometimes I was abusing her physically. But [the program] has changed that, we always communicate nowadays."

Conclusions: There was a population-level shift towards greater endorsement of equitable gender norms between 2014-2018, potentially linked with escalation in media access. There was also an intervention effect on reported IPV among women, although not among men. Societal-level gender norm shifts can create enabling environments for interventions to find new traction for violence and HIV-related behavior change, particularly if those interventions include critical reflection about gender norms and skill-building around equitable couple communication and conflict resolution.

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Patient-reported outcomes after direct-acting antiviral treatment for chronic hepatitis C in West and Central Africa: the ANRS 12311 TAC trial

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Background: The advent of direct-acting antivirals (DAA) has revolutionized the treatment of chronic hepatitis C virus (HCV) infection, with up to 95% cure rates, shorter duration of therapy and a much better safety profile than interferon-based therapies. While the availability of DAA is progressing in resource-limited settings, patient-reported outcomes (PROs) remain poorly documented among DAA-treated patients in this context. Sofosbuvir-based treatment was shown to be safe and effective in HCV-treatment naïve patients with chronic HCV infection who participated in the non-randomized, international (Senegal, Cameroon, Côte d'Ivoire) trial ANRS-12311 TAC. This study aims to document PROs after DAA treatment among participants in the TAC trial.

Materials and methods: The 120 trial participants received a 12-week course of an interferon-free regimen containing sofosbuvir and weight-based ribavirin (HCV genotype 2, 40 patients), or sofosbuvir and ledipasvir (HCV genotypes 1 and 4, 80 patients). PROs were collected using face-to-face questionnaires administered at enrolment (Week (W) 0), during treatment (at W 2, 4, 8 and 12) and after treatment end (W24 and W36). Questionnaires included an assessment of health-related quality of life (HRQL) (MOS SF-12 v2 scale), fatigue (three items from the Piper Fatigue scale), and self-reported symptoms (35-symptom list from the ANRS AC24 scale). The distribution of physical (PCS) and mental (MCS) HRQL, fatigue (global score and percentage of patients reporting discomforting fatigue), and self-reported symptoms (total number, percentage of patients reporting each given symptom) were described and compared between W0 and W36 using Wilcoxon-rank sum tests for continuous variables, and Mc Nemar tests for categorical ones. Analyses were performed globally and by treatment received.

Results: Globally, significant improvements were observed between W0 and W36 for all PROs. Physical and mental HRQL scores increased from 49.3 [38.6; 54.8] at W0 to 52.3 [46.4-56.1] at W36 (p=0.003) in median [interquartile range] for the PCS; and from 48.6 [41.3-52.8] to 51.0 [44.3-54.4] (p=0.013) for the MCS. Decreases in the fatigue score (3.5 [2.0; 5.0] to 2.0 [0.0; 4.0], p<0.001), the rate of patients reporting discomforting fatigue (28.3% to 13.5%, p<0.001) and the total number of self-reported symptoms (7 [3; 11] to 3 [0; 7], p<0.001) were also observed. Twenty out of the 35 symptoms were reported by more than 20% of the patients at W0 versus only 4/35 at W36. The symptoms most reported at W0 and W36 were articular pain (47.9% and 32.7%), fatigue (46.2% and 30.6%), and flu-like symptoms (46.2% and 29.1%). Analyses stratified by treatment highlighted a significant improvement in physical HRQL only in patients treated with sofosbuvir/ledipasvir, and a significant improvement in mental HRQL only in patients receiving sofosbuvir/ribavirine. However, improvements in fatigue and symptoms scores were found for both treatments.

Conclusions: Sofosbuvir-based DAA therapy is associated with a significant improvement of patient-reported outcomes six months after treatment end in HCV-treatment naïve patients from Central and West African countries chronically infected with genotype 1, 2 or 4 HCV. Along with encouraging efficacy results on DAA, these findings support the need for scaling-up of these treatments in Africa.

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Is the use of creatinine clearance test at baseline for PrEP enrollment necessary in resource-constrained settings?

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Background: The World Health Organization recommends use of creatinine clearance (CrCL) test as a diagnostic tool for monitoring kidney function and a measure to exclude HIV negative individuals at substantial risk of HIV acquisition from enrolling on oral pre-exposure prophylaxis (PrEP). Individuals with CrCL less than 60mL/min are generally excluded from PrEP. Through the Ministry of Health PrEP implementation science project under the USAID/PEPFAR-funded LINKAGES project in Malawi, we present our experience in the use of CrCL test as a baseline for PrEP enrollment.

Methods: This study aimed at assessing the acceptability, feasibility and tolerability of oral PrEP among female sex workers (FSWs) aged 18 and above. FSWs enrolled for PrEP, consented to blood draws at three drop-in centres (DICs) in Blantyre. We collected whole blood samples at months 0, 1, 3 and 6 visits and transported to Queen Elizabeth Reference Laboratory. Using Mindray BS400 device, serum was separated from whole blood, CrCL tests were conducted and results received. Cock croft-Gault equation formula was used to calculate CrCL.

Results: From February to December 2019, the study recruited 443 FSWs from the three DICs with an average CrCL of 128 ml/min (IQR: 37) and an average age of 25 (IQR: 7). Of the 443 participants, only one (0.2%) registered a CRL of less than 60 ml/min at baseline. This was the only individual dropped from the study based on CrCL. The remaining 442 had CrCL above the recommended 60ml/min. The CrCL distribution among participants were as follows; 80 FSW with CrCL between 61 and 95 ml/min, 207 FSW with CrCL between 95 to 130 ml/min, 115 FSW with CrCL ranging from 130 to 165. The remaining 40 had CrCL of more than 165 ml/min.

Conclusions: The continued use of CrCL test as exclusion criteria to PrEP enrollment in resource-constrained settings, where CrCL tests are normal in 99.8 % of eligible clients and unavailable in primary public health facilities is invariably cost ineffective and appear more of a barrier than facilitator to PrEP scale-up. The use of CrCL test may not be necessary as a screening test at baseline for PrEP enrolment especially in resource-limited settings.

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Trends in transmitted drug resistance in a cohort of ART-naive HIV-1 infected individuals in Ethiopia

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Background: Transmitted drug resistance (TDR) is associated with suboptimal treatment outcomes and there are limited data from Ethiopia. The aim of this study was to assess HIV-1 genetic diversity and transmitted drug resistance mutations among ART-naive newly diagnosed asymptomatic HIV-1 infected individuals in Addis Ababa, Ethiopia.

Method: This was a prospective study amongst 51 newly diagnosed ART-naive HIV-1 infected patients seen in our center in Addis-Ababa from June to December 2018. Partial HIV-1 pol region covering the complete protease (PR) and partial reverse transcriptase (RT) regions of blood samples were amplified and sequenced using an in-house assay. Drug resistance mutations were examined using calibrated population resistance (CPR) tool version 6.0 from the Stanford HIV drug resistance database and the International Antiviral Society-USA (IAS-USA) 2019 mutation lists.

Result: Using both algorithms, 9.8% (5/51) of analyzed samples had at least one TDR Mutation. TDR mutations to Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) were the most frequently detected mutation (7.8% and 9.8%, according to the CPR tool and IAS-USA algorithm, respectively). The mutations observed by both algorithms were K103N (2%), Y188L (2%), K101E (2%), and V106A (2%) but only E138A (2%) was observed according to IAS-USA. Y115F and M184V (mutations that confer Resistance to NRTIs) were detected according to both criteria's in a single study participant (1/51, 2%) who also had NNRTIs associated mutation (Y188L). Similarly, TDR mutation to protease inhibitors were found to be low (G73S; 2%) seen only with the CPR tool. Phylogenetic analysis showed that all 51/51 (100%) of the study participants were infected with subtype C virus.

Conclusion: This study showed significant polymorphism at the PR and RT regions associated with TDR and confirmed homogeneity in the circulating HIV-1 clade C. We will recommend routine baseline genotypic drug resistance testing in all newly diagnosed HIV infected patients before initiating treatment. This will aid the selection of appropriate therapy in achieving 90% of patients having undetectable viral load in consonance with the UN targets.

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Syndemic of Hepatitis B and C and their coinfection with HIV in Rwanda: role of unsafe medical practices and sexual behaviors

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Background: This study aims to describe the burden of the hepatitis B, C and HIV coinfections and assess the associated risk factors.

Methodology: This analysis utilized data from viral hepatitis screening campaign including individuals aged > 15 years conducted in Rwanda from April to May 2019. Information on socio-demographic, clinical and behavioral characteristics of participants were collected. Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) screening were performed with HBsAg and HCV Ab using SD Bioline Rapid tests testing and HBV DNA and HCV RNA for individuals screened positive. Multivariate logistic regressions were used to assess factors associated with HBV, HCV and HIV, mono and co-infections.

Results: Of 156,499 individuals screened, 3465(2.2%) were HBsAg positive and 83%(2872/3465) of them had detectable HBV DNA. A total of 4382(2.8%) were positive for anti-HCV and 3163(72.2%) had detectable HCV RNA. Overall, 38(0.2%) had HBV/HCV co-infection, 153(0.1%) HBV/HIV co-infection, 238(0.15%) HCV/HIV coinfection and 3(0.002%) had triple infection. Scarification or operation from traditional healers was associated with all infections. Healthcare risk factors such as a history of surgery, transfusion was associated with higher odd of HIV infection while physical trauma was associated with higher odd of HIV and HBV/HIV coinfections.

Conclusions: Overall mono-infections were common and there were differences in risk factors distribution for various infections. HIV, HBV and related co-infections were associated with high risk sexual behaviors and healthcare risk factors. These findings highlight magnitude of co-infections and differences in underlying risk factors that are important for designing prevention and care programs.

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A gap analysis and Total Quality Leadership and Accountability intervention triples HIV testing yield among Key Population in Zambia

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Background: Studies among key population (KP) in sub-Saharan Africa have shown HIV prevalence as high as 70% among female sex workers (FSW), 33% among men who have sex with men (MSM) and 14.3% among transgender (TG) persons. Program data from the USAID Open Doors Project (ODP), mirrored the general population data at around 9.3%. A Program and Technical Quality Assessment (PTQA) was conducted in November 2017 to identify gaps and barriers to achieving higher HIV yield among KPs in Zambia. Identified gaps included ineffective targeting approaches, lack of risk assessment and inadequate hotspot mapping. We report how implementation of the PTQA recommendations contributed to increased HIV case finding KPs in Zambia.

Methods: Total Quality Leadership and Accountability (TQLA) approach was adopted to address the identified gaps at all 8 project sites. The approach included technical and managerial interventions. Managerial inputs included site/hotspot mapping and prioritization using Pareto principles, daily granular level data collection and reporting, daily situation room meetings, real time leadership feedback, and need based re-deployment of site managers and outreach workers. Technical inputs included counsellors' re-orientation, KP sensitivity training, and introduction of newer testing modalities; index and partner notification services, social network testing, self-testing, testing in hotspots and conducting after hours and weekend clinics.

Results: Comparing the period before and after the TQLA interventions, HIV positivity rate (yield) among the KPs tripled -from 9.3% to 30% (11% to 34% among FSW, 6% to 19% among MSM and 5% to 22% among transgender). Number of KPs who received HIV test results increased from 9,679 (7,805 FSW, 1,654 MSM, 220 TG) to 11,567 (8,611 FSW, 2,635 MSM, 321 TG) after the intervention; an increase of 20%. HIV test results before and after interventions were significantly different in FSW and MSM except TG. FSW 21.6% vs 78.4%, p<0.00001, MSM 5.6% vs 19.8%, p=0.00094, TG 4.9% vs 22.1%, p=0.180, 95% CI. Number of clients declining to be tested reduced by 36%, from 110 to 70 between the two-time periods.

Conclusions: TQLA, a combination of leadership and technical interventions improved case finding among KPs in Zambia. Therefore, scaling up TQLA in KP programs has potential to contribute to the attainment of an AIDS free generation.

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Rates of retention among people living with HIV on antiretroviral treatment in Nigeria: A 5-year (2013-2017) retrospective analysis.

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Background: Nigeria has made progress towards increasing access of antiretroviral treatment (ART) to people living with HIV (PLHIV) through decentralization of ART facilities and increasing the number of ART sites from 820 (2013) to 1,639 (2018). Retaining PLHIV on ART has proven to be a huge challenge in Nigeria. We conducted a retrospective analysis of data from sampled facility records of PLHIV on ART in all states in Nigeria to determine the rate of retention on treatment over a five-year period.

Method: This was a retrospective cross-sectional study conducted in the 36 states and the Federal Capital Territory between March to May 2019. A structured questionnaire was used to abstract secondary data on retention of PLHIV on treatment from paper-based and electronic medical records of a nationally representative sample of 21,877 adult clients and 2,141 children living with HIV who were initiated into treatment between January 1st, 2013 and December 31st, 2017 in 284 randomly selected health facilities providing HIV services. Retention was estimated by calculating the proportion of clients who had a drug pick up history in the corresponding year of assessment. Rates of retention of PLHIV on treatment at 12, 24, 36, 48 and 60 months were assessed. STATA14.2 was used for data analysis.

Results: Retention was highest at 1 year (76%) after initiating treatment and dropped consistently over the 5 years period with 71%, 69%, 65% and 58% at 2, 3, 4 and 5-year respectively. The retention rate was consistently higher among females than males and consistently declined across all the age groups over the 5-year of review, with the adolescents and young people (AYP) aged 15–24 years having the lowest retention rates. Those with baseline CD4 count >500cells/mm3 had the least decline (63.8%) at 5 years while those with baseline CD4 count < 200 cells/mm3 (61.5%) had the highest decline in rate. The retention rate was also consistently higher among students than those who were employed, and the unemployed had the lowest retention rates over the 5-year period.

Conclusion: The findings suggest that about two-fifths of PLHIVs initiated on treatment are lost to the system by their fifth year on treatment. Retention rates differed across age, sex, employment rate, and CD4 count. Developing strategies that will ensure retention on ART is critical to prevent the development of resistant HIV strains and its transmission to the population. Specific programs targeting gender attributes of males and females and AYP aged 15-24 years should be designed to increase the proportion of males and AYP aged 15-24 years that are retained over time. Intensified efforts should be made to scale-up HIV awareness and testing programs to enhance early identification of new HIV infection and initiation on treatment.

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Incident HIV infection among pregnant women in the South African 2017 Antenatal Survey: assay-based incidence measurement

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Background: Incident HIV infection during pregnancy accounts for a significant (26%) proportion of mother-to-child HIV transmission in South Africa. We measured HIV incidence nationally among pregnant women and described the characteristics of recently infected pregnant women.

Methods: Between 1 October and 15 November 2017, we conducted a nationally representative cross-sectional survey among pregnant women aged 15–49 years old attending antenatal care (ANC) in 1,595 public facilities. Blood specimens were collected from each pregnant woman and tested for HIV. Plasma viral load (VL) and Limited Avidity Antigen (LAg) assay tests were performed on HIV-positive specimens to identify recency. Data on age, age of partner, and marital status were extracted from medical records or collected through interviews. Women whose specimens were classified as recent by LAg assay and with VLs >1000 copies/mL were considered as recently infected. Incidence was estimated as an annual instantaneous rate using the computational package in R. Survey logistic regression was used to examine factors associated with being recently infected.

Results: Of 10,049 HIV-positive participants with LAg and VL data, 1.4% (136) were identified as recently infected. The overall annual HIV incidence among pregnant women was 1.5% [95% Confidence interval (CI): 1.2%–1.7%]. In the multivariable analysis, being single (Adjusted odds ratio, aOR: 2.9, 95% CI: 1.7–5.1) or co-habiting (aOR: 3.3, 95% CI: 1.7–6.5), compared with being married, and women aged 15–24 years with a partner >5 years older compared with women aged 15–24 years with a partner ≤5 years older (aOR: 3.2, 95% CI: 2.1–4.9) were associated with higher odds of recent infection.

Conclusion: We found the lowest HIV incidence estimate for pregnant women in South Africa. Women aged 15-24 years in age-disparate relationships, single and cohabiting women should be prioritized for HIV testing and prevention interventions.

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Transcriptional analysis of lymph node derived follicular CD4 T cells reveal novel phenotypic markers and functions of T follicular regulatory (TFR) cells

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Introduction: Recent studies have identified a novel subset of regulatory CD4+ cells termed T follicular regulatory (TFR) cells that share phenotypic properties with T follicular helper (TFH) cells and can migrate to follicular regions of the lymph nodes (LN). However, the precise phenotype, function and role in immune responses is poorly understood. Moreover, most TFR studies have been conducted in animal models, such that the relevance to human infection is poorly understood. Thus, this study sought to define the transcriptional signatures that distinguish TFR from TFH cells and to elucidate their functions during HIV infection.

Methods: Excisional LNs obtained from 5 HIV infected individuals who are on therapy were used to conduct these studies. TFR (CXCR5+PD-1+CD25+CD127-) and GC TFH cells (CXCR5hiPD-1hi) were FACS-sorted from LN mononuclear cells (LMCs) and used in Seq-Well for single-cell RNA-Seq assay to compare the transcriptional profiles of the two subsets. Digital droplet PCR (ddPCR) was used to measure IL-10 and IL-21 mRNA expression levels and B cell-TFR/TFH culture assays were used to evaluate B cell helper functions of the two subsets.

Results: Analysis of single cell-RNA seq data showed that TFH and TFR subsets clustered differently in a two-dimensional space, indicating that they are transcriptionally distinct. As expected, TFR cells expressed higher levels of IL2RA and FOXP3 mRNA, both of which are canonical markers of regulatory T cells whereas, TFH expressed significantly greater levels of BCL-6, CXCR5 and PDCD1. Importantly, our analysis identified novel markers such as NINJ1 (p<0,0001) and Hap1(p<0,001) that were significantly highly expressed in TFRs relative to TFH. Intriguingly, ddPCR showed that TFRs expressed IL-21 mRNA at comparable levels to TFHs, suggesting that TFRs may also have B cell helper function. Consistent with this observation, B cells co-cultured with TFRs showed an increased in IgG antibody production compared to unstimulated controls.

Conclusion: Our study identified novel markers that distinguish TFRs from TFHs and show that beside regulatory function, TFRs have the potential to help B cells, with implications for HIV vaccine and cure studies.

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Short-Cycle Therapy in HIV-infected adults: 4 days on / 3 days off with combinations containing rilpivirine

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Background: Short-cycle therapy (SCT) has proven to be a safe and effective alternative to the standard every-day regimen for HIV-1 infected patients, as demonstrated in several previous studies both in high- and in low-income countries. By reducing the number of doses taken by the patient, SCT has the advantage of improving tolerability and quality of life, as well as reducing the cost of antiretroviral therapy (ART).
While many previous studies on SCTs focused on combinations containing efavirenz, in this study we focused only on combinations containing rilpivirine, which are known to be better tolerated.
Primary aim of the study was to monitor virological suppression (viral load <50 copies) 24 weeks after the implementation of SCT with a scheme of four consecutive days on/three consecutive days off therapy. Secondary aims were to observe the modifications in CD4+ cell counts and CD4+/CD8+ ratio as well as the occurrence of potential adverse events and virological resistance.

Materials and Methods: A single-centre retrospective observational study, conducted in the HIV outpatient clinic of Verona University Hospital from March 2019 to November 2019.
Patients included in the study were adults with HIV-1 infection, in ART for more than 12 months with a three-drug standard-dosage combination containing rilpivirine, with at least 12 months of virological suppression (<50 copies/ml), a good CD4+ cells count (>200/ul for more than 6 months) and no evidence of drug resistances or failures with their regimens before the beginning of SCT. Included patients started taking their treatment in a short course scheme of four consecutive days on therapy (Monday to Thursday) and three days off treatment (Friday to Sunday). Routine tests including HIV viral load and CD4+ cell count were performed at week 4, 8, 12 and 24. After 24 weeks of SCT, data were collected and retrospectively analyzed for all the patients.

Results: 30 patients were included in the study and their mean age was 48 years. 4 of them (13.3%) were female. 28 patients were in therapy with tenofovir alafenamide/emtricitabine/rilpivirine (Odefsey), while 2 with combination of abacavir/lamivudine and rilpivirine. At week 24 no real virological failure no viral blip was observed. Both CD4+ cells count and CD4+/CD8+ ratio showed no significant variations in the period of observation. No adverse events were reported by the patients, and no severe alterations were found in the blood analyses. Most of the patients reported to prefer the SCT over the standard treatment regimen, however, two patients decided to switch back to seven-days-a-week regimens, for their own convenience, even if the virological suppression was maintained.

Conclusions: SCT with three-drugs ART containing rilpivirine could be a feasible option for optimization of ART in selected HIV patients. The advantages of SCT, combined with its effectiveness, could make it a good option especially in low-resource settings.

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Perceptions, preferences and access to community-based HIV testing services among Men who have Sex with Men (MSM) in Côte d'Ivoire

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Background: Dedicated HIV testing settings have been developed for Men who have Sex with Men (MSM) since the end of the 2000s. These facilities are supported by community-based NGOs and promoted by peer educators, who are trained in the use of rapid HIV tests. As such, this community-based HIV-testing should be adapted to reach the MSM populations. However, little is known about the direct MSM' point of view regarding such community-based services.

Materials and methods: A respondent-driven sampling telephone survey of 518 MSM was conducted in 2018 in Côte d'Ivoire. The questionnaire examined knowledge, practice, satisfaction, and preferences regarding MSM-community-based HIV testing services.

Results: Only half of the respondents (47%) reported knowing a community-based HIV testing site dedicated to MSM. Of these, 79% had already attended one. They reported that they were welcomed, that they felt confident, that confidentiality was respected, and 95% said they would return to one of these sites.
In terms of preferences, 37% of respondents said they preferred undifferentiated HIV testing sites (i.e., "all patients" or "general population" HIV testing sites), 34% preferred community-based sites, and 29% had no preference. Those who preferred community-based HIV testing reported better listening and feeling more confident, particularly because of the presence of other MSM. Conversely, those preferring undifferentiated HIV testing sites mentioned the lack of discretion and anonymity of community-based sites and wanting to avoid the gaze of others. They feared to be recognized by other patients in a context where they want to keep secret their sexual preferences.
Men who were furthest away from the MSM community, defining themselves as bisexual/heterosexual, attracted primarily to women, not knowing a dedicated MSM NGO, or not having disclosed their homo/bisexuality to one member of their family were more likely to prefer undifferentiated HIV testing sites.

Conclusion: Community-based HIV testing is well suited for MSM who identify as homosexual and those close to the MSM community while maintaining undifferentiated HIV testing is essential for others. Both types of activities need to be maintained and developed. It is also crucial that healthcare professionals in undifferentiated HIV testing sites are properly trained in non-judgemental reception of people with diverse sexual practices and identities.

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Index-linked HIV testing for children and adolescents in health facility and community-based settings in Zimbabwe: Findings from the B-GAP study

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Background: Children with HIV infection are often diagnosed late when they present with HIV-associated sequelae. Index-linked HIV testing has been shown to increase yields. Offering caregivers, a choice of different test delivery models may also improve uptake. We evaluated the uptake and yield of index-linked HIV testing for children and adolescents in facility and community-based settings in Zimbabwe.

Methods: HIV positive clinic attendees were offered HIV testing for children in their households aged 2-18 years who were previously untested or had tested HIV-negative >6 months ago. Three options for testing were offered: i) facility-based ii) home-based by a lay healthcare provider and iii) provision of an oral HIV test to the caregiver was investigated. Logistic regression was used for analysis adjusting for clustering by index.

Findings: From nine clinics 9927 individuals were screened and 6062 eligible children identified (51.5% female, median age 8; IQR 5-13). Most indexes chose facility-based testing (66.5%), followed by home-based (27.9%) and caregiver provided testing (5.6%) for their children. Test uptake was 60.0% (3638/6062). Children were more likely to be tested if the index selected any of the community-based testing models (OR 1.49, 95% CI 1.22-1.81) when compared to facility-based testing. Female index sex was associated with at least one eligible child having a test (OR 1.53 95% CI 1.34-1.74). In multivariate analysis the odds of having a test were higher for girls when compared to boys (aOR1.10, 95%CI 1.03-1.19). Increase in child age category was associated with decreased odds of having a test. HIV prevalence was 1.1% (95% CI 0.74-1.43) and yield was 0.6% (95% C1 0.44-0.86).

Interpretation: Despite low HIV yield our study findings provide evidence for the effectiveness of index-linked HIV testing and community-based approaches. These strategies may improve uptake of testing and likelihood of diagnosing children living with HIV.

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Alarming burden of Dual-Class HIV-1 Drug Resistance among Adolescents calls for innovative Antiretroviral Strategies: Baseline findings from the Ready-Study (EDCTP TMA 1027)

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Background: Antiretroviral treatment failure is considered to be a rising concern among Adolescents living with HIV (ADLHIV). Beyond poor adherence to antiretroviral medications, emergence of HIV drug resistant strains could be implicated as causes of treatment failure. Transitioning from pediatrics to adult-healthcare requires a successful antiretroviral treatment (ART) among ADLHIV. This appeals for determination of patterns of HIV Drug Resistance (HIVDR) in order to select optimal therapeutic options for ADLHIV in resource-limited settings (RLS) like Cameroon. We explored the genotypic profile of adolescents from urban and rural settings to help propose effective strategies for transition into adult care.

Materials and methods: This was a cross-sectional study carried out from March to July 2018 among vertically infected ADLHIV aged 10-19 years and receiving HIV care within urban and rural health facilities of the Centre Region of Cameroon. Clinical data of these adolescents were abstracted from their medical files and their blood samples collected for viral load testing. Virologic failure (VF) in our study was defined as viral load above 1000 copies/ml. Among adolescents with VF, viral RNA was extracted from plasma using Qiagen viral RNA mini kit. To amplify HIV-1 pol gene protease and reverse transcriptase regions, a sensitive nested RT-PCR was performed in duplicate for each sample. Sanger-sequencing was performed using the "Genetic Analyzer 3500 Applied Biosystem". The sequences were edited online with Recall software and consensus sequences submitted to Stanford University HIV Drug Resistance Database to generate Drug Resistance Mutations (DRMs) and HIV-1 subtyping. Phylogeny was done and p value <0.05 was considered significant.

Results: Out of 298 ADLHIV on ART enrolled in the study (212 urban versus 86 rural), the sex predominance was female in urban (55.9%) versus male in rural (52.3%). The median age was higher in urban (15 [IQR: 13-18] years) compared to rural (13 [IQR: 11-17] years) as well as median duration on ART(7 [IQR: 3-10] years compared to 4 [IQR: 2-7] years, respectively); and the majority was on first-line ART (79.4%[162/204] urban versus 98.5%[66/67] rural, p<0.0004).VF rate was high globally 42.3%(126/298) and per setting 41.0%(87/212) in urban versus 45.3% (39/86) in rural p=0.49. HIV sequences were available for 65 (51.6%) of those experiencing VF (39 urban versus 26 rural) and HIVDR was found in 98.4% of them, with 98.4% NNRTI, 89.2% NRTI and 4.6% PI/r globally. In urban versus rural settings respectively, HIVDR was 97.4% versus 100%; NNRTIs-based DRMs were 97.4% (38/39) versus 100% (26/26) ; NRTIs based DRMs were 89.7%(35/39) versus 88.5%(23/26) p=0.87. PI/r-based DRMs were present in urban settings only 7.6% (3/39). In both settings, major DRMs were M184V (90.8%) followed by K103N (58.5%) and Y188L (30.2%) and there was a high rate of dual class resistance: 92.3 %(36/39) urban versus 88.46 %(23/26) rural p=0.59. All were HIV-1 group M, with 69.2% CRF02_AG, 9.2% A1 and 6.1% F2 and 15.4% others with different pure subtypes found in rural settings.

Conclusion: Our findings suggest that first generation NNRTIs are no longer suitable for use among ADLHIV. Secondly, both in urban and rural settings, VF is consistent with high rates of dual class HIVDR. There is urgent need to adopt the UNAIDS recommendations on replacing NNRTIs with molecules of high genetic barrier like Darunavir and Dolutegravir for proper transition of ADLHIV into adult care.

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Striving towards HIV epidemic control through reaching a population in correctional facilities in Namibia

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Introduction: Namibia is aiming to reach HIV epidemic control and made significant stride in responding to the HIV epidemic with 86% of People living with HIV (PLHIV) knowing their status, 96% on treatment and 91% virally suppressed in the general population. Despite the progress made, there are still special populations that the ministry of health and social services (MOHSS) need to reach to attain total epidemic control, and communities in a closed setting like correctional facilities are among those that need to be reached.

Objectives: To identify the gaps in the provision of HIV/TB care services in the correctional facilities through site assessment and implement improvement interventions.

Methods: A standardized tool for conducting the assessments was adapted from the Site Improvement through Monitoring Systems (SIMS), which was developed by PEPFAR to assess the quality of HIV care services. A team selected from MOHSS, The Namibian Correctional Service (NCS) and Centers for Disease Control (CDC) conducted joint site assessment visits between July and August 2019 to all 14 correctional facilities in Namibia using the assessment tool. Interviews were held with Medical Officers/Nurses, Health Assistants/Counselors, together with case management and programs/ rehabilitation coordinator officers where possible. A review of monthly and quarterly reports and any relevant records was done. Also, the assessment included visiting the offenders living quarters where possible. No interviews were conducted with the offenders. The results were to be used to identify gaps and implement improvement interventions.

Results: The NCS facilities can accommodate up to 5,319 inmates; however, at the time of assessment, the occupancy rate was 81% (n=4296). Of the 4296 inmates, 518 (12%) were HIV positive and on ART.
All 14 correctional facilities had the essential services available for the provision of HIV and TB care either on-site or through outreach teams from the nearest MoHSS healthcare facilities or through referral mechanisms by escorting offenders to the closest public facilities. All NCS facilities except one implemented directly observed therapy (DOT) for the inmates. Services assessed were HIV testing, care and treatment, services to support HIV treatment linkage, retention and viral suppression for offenders, HIV prevention services, TB prevention and control, sexually transmitted infection screening and availability of essential healthcare commodities. Whereas there are 14 NCS facilities; two facilities in Khomas region have stand-alone facilities for males and females; however, their data is aggregated as one. Overall, Elizabeth Nepemba (88%), Evaristus Shikongo (88%), Walvis Bay (82%), Oluno (82%) and Windhoek (82%) offer most services on-site. Out of 13 facilities assessed, 8 (62%) facilities falls below 70% percent of service availability to inmates on-site.

Conclusion: Conducting the assessment was one of the initial steps towards identifying the gaps in the provision of quality HIV care services in the correctional facilities. The MoHSS, in collaboration with NCS, has developed an improvement plan that will be implemented to improve NCS HIV care services as the country targets to reach the 95/95/95 and achieve HIV epidemic control.

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Stakeholder participation in the establishment of One-stop shops and Key Population-friendly facilities: descriptive lessons from the FHI 360 GF project

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Background: Recent epidemiologic evidence shows that HIV incidence and prevalence is highest among Key populations (KP) in Nigeria. In addressing the barriers to accessing Antiretroviral treatment (ART) services and Sexually transmitted Infection (STI) services by KP, different HIV programs have designed differentiated service delivery (DSD) models to improve service uptake. An effective stakeholder engagement is important to reaching the target population with quality ART and STI services.

Description: The Global fund HIV program in Nigeria has a mandate of establishing One-stop-shops (OSS) and Key-Population friendly Health facilities (KPfHF) across 10 states in Nigeria. These centres will increase access to comprehensive HIV care and treatment services for Female Sex Workers (FSWs), Men who have sex with Men (MSM), People who inject drugs (PWID) and Transgender people (TG). The FHI360 /Principal Recipient (PR) worked with Sub Recipients (SRs) on the Global fund optimising investment for impact project to engage stakeholders at the National and Sub-national levels towards achieving this mandate.

Methods: At the National level, the PR engaged the National Key Population Secretariat, Federal Ministry of Health, National Agency for the control of AIDS (NACA), Network of People living with HIV/AIDS in Nigeria (NEPWHAN) and other Implementing partners and donors.
At the Sub- national level, the SRs engaged the KP secretariat, State Ministries of Health (SMoH), State agencies for Agency for the control of AIDS (SACA), State chapters of NEPWHAN, Community-based organisations (CBOs) and Health care providers (HCPs).
Method of engagement included National and State-level meetings, advocacy visits and focused group discussions. In addition, these stakeholders were also involved in decision making processes and regularly updated with progress.

Lessons Learned: Engagement of Stakeholders led to their increased buy-in on the project activities. In the various states, different stakeholders willingly provided support for program take-off such as creation of state KP help desks to support the KP community, provision of temporary office spaces for OSS operations, upgrade of hospital facilities to accommodate safe spaces for clients from the KP community and KP community peer referral to the OSS and KPfHF established by the project.
However, stakeholder engagement increased the lead time for take-off of OSS operations in some locations.

Conclusions/Next Steps: Stakeholder engagement is a critical success factor for the implementation of Key Population programs. Adequate lead time for these stakeholder engagements should be factored in the planning of programs for the Key population.
The FHI 360 GF project will continually engage the KP community and all other stakeholders throughout the project lifecycle.

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Intensified Active tracking of clients lost to follow-up from HIV Care: Experiences from an HIV program in south-central Uganda.

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Background: Retention in HIV care is sub-optimal in many HIV treatment programs in sub-Saharan Africa. With support from the President's Emergency Plan for AIDS Relief (PEPFAR) through CDC-Uganda, Rakai Health Sciences Program supports provision of antiretroviral therapy (ART) to about 120,000 HIV clients in 12 Districts in south-central Uganda. We report results of an active program to track adult clients LTFU at 74 health facilities across the 12 Districts.

Methods: LTFU was defined as failure to return to the clinic for at least one month from the missed scheduled appointment date, despite immediate follow up through home visits and phone calls. For Clients classified as LTFU during April to June quarter 2019, we increased the frequency of follow-up, shortened interval between follow-up attempts and utilized all leads to locate clients deep in the community. Outcomes of follow-up were tabulated.

Results: Of the 1162 LTFU, 585 (50.3%) were located, 12 (1.0%) were deceased and 565 (48.6%) were not located. Among located clients, 503(86%) had disengaged from care and 82 (14%) had self-transferred to other facilities. Of those who disengaged from care, 498 (99%) were counselled and re-engaged into care at the primary clinic and 5 (1%) refused re-engagement. There were no statistically significant differences in characteristics of ART duration, mode of care, and suppressed viral load at last visit for located silent transfers and clients unable to locate.

Conclusion: An active tracking system was able to locate about half of patients LTFU and was very successful in reengaging traced clients. Active tracking systems could significantly optimize retention in care. However, the large number of untraceable patients points to the need for additional strategies to accurately track patients.

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Prevalence, risk and protective factors for common mental disorders among young people living with HIV compared to their uninfected peers from the Kenyan Coast: A cross sectional study

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Background: Comorbidity of HIV with common mental disorders (CMDs) such as depression and anxiety has been well described from studies recruiting adults living with HIV, including those from sub Saharan Africa (SSA). However, in SSA, little is known about CMDs among young people living with HIV (YLWH). This study aimed at: a) estimating the prevalence of CMDs among YLWH compared to their uninfected peers; b) investigating whether HIV status is an independent predictor of CMDs in young people; c) investigating the correlates of CMDs among YLWH.

Materials and methods: Between November 2018 and September 2019, 819 young people, 18-24 years old, were recruited from Kilifi and Mombasa Counties, Coast of Kenya. The 9-item Patient Health Questionnaire (PHQ-9) and the 7-item Generalized Anxiety Disorder scale (GAD-7) were among the sensitive measures administered via audio computer assisted self-interview (ACASI) to all recruited study participants. A cut-off score of ≥10 on the mental health measures was used to define positive screen for CMDs. Univariate and multivariable logistic regression analyses were used to determine demographic, psychosocial and HIV-related clinical correlates of CMDs.

Results: Data were analyzed for 812 participants (406 living with HIV and 406 community controls without HIV). The mean age of the study participants was 20.9 (SD=2.1) years. Prevalence of CMDs was significantly high in YLWH compared to their uninfected peers i.e. 29% vs. 12%; p<0.001 for depressive symptoms, 19% vs. 8%; p<0.001 for GAD symptoms, and 16% vs. 5%; p<0.001 for comorbid depressive and GAD symptoms. HIV status was an independent predictor of depressive symptoms (aOR 1.8, 95% CI 1.1, 2.8; p=0.01) and CMD comorbidity (aOR 2.1, 95% CI 1.1, 3.9; p=0.02) but not GAD symptoms (aOR 1.5, 95% CI 0.9, 2.6; p=0.14). Risk factors for depressive symptoms were negative events in life and perceived HIV-related stigma. Low adherence to antiretroviral therapy and perceived HIV-related stigma significantly increased the risk for GAD symptoms and CMD comorbidity. On the other hand, increasing social support and health-related quality of life were protective against CMDs.

Conclusion: In this setting, YLWH have significantly higher burden of CMDs compared to their uninfected peers. The time to test youth friendly interventions seeking to address CMDs in the context of HIV is now. In this and similar settings, YLWH at high risk of CMDs can benefit from early detection, treatment or referral if screening for CMDs is made an integral component of the services offered to YLWH at the HIV clinics. Furthermore, community level intervention strategies seeking to strengthen social capital, improve quality of life or reduce HIV-related stigma may be beneficial to YLWH.

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Organisation du financement du dépistage du VIH à base communautaire en Côte d'Ivoire : une recherche d'efficience potentiellement contre-productive ?

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Contexte: Depuis le début des années 2010, le President's Emergency Plan for AIDS Relief (Pepfar) et le Fonds mondial de lutte contre le VIH/ sida, la tuberculose et le paludisme, ont accentué leurs stratégies d'efficience basées sur la gestion axée sur les résultats (GAR). L'objectif ici est d'analyser les effets de ces stratégies sur la mise en œuvre locale des activités, à travers l'exemple du dépistage du VIH à base communautaire.

Matériels et Méthodes: L'étude a été menée en 2015 et 2016 dans trois districts sanitaires de la Côte d'Ivoire. Une cartographie des acteurs impliqués dans le dépistage à base communautaire et des entretiens semi-directifs ont été réalisés auprès de dix-huit membres des ONG dites «communautaires» : coordonnateurs de projet (8), chargés de suivi et évaluation (5), superviseur des activités (1), conseillers communautaires (4).

Résultats: Les deux bailleurs mettent en place des systèmes de financement qui se déclinent sous forme de chaines à plusieurs maillons d'acteurs (bailleurs, organisations intermédiaires, ONG communautaires), de trois niveaux pour le Pepfar à quatre ou cinq pour le Fonds mondial. A chaque niveau, des comptes rendus et validations des données mensuelles, trimestrielles et annuelles sont exigées comme conditions de décaissements des fonds. Leur caractère chronophage, conjugué au manque de ressources humaines et/ou techniques des ONG communautaires génèrent d'importants retards. Au final, sur une année, seuls huit à neuf mois (sur douze) sont généralement consacrés à la mise en œuvre effective des activités de dépistage ; et chaque mois, seules deux semaines (sur quatre) y sont dédiées.

Conclusion: Tandis que les bailleurs de fonds portent une attention croissante à l'obtention de données précises et actualisées dans le but d'améliorer l'efficience de leurs stratégies, celles-ci produisent des effets contre-productifs, qui tendent à nuire à la mise en œuvre effective des activités. Un juste équilibre entre mise en œuvre et suivi et évaluation est ainsi à trouver, en fonction des capacités humaines et techniques des acteurs.

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Cost of antiretroviral therapy services among patients who achieved viral suppression: A case study of 9 ART clinics in Namibia

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Background: Test and Treat and Differentiated Service Delivery were two main policy initiatives adopted by the Namibian government to promote viral suppression among HIV patients and improve program efficiency. Few studies have examined total and per-patient cost of antiretroviral therapy (ART) services among patients who achieved viral suppression in Sub-Saharan Africa. This study estimated per patient-year cost for patients who attained viral suppression at nine clinics and examined variation in unit cost by program characteristics.

Materials and Methods: Data on program description, program costs, and patient volume by subgroups were collected through administrative data abstraction and staff interviews at nine ART clinics from October 1, 2017 to September 30, 2018. Clinics were purposefully selected based on their geographic location, service delivery model and level in the Namibian health system to maximize the relevance for decision-making in Namibia. Patients were categorized into groups by ART patient type (new vs. established), age (adult [20+ years old], adolescent [10-19 years old], child [3-9 years old], infant [0-2 years old]), and clinical status (fully suppressed [viral load < 40 copies/ml], low-level viremia [LLV, 40 copies/ml < viral load < 1000 copies/ml]). Costs of ART services were estimated from a program perspective using ingredient-based approach and allocated to each patient subgroup based on their frequency and intensity of service use (case-mix index), presented in 2018 USD. Per patient-year cost of HIV care and treatment (C&T) were estimated by viral suppression status. Associations between per patient-year cost and proportion of stable patients and patient volume at program level were examined. Analyses were conducted using Stata SE 14.2.

Results: The number of ART patients at the study sites ranged from 1,000 to 7,000 per year, with 87.2% to 98.3% of them being adults. Full suppression rates varied from 62.2% to 90.7% among adults, 44.4% to 76.7% among adolescents, and 25% to 92.3% among children. The annual cost per virally suppressed patient and per LLV patient averaged $481 and $379 respectively. Variations by age were: $449 and $361 for adults, $866 and $629 for adolescents, $760 and $529 for children, and $782 and $771 for infants. Laboratory services, dispensed ARVs and personnel were most costly C&T services. The results suggest that HIV C&T services do not exhibit economies of scale (correlation coefficient = 0.40 between unit cost and patient volume at program level) likely due to variation in cost by patient subgroups. Clinics with higher proportions of stable patients had lower per-patient costs (correlation coefficient = 0.92).

Conclusions: Findings from this study highlighted variation in unit cost to achieve viral suppression by different patient subgroups. It is important to take patient composition into consideration in budget planning and resource allocation across clinics. Further scaled-up study is warranted to validate results from these nine clinics.

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Using a Quality Improvement Collaborative Approach to Improve Tuberculosis prevention therapy coverage in the Kavango region, Namibia.

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Introduction: People living with HIV (PLHIV) have a higher risk of up to 20 times of developing active tuberculosis (TB), which is the top cause of mortality in PLHIV globally. A course of TB preventative therapy (TPT) using isoniazid can reduce the risk of PLHIV developing TB by almost 60%.   Whereas Namibia adopted TPT use for PLHIV in 2005, the national coverage has remained low and was estimated to be 35% in June 2018 in the healthcare facilities providing HIV care services.
Objectives:
1.   To improve TPT coverage in patients that were enrolled in HIV care before 31 July 2018 from 32% in July 2018 to 90% by February 2020
2.   To ensure 90% of eligible patients initiated on ART from August 2018 to February 2020 also receive TPT

Methods: Eight high volume ART healthcare facilities in the Kavango region that provide care to almost 12,500 PLHIV were selected to participate in the national quality improvement Collaborative (QIC) initiative involving three other regions. The QIC aims to improve selected HIV quality indicators including; TPT coverage which was defined as either being on TPT or having completed TPT within the reporting period. A team of three healthcare workers (an ART nurse, data clerk and medical officer or pharmacist) per facility were invited to attend the inaugural QIC learning session in July 2018. Regional HIV clinical mentors and nurse mentors were trained as quality improvement (QI) coaches while the national QI coaches provided overall coordination and data management.
Each facility set up a QI team and identified change ideas to test using the model for improvement. Some of the change ideas tested and adopted included; developing TPT registers for patient tracking, using reminders to initiate TPT and updating patient records. Patients were divided into two cohorts to track TPT coverage effectively. The backlog cohort included patients that initiated ART before 31 July 2018 while the new cohort involved patients that started ART from first August 2018 and beyond.
Facilities compiled and submitted monthly reports using an Excel template and the regional QI coaches validated the reports before forwarding them to the national level for review and aggregation.

Results: In patients that initiated ART before 31 July 2018 (backlog cohort), TPT coverage gradually improved from a baseline of 32% (n=11026) in July 2018 to 65% by December 2018 (n=10794) and 94% (n=10033) by December 2019.
In patients that newly initiated on ART from August 2018, cumulative TPT coverage increased from 29% (n=122) in August 2018 to 93% (n=1563) by December 2019.

Conclusion: A QI collaborative model applied with a dedicated team of healthcare workers, and QI coaches led to significant improvement in TPT coverage. The facility teamwork and QI learning sessions were critical to the success of the initiative.

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It is better if you are going to test yourself…": attitudes, test preferences and challenges of HIV self-testing among female sex workers in eThekwini, South Africa: the Siyaphanta study

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Background: Promoting awareness of HIV serostatus is important for high-risk populations such as female sex workers (FSW). Despite high testing rates in FSW populations, FSW often do not test regularly. HIV self-testing (HIVST) offers promise for increasing regular testing among FSW.

Materials & Methods: We conducted a qualitative study with 53 FSW 18 years and older, via 7 focus groups (3 with HIV-positive FSW, 4 with HIV-negative FSW) and in-depth interviews (IDIs) with four FSW of unknown HIV status, working in 5 hotels. We explored attitudes about HIVST, its acceptability, test type and challenges among FSW in eThekwini, South Africa. Data were managed and analyzed in NVivo using inductive and deductive approaches.

Results: HIVST was regarded as advantageous because "you are alright and comfortable and there is no stigma" – private, confidential and convenient, without gossip related to sex work by healthcare providers. Reliability of method and fear of pain were key factors driving choice of oral versus finger prick HIVST method. Oral was preferred over finger prick HIVST by most, because it was painless and easy to use. However, some FSW would only consider oral HIVST if trained to use it. Those who preferred finger prick believed the blood-based test was more reliable than the oral test because of perceptions that HIV cannot be transmitted via saliva and familiarity with finger prick tests. A few expressed no preference for type of self-test. Some FSW described how self-testing could facilitate testing with boyfriends, but most did not think clients would agree to self-test with them and that this could lead to loss of clients. Post-test counselling and support were seen as instrumental in mitigating potential stress and facilitating treatment in the event of an HIV diagnosis: "…if I'm by myself, you never [know] what can run through my head; I can maybe have a jump through that window."

Conclusions: HIVST, with choice of test method, post-test counselling and support services, and training on use of HIVST kits, could increase the frequency of routine testing among FSW. This could lead to improved HIV serostatus knowledge and potentially impact risk behavior.

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Case Series of Urethrocutaneous Fistulas After Voluntary Medical Male Circumcision for HIV Prevention—15 African Countries, 2015–2019

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Background: Voluntary medical male circumcision (VMMC) is an HIV prevention strategy recommended by UNAIDS and WHO in high-HIV prevalence areas to partially protect men from heterosexually acquired HIV. The President's Emergency Plan for AIDS Relief (PEPFAR) has supported over 22.8 million VMMCs in 15 African countries, primarily in patients aged ≥10 years. Urethrocutaneous fistulas, abnormal openings between the urethra and penile skin through which urine can escape, are rare, severe adverse events (AEs) that can occur with VMMC. This analysis describes fistula cases, identifies possible risks, mechanisms of injury, and offers mitigation actions.

Materials and Methods: PEPFAR conducts passive surveillance on severe post–VMMC AEs, including urethral fistulas. Demographic and clinical program data were reviewed from all reported fistula cases (2015 to 2019); descriptive analyses were performed. Age was dichotomized as <15 and ≥15 years and an incidence ratio was calculated by age group using total VMMCs performed by age.

Results: In total, 40 fistula cases were reported. Median client age for fistula cases was 11 years and 39/40 (98%) occurred in clients aged <15 years. Fistula incidence was greater among clients <15 compared to ≥15 years old (0.61 vs. 0.01 fistulas per 100,000 VMMCs, incidence ratio 49.6 [95% CI = 6.8–361.1]). Fistula was the initial AE diagnosis in 30/40 (75%). A second VMMC-related AE was diagnosed in 26/40 (65%), with infection being most common (20/40, 50%), typically following fistula onset. Median time from VMMC surgery to appearance of fistula was 18 days (IQR 14–28).

Conclusions: Urethral fistulas were significantly more common in patients under age 15 years. Thinner tissue overlying the urethra in immature genitalia may predispose to injury when variations in surgical technique occur, such as depth of frenular hemostatic suture placement. The delay between procedure and symptom onset of 2–3 weeks indicates partial thickness injury or suture violation of the urethral wall as more likely mechanisms of injury than intra-operative urethral transection. Most infections were diagnosed after fistula onset and unlikely to be an inciting factor. This analysis informs PEPFAR's recent decision to change VMMC eligibility policy, raising the minimum age to 15 years.

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Association between DREAMS interventions and HIV risk behaviors of young women's male sex partners in Rakai, Uganda

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Background: PEPFAR has supported the Determined, Resilient, Empowered, AIDS-free, Mentored, Safe (DREAMS) initiative for Ugandan adolescent girls and young women (AGYW) aged 15-24 years since 2016. However, key interventions primarily targeted AGYW (who were mobilized through outreaches and selected based on risk) and not their male sex partners. We assessed if these interventions had indirect impact on HIV risk behaviors of their male partners.

Methods: In a cross-sectional study, we evaluated the association between the number of key dreams interventions (up to three) received by HIV-negative AGYW and HIV risk behaviors reported by their male partners enrolled in the Rakai Community Cohort study (RCCS) between June 2018 and November 2019. The interventions included HIV testing services, combined socioeconomic approaches, and a behavioral change intervention ("stepping-stones"). Male partners' HIV risk behaviors included self-perception of HIV risk, having other sexual partners, not being circumcised, inconsistent condom use with other sex partners, and perpetration of physical violence. Adjusted Prevalence Ratios (aPR) were estimated using modified Poisson regression, adjusting for age difference and/or partners' HIV status where they contributed significantly to the model.

Results: We identified 533 couples, in which 66(12.4%), 34(6.4%) and 14(2.6%) of the AGYW had received 3, 2, and 1 DREAMS interventions respectively and 419(78.6%) received no intervention. Compared to no intervention, male partners of AGYW who received 2 or 3 interventions were more likely to have other sex partners (PR = 1.88, CI1.24– 2.85, and PR =1.49, CI1.02- 2.16, respectively). Partners of AGYW who received 2 interventions were more likely to be uncircumcised (PR = 1.51, CI=1.05- 2.17).and partners of AGYW who received 3 interventions were more likely to report perpetration of physical violence (aPR=1.42, CI=1.01-2.00). Partners of AGYW who received 1 intervention were more likely to report inconsistent condom use with other partners (PR=1.10, CI=1.03-1.17). No association was observed with self-perception of HIV risk.

Conclusions: A positive relationship was observed between number of DREAMS interventions received by AGYW and HIV risk behaviors reported by their male partners, potentially suggesting self-selection of girls with higher perceived partner risk into DREAMS program (i.e. potential for reverse causation.)

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Current approaches for identifying and managing HIV treatment failure among children, adolescents, and young people in sub-Saharan Africa: Multi-country experience from the New Horizons Collaborative

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Background: The New Horizons (NH) Advancing Pediatric HIV Care Collaborative is a multi-sectoral partnership designed to strengthen healthcare systems, improve access to the antiretroviral drugs darunavir and etravirine, and to improve HIV outcomes for treatment-experienced children, adolescents, and young people living with HIV (CAYLHIV). Currently, nine sub-Saharan African countries (Cameroon, Eswatini, Kenya, Lesotho, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe) and organizational partners (Johnson & Johnson, Elizabeth Glaser Pediatric AIDS Foundation, Partnership for Supply Chain Management, International AIDS Society Collaborative Initiative for Paediatric HIV Education and Research, and Right to Care) participate. In this abstract, national strategies to improve antiretroviral treatment (ART) options for treatment-experienced CAYLHIV are presented.

Methods: During the 2019 NH workshop, Ministry of Health (MOH) representatives and HIV experts from eight NH member countries shared national approaches for identifying and managing treatment failure among CAYLHIV. During interactive joint sessions, workshop attendees (MOH representatives, HIV experts, youth representatives, and global technical experts) reviewed existing gaps and barriers in identification of treatment failure and management of second- and third-line ART. We conducted multi-country analyses to determine common barriers and potential innovative health system strengthening solutions.

Results: Country representatives from Cameroon, Eswatini, Kenya, Lesotho, Nigeria, Uganda, Zambia, and Zimbabwe presented on national approaches and 72 workshop participants contributed to interactive discussions. Common health system challenges, effective interventions, and potential solutions could be grouped in three categories. For identification of treatment failure challenges-solutions included: a) low viral load (VL) coverage-tracking of medical charts for VL testing plus better documentation of VL results within each medical record; b) long turnaround times for VL results-scaling up access to point-of-care VL using spoke and hub models; c) limited capacity to translate VL results into action- implementation of multidisciplinary teams for ART and VL results management. For management of treatment failure challenges-solutions included: a) dependence on national committees to switch patients to an advanced treatment option-capacity building to decentralize systems of managing treatment failure, including through South-to-South technical assistance; b) lack of health care workers with sufficient expertise to switch patients to a new regimen-use of treatment failure management algorithm plus mentorship and coaching of healthcare workers from expert clinicians on HIV treatment; c) stock-outs of second- and third-line antiretroviral drugs-improving communication between regional or district technical working groups and national level on stock-out risks plus better forecasting of need for second- and third-line antiretroviral drugs.

Conclusion: In spite of increased attention to the needs of treatment-experienced CAYLHIV and the need for improved access to advanced ART options, constraints within the health system in sub-Saharan Africa persist. NH collaborative member countries and organizational partners have identified promising practices and innovative approaches to decentralize access to second- and third-line ART management, streamline VL algorithms, and increase capacity of healthcare workers.

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Traditional healers can increase uptake of HIV testing among adults of unknown serostatus: results from a cluster randomized pilot study in southwestern Uganda

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Background: Human immunodeficiency virus (HIV) infection and transmission continue unabated, despite biomedical advances in prevention, diagnosis, and treatment. In low resource settings, such as rural Uganda, a major barrier to epidemic control is poor uptake of HIV testing services. Low rates of HIV testing have been attributed to both structural and socio-cultural variables. Low density of formal biomedical facilities, lack of transportation, and long queues to access healthcare services contribute towards poor uptake of voluntary HIV testing. In addition, communities in sub-Saharan Africa frequently receive healthcare services from informal providers, such as traditional healers, who do not routinely discuss or offer HIV testing.

Materials & Methods: We conducted a cluster randomized trial in southwestern Uganda in between August 2019 and January 2020. Traditional healers were randomized to offer point-of-care HIV testing (Oraquick©) with pre- and post-test counseling (n = 9 clusters) versus protocolized usual care (n = 8 clusters). Usual care entailed offering HIV education with referral to existing clinic-based HIV testing services. Adults receiving care from participating healers were eligible for participation if sexually active and reported not having received an HIV test within the prior 12 months. The primary outcome was receipt of an HIV test within 90 days of study enrollment. We conducted qualitative interviews with key informants at 90 days follow-up to gather contextual information regarding outcomes.

Results: 475 participants were enrolled (intervention = 250, control = 225). Participant age, income and gender were similar among study arms. HIV testing was received significantly more often among participants treated by traditional healers randomized to the intervention group, compared with participants treated by healers in the control group (100% vs 15%, adjusted risk ratio 6.43, 95% CI 4.7-8.7, p<0.01). Ten (4%) participants in the intervention arm were newly diagnosed as HIV-infected, compared to no participants in the control arm (p=0.02). Five of ten newly diagnosed HIV-positive participants linked to HIV care within 90 days of enrollment. Qualitative data from intervention arm participants describe HIV testing delivered by traditional healers as highly acceptable. One newly HIV-infected participant stated, "I would not have known my HIV status if [the healer] had not tested me. These healers will make a big difference in our communities … the community trusts them so much". Healers in the intervention arm described the HIV testing program as "a great experience". Participants in the control arm reported long queues at the biomedical clinic, lack of funds, and lack of transportation as primary barriers to voluntary HIV testing.

Conclusions: Informal providers, such as traditional healers, can effectively increase uptake of HIV testing for adults of unknown serostatus in endemic regions. Our novel approach holds promise to identify HIV-infected adults in communities where conventional biomedical outreach has limited impact. Further work is needed to understand low rates of linkage to care among newly diagnosed HIV-infected participants.

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Positive Effects of Intensified Preventive Calls/Home Visits on Early Retention Among Adults Newly Initiated on Antiretroviral Therapy in Zambézia Province, Mozambique

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Background: In Mozambique, early retention rates among antiretroviral therapy (ART)-treated adults remained low in 2018, ranging from 65% to 69% at one and three months, respectively. To bolster rates, patients newly initiated on ART received services in the first three months including phone calls and/or monthly supportive home visits performed (for non-pregnant/lactating adults) by Counselors and Peer Educators, and (for pregnant/lactating women [PLW]) by Mentor Mothers. In February 2019, activities were intensified in 20 health facilities in Zambézia Province, focusing on technical support to counselors, volunteers and mentor mothers, data triangulation and weekly process measures monitoring. The effect on early retention was evaluated.

Materials & Methods: Routinely collected aggregated program data extracted from the electronic patient database of HIV-positive adults initiating ART between September 2018 and August 2019 were evaluated. Retention was defined as returning for ≥1 ART pick-up within 33 days (one-month retention) and 61-120 days (three-month retention) post-initiation. Trend analysis was done to estimate the immediate and continued impact of the intervention on retention. Generalized linear mixed effects models were used to model the data, allowing for site-level clustering and adjusting for covariates (urban/rural, patient volume, district).

Results: Analysis included 19,750 patients. Overall, one- and three-month retention rates increased with the intervention from 61% to 93%, and 76% to 91%, respectively. During the observation period, the odds of being retained at one month was estimated to be 1.92 (95%CI: 1.67-2.20) times higher immediately after the intervention than that measured immediately before the intervention. Moreover, the post-intervention slope was estimated to be 1.23 (95%CI: 1.18-1.29) times higher than the slope of the pre-intervention period. A positive trend was also observed for the three-month retention, but less substantial. The immediate impact of the intervention was smaller (OR 1.01, 95%CI: 0.87-1.16), but the estimated slope after the intervention was still significantly higher than that before the intervention (OR 1.25, 95%CI: 1.19-1.31). Similar trends were seen with stratified analysis (pregnant/ lactating women and non-pregnant/non-lactating women/ men).

Conclusions: Improved psychosocial support implementation appeared to have a significant effect on early retention. Counselors and volunteers ensured procedural fidelity through clear identification of roles/responsibilities and creating a feedback loop regarding performance. High quality community support should start as early as possible to prevent lost to follow-up in this critical post-ART initiation window.

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DTG+3TC vs DTG+TDF/FTC (GEMINI-1&-2): Confirmed Virologic Withdrawals Through Week 96

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Background: In GEMINI-1&-2, the dolutegravir (DTG) + lamivudine (3TC) 2-drug regimen (2DR) is non-inferior to the DTG + tenofovir/emtricitabine (TDF/FTC) 3-drug regimen (3DR) in HIV-1 ART-naive participants at Weeks 48/96. Eleven participants on 2DR and seven on 3DR met protocol-defined Confirmed Virologic Withdrawal (CVW) criteria through Week 96. We present a detailed description of these CVWs.

Materials & Methods: Participants were stratified by viral load (VL) ≤ or >100,000 c/mL and CD4+ ≤ or >200 cells/mm³. Participants were not eligible if screening HIV-1 genotype showed major RT/PR resistance mutations. CVW was defined as two consecutive VLs meeting virologic non-response (VL ≥200 c/mL after Week 24 or <1.0 log decline in VL by Week 12 unless HIV-1 RNA is <200 c/mL) or virologic rebound criteria (≥200 c/mL after prior suppression to <200 c/mL). Monogram Biosciences performed integrase and RT/PR genotypic and phenotypic resistance testing on Day 1 and Virologic Withdrawal time point samples. We evaluated CVW participant baseline VL and CD4+ characteristics, adherence, study drug interruption, resistance, and VL progression through the study course.

Results: In GEMINI-1&-2, 3 participants screen failed due to M184I/V resistance. Overall, 11 participants on DTG+3TC and 7 on DTG+TDF/FTC met CVW criteria through Week 96. Of these, 5 vs 2 CVWs occurred after Week 48. All CVWs experienced virologic rebound; none had VL blips (VLs between 50-<200 c/mL with adjacent values <50 c/mL) that preceded CVW. One DTG+3TC participant never suppressed to <50 c/mL. Among the 11 and 7 participants on DTG+3TC vs DTG+TDF/FTC, respectively: 9 vs 7 were infected with HIV-1 subtype B; 3 vs 2 had baseline CD4+ <200 cells/mm³; 5 vs 3 had baseline HIV-1 VLs >100,000 c/mL; and HIV-1 VL decreased from CVW time point to the withdrawal visit ≥2 fold for 7 of 9 vs 4 of 5 cases with withdrawal visit VLs. Among the 11 participants with CVW in the DTG+3TC arm, there was either treatment interruption or evidence of non-adherence in 6 participants, and adherence was unknown in 3 participants. Resistance data were available for all samples except 2 cases on DTG+TDF/FTC where testing failed with HIV-1 VL below the assay cut-off; no treatment-emergent genotypic or phenotypic resistance in IN or RT was observed in any CVWs.

Conclusions: In GEMINI-1&-2, there were low and comparable numbers of participants meeting CVW through 96 weeks in the DTG+3TC and DTG+TDF/FTC arms without apparent predisposition by baseline VL or CD4+; no emergent genotypic/phenotypic resistance to INSTI/NRTIs was observed. These data further support the potency and durability of DTG+3TC.

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Presence of HIV drug resistance in people re-initiating first-line antiretroviral therapy after treatment interruption in Namibia

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Background: A 2015 survey of pretreatment HIV drug resistance (HIVDR) amongst people initiating or re-initiating antiretroviral therapy (ART) in Namibia estimated a prevalence of non-nucleoside reverse transcriptase inhibitor (NNRTI) resistance of 13.8%, 9.3% and, 34.8% in all treatment initiators, in antiretroviral (ARV) drug naïve treatment initiators, and in ARV drug exposed treatment initiators (Prevention of Mother to Child Transmission, prior ART), respectively. Up to 30% of people starting antiretroviral therapy (ART) in sub-Saharan Africa, including in Namibia, disengage from care (patient initiated treatment interruption) after three years. A significant proportion of those with treatment interruptions will at some point re-initiate ART. Per Namibia ART guidelines, people with prior default from NNRTI-based ART re-initiate NNRTI-based ART. This study characterizes the prevalence of HIVDR in people re-initiating NNRTI-based ART after treatment interruption of 30 or more days in three clinics in Windhoek, Namibia.

Methods: Between April 2016-November 2016, patients who had initiated NNRTI-based ART, who had a treatment interruption of 30 days and who re-initiated NNRTI-based ART were enrolled and venous blood collected for HIVDR testing. HIVDR genotyping was performed by Sanger sequencing according to clinical protocol at the British Columbia Center for Excellence in HIV/AIDS, Vancouver, Canada (reverse transcriptase 1-240 and protease codons 1-99). Drug susceptibility was predicted using the Stanford HIVdb algorithm (version 8.5).

Results: 90 participants were enrolled (44% female). Of the 90 blood specimens collected, 84 (93%) were successfully amplified and passed quality assurance. The prevalence of HIVDR in this cohort of NNRTI-based first-line treatment re-initiators was: 42.9% any HIVDR, 6.0% NRTI resistance, 42.9% any NNRTI resistance, and 40.5% EFV/NVP resistance (Table 1). No atazanivir/ritonavir (r), lopinavir/r, darunavir/r drug resistance was detected.

Conclusions: Levels of resistance are high in this cohort of HIV infected persons re-initiating NNRTI-based ART and are broadly consistent with the 2015 pretreatment HIVDR survey. Use of non-NNRTI-based regimens in people with prior treatment with NNRTI based therapy should be considered; locally developed and sustainable strategies to maximize adherence and prevent default are needed.

Table 1. HIV drug resistance among people re-initiating NNRTI-based ART at three clinics in Namibia.

Type of Resistance (N=84)	Total
Any NRTI or NNRTI or PI//r	36 (42.9%)
Any NRTI	5 (6.0%)
ABC	5 (6.0%)
3TC/FTC	4 (4.8%)
d4T	4 (4.8%)
TDF	4 (4.8%)
ZDV	2 (2.4%)
Any NNRTI	36 (42.9%)
NVP or EFV	34 (40.5%)
NVP	34 (40.5%)
EFV	34 (40.5%)

ETR   9 (10.7%)
RPV   14 (16.7%)
Any PI/r   0 (0.0%)

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Does Dolutegravir causes weight gain: a retrospective observational cohort study from Lusaka, Zambia

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Background: Zambia recently adopted Dolutegravir (DTG) based Antiretroviral therapy (ART) regimen as first line option for both treatment experienced and naïve HIV patients. However several studies have reported considerable weight gain caused by integrase strand transfer inhibitors (INSTI).Weight gain after starting antiretroviral treatment is common but substantial weight gain may increase the risk of diabetes, cardiovascular disease and some cancers In this study we evaluated weight gain among patients who started ART on DTG or switched from Tenofovir/Lamivudine/Efavirence (TLE) or Tenofovir/Lamivudine/Nevirapine (TLN) to DTG based regimen.

Methods: We performed a retrospective observational cohort study among adults (age >18)on ART for a least 6 months and not more than 12 months on DTG in Lusaka, Zambia. Patients were grouped as: 1) ART experienced switched to DTG based ART, 2) ART experienced with no exposure to DTG, 3) ART naïve initiated on DTG containing regimen. Weight was pulled from clinical records at pre DTG exposure and at any time between six and 12 months after DTG exposure. We compared weight gain in patients exposed to DTG between January and December 2019 versus those who did not take INSTI. In a subgroup analysis we compared ART experienced patients who switched to DTG containing regimen with ART naïve patients who started DTG as first option.

Results: A total of 10911, 66% males patients, median of two weight measurements per participant were included: 9465 who were exposed to a DTG-containing regimen gained an average of 3.2 kg within 12 months compared with 2.7 kg among those who continue on non INSTI regimen (P<0.001). The 2832 who switched from TLE/TLN and the 6633 who initiated on DTG as first option both gained an average of 3.3 kg and 3.2 kg respectively. Weight was analyzed using a random effects model with linear slope before and after switch to INSTI.

Conclusions: Adults living with HIV who switched or initiate ART on DTG containing regimen gained significant weight within 12 months compared to those who did not switched to DTG. Further studies are needed to confirm these findings in larger, multicenter cohorts and investigate the effects on cardiometabolic disease risk factors.

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Dolutegravir- versus low-dose Efavirenz-based regimen for the initial treatment of HIV-1 infection in Cameroon: 96-week results of the ANRS 12313 – NAMSAL trial

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Background: The updated WHO 2019 guidelines for ARV treatment recommend a Dolutegravir (DTG)-based regimen as the preferred first-line regimen and low-dose Efavirenz (EFV400) as an alternative option. The non-inferior efficacy of DTG compared with EFV400 was previously reported at 48-week. We report here the 96-week data.

Methods: NAMSAL is a phase 3 randomized, open label, multicenter trial conducted in Yaoundé. HIV-1 infected ARV-naive adults with HIV-RNA viral load (VL)>1000 copies/mL were randomized (1:1) to DTG 50 mg or EFV 400 mg once daily, both with tenofovir disoproxil fumarate (TDF)/lamivudine (3TC). Randomization was stratified by screening VL and by site. The primary endpoint was the proportion of patients with VL<50 copies/mL at 48-week and extended at 96-week (10% non-inferiority margin).

Results: 613 participants (DTG arm: 310; EFV400 arm: 303) received at least one dose of study medication. In the ITT analysis at 96-week, the proportion of patients with HIV RNA <50 copies/mL was 73.5% (228/310) and 72.3% (219/303) respectively (difference, 1.3%; 95% CI, -5.8 to 8.3; p-value <0,001). Figure 1 shows the viral suppression according to Baseline VL. The per protocol analysis showed similar results. Virological failure (WHO definition) was observed in 27 participants (DTG: 8; EFV400: 19), 3 were switched from DTG to EFV600 (WHO signal, May 2018). No resistance mutations to DTG was observed, unlike the EFV400 with 18 resistances (NNRTI+/-NRTI) in the 19 confirmed failure cases. Weight gain was greater in DTG arm (median weight gain: 5.0/3.0 Kg; incidence of obesity 12.3%/5.4%). 18 AE were observed (DTG: 8; EFV400: 10); one single participant in DTG arm had missing data.

Conclusions: 96-weekresults confirm the non-inferior efficacy of the DTG-based regimen and the no emergence of resistance to DTG. Virological success rate remains lower in patients with a high initial VL in both arms. We observed a continuous weight gain in the DTG arm.

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Doing Index Testing differently: A health education approach for old clients returning for refill and those newly initiating ART to effectively participate in index testing.

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Background: HIV Index testing (IT) remains the hallmark strategy for case identification. Its uptake and effectiveness depend on the accuracy of the contact information elicited to the service provider (SP) by the index case (IC) especially information on sexual contacts. Sexual issues in our context are sensitive thus people are reluctant volunteering information about their sexual contacts. In some instances, clients provide SPs with wrong information making it difficult to reach contacts to provide them with IT services.   We share the lessons learned from implementing a novel strategy in the South West Region of Cameroon. Through this strategy clients were progressively provided with enough IT information that appeal on their consciences to volunteer accurate contact information which enables SPs to effective reach and provide their sexual contacts, biological children and acquaintances with IT services.

Description: This strategy was piloted in one major hospital of the South West Region of the country in June 2018 and since October 2018 it was scaled up in 14 sites. A health education package was provided to clients during ART initiation and follow up visits in either group or individual sessions. The content of the health education package included; (1) modes of HIV transmission reiterating the three main routes of transmission, (2) modes of action of ARVs and its effects on HIV transmission, (3) social responsibility of IT in reducing morbidity, mortality, overall HIV transmission/epidemic control and (4) a contract letting the IC understand issues of confidentiality and that SPs cannot share HIV status of contacts with ICs. Clients were also educated to provide information on their acquaintances (relatives, friends, neighbours, group members etc.) for HIV Testing. We compared the uptake of IT, IT yield and linkage to ART at these sites to the overall IT yield and ART uptake of the region.
Results and lesson learned:
A total of 1,617 ICs were identified, from which 2,228 contact persons were enlisted and notified. Of these, 2,171 tested for HIV with 470 identified HIV positive, giving a yield of 21.6%. This yield was significantly much higher than the overall IT yield of 13.4% for the same period for all supported sites in the region. The ART uptake of 95% from this strategy was much higher than the 89% overall linkage from IT. We learned three main lessons implementing this strategy in IT. Firstly, since clients were progressively sensitized and not under any pressure to provide contact information, they provided more accurate and updated information on their sexual contacts. Secondly, most of the ICs were even available and ready to guide SPs to reach and provide their contacts with IT services. Lastly, some clients who will not like to provide information about their sexual contacts, indirectly provided this information as acquaintances.

Conclusions /Next steps: The health education approach has the potential to improve IT uptake, yield and linkage to ART. With the sensitivity of sexual issues and the fear of non-respect of confidentiality, we are looking forward to giving ICs the opportunity of providing contact information anonymously.

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Effectiveness of male Strategy (MS) in HIV case identification and linkage of MLHIV to treatment in Cameroon.

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Background: Men's role in HIV care, treatment and prevention is associated with positive family outcome. Evidence suggests that male partner involvement can improve access to, and quality of HIV care, stigma reduction, treatment retention and program efficiency. Despite these associations, men's participation in HIV treatment and prevention remains low with implications extending beyond identifying and linking MLHIV to treatment services. As primary decision-makers within couples in many sub-Saharan African countries, men have to know their HIV status not only for their own health, but also for women's health and PMTCT. Under the HIV-FREE project of the CBCHS in the Centre region, many innovative strategies are implemented to improve uptake of men in the HIV treatment cascade. This study seeks to analyze the effectiveness of MS in HIV case identification and linkage to treatment services.

Methods: This is an ongoing service improvement study which analyzes HIV case identification and linkage of identified MLHIV to treatment services from January to June 2019 in sixteen high volume PMTCT collocated sites implementing four modalities of MS in the center region; 1) Extended Clinic Hours (ECH): HIV testing and ART dispensation targeting men and young adults after 3:30pm plus weekends, 2) Male Friendly Clinics (MFC): involves HIV testing, ART dispensation and other HIV services that runs 24/24hrs plus weekends only in 2 of the 16 study sites, 3) Targeted Community Testing (TCT): community based HIV testing alongside screening for other diseases using multi-disease approach and targets men, 4) Men As Partners (MAP) whereby invitation letters are sent to partners through their pregnant spouses during the first antenatal clinic visit by a service provider. A follow-up call is done and upon partner's visit, a health package is offered which includes, HIV test, blood pressure, weight and Blood sugar tests and health tips on healthy lifestyle and how to support partner is done at no cost.

Findings: Between January 1st and June 30th 2019 among 4, 510 men tested through these four strategies 165 (3.6) newly tested HIV positive. Strategy wise, the MFC had the highest yield (15/123; 12%) followed by TCT (86/1439; 6%), then ECH (50/1269; 4%), and lastly MAP (14/831; 2%). For treatment initiation, ECH had the highest linkage rate (48/50; 96%), followed by MFC (14/15; 93%), then MAP (10/14; 71%), and lastly TCT (48/86; 59%). In addition, 917 and 264 MLHIV on ART had their ART refill through ECH and MFC respectively.

Conclusion: These four Modalities have the potential to increase case identification of MLHIV. MFC has the highest potential with a good linkage to treatment rate. MAP has the lowest case identification potential. Though TCT has challenges with linkage ECH and TCT, have good potentials for case identification. MFC needs to be reinforced and scaled to many more sites, while effective approaches for case identification for MAP and linkage for the TCT need to be identified.

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A Hybrid Interpersonal Training Model to build Capacity for Health-Care-Providers (HITCH) to Manage Children, Adolescents and Adults on Third-Line Anti-Retro Viral (ART) Therapy in Uganda.

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Background: Following the 2016 national treatment guidelines recommending genotyping for patients failing second-line ART, Uganda established a third-line ART program in 2017. With complexity in interpreting and utilising HIV drug resistance (HIVDR) results for patient management, and most clinics managed by low-cadre staff, there were significant delays in switching individuals failing second-line ART. Ministry of Health(MoH) purposed to: conduct national-level reviews of HIVDR results to guide switch decisions to third-line ART; hybrid training model of centralised and decentralised trainings (HITCH) for health care providers. We highlight below the steps taken to implement the HITCH Model.

Descriptions: Between November 2017 to September 2019: a pool of experts from Centers of Excellence (COEs) with experience in management of ART failure was established to support implementation of the multifaceted HITCH model: national bi-monthly HIVDR results review meetings/trainings; quarterly 3-day regional case-based trainings; one-week national learning sessions for all regional teams; onsite post-training mentorships and support supervision. Regional third-line ART teams were trained; clinicians, pharmacists, counsellors, laboratory staff, biostatisticians and health facility in-charges. Each training began with a didactic lecture on basics of HIV drug resistance followed by case presentations by trainees, expert-led discussions and recommendations on appropriate third-line ART regimen. Prior to trainings, teams populated the viral load/HIV drug resistance form with patient details. An excel sheet was designed to capture details of the review process.

Lessons Learned: We reviewed 495 HIVDR tests; 40.2% from district hospitals, 26.5% health centers, 21% specialised clinics and 12.5% from COEs with an average turn-around-time of 2-3 and 5-6 months for plasma and Dried-Blood-Spot samples respectively. 81.4%(403/495) patients were switched to third-line ART, and 30.8%(124/403) were children and adolescents. 70.5%(349/495) had mutations to NRTIs, NNRTIs and PIs, and 31.2%(109/349) were children and adolescents. 20 national and 14 regional meetings, 2 quarterly learning sessions were held. Three regions are now able to conduct their review meetings, but share minutes for expert review.

Conclusions/Next Steps: We plan to: reduce turn-around-time for HIVDR results by procuring coolers to support facilities to send plasma samples to HIVDR laboratories; use innovative training approaches like webinars and ECHO platform; operationalise an individual-level third-line ART database for proper patient monitoring.

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Switching to DTG/3TC Fixed-Dose Combination (FDC) Is Non-inferior to Continuing a TAF-Based Regimen Through 48 Weeks: Subgroup Analyses From the TANGO Study

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Background: The 2-drug regimen (2DR) of DTG/3TC reduces cumulative drug exposure in people treated for HIV-1 infection, when compared to traditional 3DRs. DTG/3TC 2DR is non-inferior to DTG + TDF/FTC 3DR in HIV-1–infected ART-naive adults (GEMINI) and in ART-experienced, virologically suppressed participants switching from a TAF-based 3DR (TANGO). Here we present a key secondary endpoint from the TANGO study: Snapshot virologic success by baseline regimen third agent class, and disease and demographic characteristics.

Materials & Methods: TANGO is a randomized, open-label, multicenter, non-inferiority phase III study evaluating the efficacy and safety of switching to DTG/3TC once daily in HIV-1–infected adults on a TAF-based regimen, with HIV-1 RNA <50 c/mL for >6 months, without prior virologic failure or historical NRTI or INSTI major resistance mutations. Participants were randomized 1:1 (stratified by baseline third agent class: PI, NNRTI, INSTI) to switch to DTG/3TC or continue their TAF-based regimen through Week 148. The primary endpoint was the proportion of participants with plasma HIV-1 RNA ≥50 c/mL at Week 48 (FDA Snapshot algorithm, intention-to-treat–exposed [ITT-E] population).

Results: 741 randomized/exposed participants (DTG/3TC: 369; TAF-based regimen: 372) were included. Snapshot success rates across subgroups were generally consistent with the overall TANGO Week 48 study results (DTG/3TC, 344/369 [93.2%]; TAF-based regimen, 346/372 [93.0%]; adjusted treatment difference [95% CI], 0.2% [–3.4%, 3.9%]) and were similar between the DTG/3TC vs TAF-based regimen arms, including age (<35 years: 118/130 [90.8%] vs 109/119 [91.6%]; ≥50 years: 73/79 [92.4%] vs 86/92 [93.5%]), sex (female: 21/25 [84.0%] vs 27/33 [81.8%]), race (African heritage: 44/50 [88.0%] vs 51/58 [87.9%]; Asian: 12/13 [92.3%] vs 12/13 [92.3%]), baseline third agent class (INSTI: 268/289 [92.7%] vs 276/296 [93.2%]; NNRTI: 49/51 [96.1%] vs 42/48 [87.5%]), and baseline CD4+ cell count (<350 cells/mm³: 31/35 [88.6%] vs 29/30 [96.7%]). Zero participants on DTG/3TC and 1 participant (<1%) on TAF-based regimen met confirmed virologic withdrawal with no resistance mutations observed at failure.

Conclusions: Switching to DTG/3TC FDC was non-inferior to continuing a TAF-based 3DR in maintaining virologic suppression in HIV-1–infected ART-experienced adults through Week 48. Efficacy by subgroups was consistent with overall Week 48 study results, demonstrating that switching from a TAF-based regimen to DTG/3TC is effective at maintaining virologic suppression regardless of baseline regimen, or disease or demographic characteristics.

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Optimizing HIV Treatment among Children in Mozambique

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Background: In Mozambique, spectrum 2018 estimates 143,339 children (0- 14 years) living with HIV. Based on HIV program National data, in 2018, 53% of all children (0-14 years) living with HIV were on antiretroviral therapy ART. Access to ART in Mozambique has dramatically increased since 2003 were less than 100 health facilities (HFs) provided ART to 1407 HFs in 2018, with an increase from 64,273 in 2016 to 89, 394 in 2018 on the number of children initiated on ART. As more people initiate and are retained in ART treatment it is imperative to optimize HIV treatment regimens by using medications that are less toxic and provide a stronger barrier to drug resistance. In 2019, the World Health Organization updated the recommendations for first-line and second-line antiretroviral regimens. Updates included the phase out of nevirapine NVP- based formulations and maximization of the use of lopinavir/ritonavir (LPV/r) and dolutegravir (DTG) for children from 20kg onward. In July 2019, the Mozambique Ministry of Health fully adopted WHO recommendations including DTG in first and second line for children and endorsed a road map for phasing out NVP as LPV/r global supply stocks enable transition.

Methods: The U.S. Centers for Disease Control & Prevention conducted a retrospective analysis from April 2019 to September 2019 among children on ART by regimen and viral load (VL) results in Mozambique at PEPFAR-supported sites to identify trends over time and treatment outcomes such as viral suppression using data from Mozambique's national ART database.

Results: Out of the total 81,240 active children on ART from April to September 2019, drug pickups for regimens AZT-Zidovudine/3TC-Lamivudine/NVP and ABC-Abacavir/3TC/NVP decreased by 17% while regimens ABC/3TC/DTG and TDF-Tenofovir/3TC/DTG increased by 93% during the study period. Seventy-three (73%) of children on TDF/3TC/DTG and 63% on ABC/3TC/DTG had VLs <1000copies/mL while higher rates of viremia were observed among those children remaining on NVP-based regimens. Fifty-four (54%) of children on AZT/3TC/NVP and 45% on ABC/3TC/NVP regimens achieved VL results below 1000 copies/mL.

Conclusions: Mozambique's national formulary for pediatric ART is transitioning away from NVP-based regimens to an optimized ART regimen. While a greater proportion of children on optimized ART have VL <1000copies/mL, viremia for all treatment categories remains unacceptably high, suggesting that ongoing work is needed to support adherence for children on ART.

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Impact of community resource persons and mobile phone technology on return to HIV care among loss to follow up HIV clients in 104 HIV facilities in Uganda

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Background: Retention in HIV health care is critical for anti-retroviral therapy (ART) adherence and viral suppression. Clinical visits for patients on ART are essential to initiate ART, continuous access to medication, monitor medication side effects and diagnose treatment failure. With PEPFAR support, Mildmay Uganda Mubende Project implemented the Back to Care campaign with the primary objective of improving 12-month retention from 66% as of December 2018 to 90% by end of September 2019 in 104 public health facilities across 8 districts in rural Uganda. Here we present the impact of pre-visit e-message reminders, phone calls and Community Resource Persons (CORPs) on HIV treatment retention in the project implementation area.

Description: Mildmay Uganda, since April 2017 is implementing a 5-year project aiming at "Accelerating Epidemic control in Mubende Region under PEPFAR". The geographical scope for this project is 8 districts in the central region of Uganda (Luwero, Nakaseke, Nakasongola, Mityana, Mubende, Kiboga, Kassanda & Kyankwanzi). Interventions included using e-messages for pre-appointment remainders, line listing of clients who miss appointments for same day follow up through phone calls. Community Resource Persons (CORPs) conducted physical community follow ups for clients without phones alongside community drug deliveries for located recipients of care.

Results/Lessons Learned: 75%(13,102/17,496) and 84.8% (24,837/29,302) of clients who were followed up using CORPs and phones were respectively returned to care. Retention improved from 66% registered in the quarter of October - December 2018 to 88% in July-September 2019 quarter.

Conclusion:
• Community and phone follow up of clients immediately following missing of appointments is important in retaining clients in care in light of the 90% target.

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Gender based violence among discordant couples in care and associated factors in accessing gbv post care; a cross sectional survey at aids information center (aic) uganda

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Background: Gender based violence poses formidable challenges to HIV prevention, care and Treatment among discordant couples limiting their individual efforts to adopt and maintain protective measures ranging from accessing care to ART adherence thus threatening HIV infection control. AIDS information center carried out a cross sectional survey to review the incidence of GBV and access to post care among discordant clients enrolled on discordance support program from May 2019.

Methods: A 2018 report from discordant meetings at AIC suggested a 47% GBV incidence among discordant couples. AIC then enrolled these clients on a discordance support program for services that included psycho social support and counselling, PrEP, ART initiation and quarterly meetings from April 2019. In December 2019, an analysis of data on GBV reported cases and post care was carried out; this was followed by a cross sectional survey using the national GBV screening tool to conduct client telephone interviews in determining the incidence of GBV after couple HCT that resulted into discordance, reporting status and post GBV care given.

Results: A total of 80 discordant couples (160 clients), 52% Females and 48% Males were enrolled on the discordance program between May and December 2019. According to the survey, 39% of the enrolled clients reported an incidence of GBV (Psychological 82%; Sexual 12%; Physical 6%). GBV was highest among Sero-positive females with 63%. The most affected female age group was 25-34years at 60% followed by 15-24years with 40%. Multiple forms of GBV were mostly experienced by 80% of Sero- negative Females. The occurrence of GBV was lowest in clients aged 35 years and above where 3% reported an incidence of GBV. 76% Males (58% sero positive and 42% sero negative) were reported to be the main perpetrators of GBV.
According to the data analysis, only 10% of GBV victims reported to the health facility while survey showed that 5% reported to other responsible authorities such as police. All those who reported to a health facility received the post GBV care package. The major reasons for not reporting of 85% victims were cultural customs, ignorance and the feeling that it can be solved by them as couples. Those who reported to other authorities were never linked back to the health facility for GBV post care services.

Conclusion: There was an 8% decline in GBV occurrence among discordant clients who were enrolled on the program in six months. Voluntary reporting among victims was noted to be low posing an even more significant challenge. There is an increased need for GBV screening by health workers during client care with further awareness and education on GBV, its effects and post care. The GBV linkage pathway for Authorities like police is emphasized for referral of GBV victims for post care services.

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U=U - Catalyst or Barrier for Men's Engagement in ART? Stakeholder Views from Blantyre, Malawi

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Background: The slogan Undetectable = Untransmittable, based on three studies which showed virtually no transmission from a virally suppressed PLHIV to their HIV-negative partner, became popular from 2014. We explored familiarity with this slogan among stakeholders in Blantyre, the Malawian city with the highest HIV prevalence rate in the country (17.7%) and the worst viral load (VL) suppression rate (59.5%). Our particular interest was in stakeholders' views of the potential appeal of this slogan to men, as men's VL suppression lags behind women's in Malawi.

Methods: The U=U data emerged from a qualitative study among stakeholders (n=16) and men on ART: n=24 with detectable VL , n=17 with undetectable VL, and 17 men in the community. We conducted in-depth interviews (in Chichewa and English) in Blantyre and surrounding communities in November/December 2019 and translated and transcribed, coded and analyzed them. Stakeholders included health personnel of ART treatment sites, academics, NGO and church-based program implementers.

Results: Out of 16 stakeholders, 14 - including all health personnel - were unfamiliar with the slogan. When explained, some stakeholders held positive views such as: boosting men's adherence; appealing to 'kind-hearted' men in preventing onward transmission; enabling discordant couples to forego condom use; motivating men to enquire about the HIV-status of their partner and contributing to an HIV-free generation. Stakeholders saw sexually active men and those spending time away from their families as benefitting most from U=U. Opinions varied on its appeal for male youth.

Widespread concerns related to: equating 'undetectable' with 'healed', which may impact adherence negatively; an increase in promiscuity and clients' re-infection. Some also felt that a small risk of transmission remained. Especially health workers emphasized the need for protection through condoms and partner reduction.

Conclusions: The results show that the slogan U=U is largely unknown among HIV-stakeholders in a high prevalence area. If U=U is to have a positive effect on men's engagement with ART, 'undetectable' needs to be carefully explained and more information on the benefits of treatment for the client's own protection and that of others needs to be made known – to stakeholders, clients and communities.

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Patient-reported reasons for missed appointments among ART patients in South Africa

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Background: Retention in care is necessary to achieve optimal outcomes among ART patients. Numerous barriers to adherence and retention exist in resource-limited settings; however, our current understanding of such barriers remains incomplete. We conducted a rapid survey to identify the most common reasons for missed appointments among ART patients in South Africa.

Methods: From April 1 – June 7, 2019, a rapid survey was conducted in 154 public healthcare facilities across four provinces in South Africa, including eight districts and three metropolitan municipalities. Facility staff documented each attempt to reach an ART patient by phone following a missed appointment. A missed appointment was defined as failure to present to the facility on the day of a scheduled appointment. Patients reached by phone were asked to self-report the reason for the missed appointment. Self-reported reasons were tabulated and grouped into four domains, including patient-based, structural, clinic-based, and medical barriers. Additionally, data capture barriers were listed for patients who were active on ART but appeared as having missed an appointment. Data analyses were conducted using SAS 9.4 to determine the most common reasons for missed appointments. Results were disaggregated by age, sex, and ART duration.

Results: A total of 34,113 entries were submitted with a documented reason for the missed appointment. After data cleaning, 31,315 (91.8%) responses could be categorized. Of these entries, 3,268 were removed because they included an outcome of the call or patient outcome, not a reason for the missed appointment, leaving 28,047 (82.2%) entries for subsequent analyses. Among the entries analyzed, 67.5% of patients were female, median patient age was 34 years, and median ART duration was 27 months.

Individual reasons for missed appointments were grouped into four domains, with patient-based barriers found to be most common (58.7%), followed by clinic-based (21.2%), structural (13.3%), and medical barriers (6.8%). Among patient-based barriers, the most common reasons were 'patient forgot' (54.4%), 'traveled' (38.7%), and 'moved' (3.7%). The most common clinic-based barriers were 'inconvenient hours' (42.7%), 'long wait times' (25.2%), and 'appointment system challenges' (21.6%). Furthermore, nearly one third (32.2%) of patients were misclassified as having missed their appointments due to data capture issues. The most common reasons for misclassification were 'patient receiving ART through differentiated service delivery (DSD) approach' (including multi-month dispensing, adherence club, and fast lane patients) (55.4%), 'transferred to another clinic' (33.7%), and 'visit not captured' (10.9%). When results were disaggregated, the same rank order of domains persisted for both sexes and across ART duration subgroups, and misclassification accounted for >25% of patients among both sexes and across ART subgroups.

Conclusions: Results obtained from the rapid survey are being used to inform the scale-up of interventions to address patient-based barriers to adherence in South Africa, including appointment reminders and case management strategies. Furthermore, misclassification of patients who transferred to another facility or enrolled in DSD contributed substantially to the data capture barriers identified, underscoring the urgent need to strengthen data management systems in order to more effectively capture silent transfers and DSD patients.

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Evaluation of Second Line Antiretroviral Programmatic and Treatment Outcomes in Mozambique between 2015-2017

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Background: Access to antiretroviral therapy (ART) has improved considerably in Mozambique, with a significant impact on reducing morbidity and mortality among people living with HIV (PLHIV). In June 2018, there were 1,216,427 patients on ART of which an estimated 16,325 patients (1.3%) were on second-line treatment. Monitoring and optimizing clinical outcomes of these patients is important for programs treating PLHIV. This study evaluates the characteristics, virological suppression (< 1000 copies), and treatment outcomes of patients on second-line treatment in Mozambique.

Methods: This is a retrospective cohort study using routinely collected program data. We extracted data registered in the Mozambique Electronic Patient Tracking System for all PLHIV with at least one viral load (VL) who initiated second-line treatment between January 2015 to December 2017 in six provinces where data was available. Variables of interest included patients' characteristics (age, gender), treatment outcomes (death, loss to follow up (LTFU), transferred to another site, and active in treatment) and virological suppression (yes/no) 12 months after treatment. Frequency tables and descriptive statistics were produced.

Results: Of 416,030 patients on ART by December 2017, 8,140 (~2.0%) were on second-line ART during the study period. Out of these 6,911 (84.9%) were adults ≥ 25 years (4,180 female and 2,731 male), and 1,229 (15.1%) were adolescents aged 15 to 24 years (927 female and 302 male). At the end of a total follow-up duration of 12 months on second line treatment, 9 (0.1%) patients died, 540 (6.6%) were LTFU, 5 (0.1%) were transferred and 7,586 (93.2%) were retained in treatment. Among retained patients, 2,588 (34.1%) had VL suppression.

Conclusions: In Mozambique few (~2%) HIV patients were enrolled on second line treatment up to December 2017. More than 93% of these patients were retained on treatment 12 months after second line regimen initiation though only 34% of them had a suppressed viral load. This is challenging as alternatives to the second line treatment may not be accessible to most patients. Tailored strategies for these patients should also consider strengthening and refining counseling on adherence and improving clinical care.

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"You are not benefiting us by keeping us away": Why do some eligible people on antiretroviral therapy (ART) decline to participate in Ethiopia's appointment spacing model with 6-month ART dispensing?

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Background: Ethiopia has prioritized the transition of people doing well on antiretroviral therapy (ART) into an appointment spacing model (ASM) with twice-yearly health facility (HF) clinical visits at which 6 months of ART are dispensed. It is one of the first countries in sub-Saharan Africa to take biannual multi-month scripting and delivery (6-MMD) to scale. We conducted a qualitative study to explore why some eligible individuals choose not to enroll in ASM.

Materials and Methods: We convened 12 focus group discussions (FGDs) at three HFs in Ethiopia's Oromia region. The 93 participants were all ASM-eligible and had been on ART for ≥ 1 year; participants in 6 FGDs had chosen to enroll in ASM and participants in the other 6 FGDs had chosen not to enroll in ASM. We conducted inductive and deductive thematic analyses.

Results: Participants' median age was 41 years (IQR 12) and 89% had been on ART > 5 years. Those in ASM were very satisfied. Three key themes emerged when those not in ASM explained their rationales: concerns about medication storage; dissatisfaction with decreased visit frequency; and misunderstandings about ASM. Non-enrolled participants feared that they could not store 6 months of
ART safely, securely, and privately, e.g., that the ART would be vulnerable to heat-induced spoilage, access by children, and/or discovery by others leading to forced HIV status disclosure and
stigmatization. They also preferred more frequent HF visits which enabled social bonding with providers and other patients, the reassurance of frequent check-ups, and ongoing counseling and adherence support. Concern about synchronizing ART pick-ups with those of an HIV+ partner or child also deterred ASM enrollment. Finally, many non-enrolled participants misunderstood ASM, thinking that they would be limited to twice-yearly HF visits, that they would receive different ART than in the conventional model, and/or that the ART dispensed would expire prior to their next visit.

Conclusions: Not all intended ASM benefits were viewed as patient-centered, and ASM is unlikely to be the preferred model for everyone. However, some resistance to ASM may be mitigated by optimizing ART packaging, enhancing pre-enrollment orientation, strengthening community engagement, and/or providing the option of supplemental community-based support services.

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Minimal cross-resistance to tenofovir in children and adolescents failing abacavir-based ART makes them eligible for tenofovir-lamivudine-dolutegravir treatment.

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Introduction: Dolutegravir (DTG) combined with lamivudine (3TC) and tenofovir (TDF) is a single tablet regimen (TLD) which is being rolled-out in South Africa for adults and adolescents. Adolescents >10 years and 35kg who are failing abacavir (ABC)-3TC-efavirenz (EFV) are recommended to be switched to TLD; whereas patients failing ABC-3TC-ritonavir boosted lopinavir (LPV/r) should have a drug resistance test done before switching. Abacavir is commonly used in paediatric and adolescent ART and can possibly select for drug resistance mutations conferring cross-resistance to TDF. In this study we assessed the genotypic susceptibility score (GSS) for TLD in children and adolescents failing ABC-based regimens.

Methods: All pol sequences obtained between January 2017 to December 2018 from HIV-infected patients ≤19 years of age failing an ABC-based regimen who had a routine HIVDR test referred to Charlotte Maxeke Johannesburg Academic Hospital Genotyping Laboratory. Specimens were referred from 69 health care facilities across 6 provinces. Stanford HIVdb v8.9 was used to identify DRMs and predict genotypic resistance profiles. Genotypic susceptibility scores were calculated for TLD using scores of 1, 0.5 or 0 for susceptible and potential low-level resistance; low-level resistance and intermediate resistance; and high-level resistance scores respectively. In addition, a GSS score of 1 was assigned to DTG for all cases. Phylogenetic analysis was performed using PhyML 3.0 to identify duplicate sampling from the same patient, in which case only the most recent result was included for analysis.

Results: The cohort consisted of 322 unique patients of which 50.0% were male with a median age of 12 years (IQR 6-15 years). Most patients were failing a protease-inhibitor (PI)-based regimen (63.7%) compared to 33.2% failing a non-nucleoside reverse transcriptase (NNRTI)-based regimen; only 3.1% were failing a triple nucleoside reverse transcriptase (NRTI) regimen. Only 39 patients (12.1%) presented without any DRMs. PI resistance was detected in 12.7% of all patients and in 18.0% of patients failing a PI-based regimen. Most patients presented with NRTI (72.7%) and/or NNRTI (76.1%) resistance. A TLD GSS<2 was only detected in 25 patients (7.4%); there was no statistical difference between patients failing PI-based regimens versus NNRTI-based regimens. Five patients presented with high-level resistance to TDF (1.6%), in four cases caused by K65R and in one case caused by five thymidine analogue mutations (TAMs). Partial activity to TDF was lost in 25 patients (7.8%), most often caused by the presence of 2-4 TAMs (n=15), K70ENT (n=5) or Y115F (n=3). One patient presented with K65R+M184V and another harboured a T69 insertion.

Conclusions: Despite the possible risk of children developing cross-resistance to TDF after exposure to ABC, most of them retained full susceptibility to TDF (90.7%), indicating that TLD would be a suitable regimen. Prior treatment exposure information was limited in this cohort, however, reduced TDF resistance was caused by the presence of TAMs in 16/30 patients indicating these patients had been exposed to thymidine analogues. These results suggest that genotyping is not a requirement before switching adolescents from first line ABC/3TC-based regimens to TLD. However, children previously exposed to thymidine analogues or failing PI-based regimens might still benefit from genotyping prior to switching.

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Factors associated with unsuppressed viral load among patients enrolled in the Community HIV Care Program in Botswana. A retrospective cross-sectional study.

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Background: Community-based models have been recommended to support ART access and retention in resource-limited settings which often are characterized with higher attrition. The USAID-funded Accelerating Progress in Communities project (APC 2.0) works with the Ministry of Health and Wellness in Botswana to enroll PLHIV into community-based HIV care and treatment services. APC 2.0 uses Community Health Workers (CHW) to follow up and support patient self-management with a focus on ART adherence, access to viral load services and TB screening. The model enrolls patients newly initiated on ART in the community and patients who defaulted from ART treatment and were tracked and found in the community. In this paper we share factors associated with virological unsuppression amongst PLHIV enrolled into Community HIV care between January - December 2018.

Methods: We conducted a retrospective cross-sectional study of 14,955 PLHIV with most recent viral load (VL) using routinely collected community program data generated in the DHIS2 tracker by the CHW's between January 2018 and December 2018. We extracted data on socio-demographic, clinical and VL testing results. We defined virologic non-suppression as having >400 copies of viral RNA/ml of blood plasma according the Botswana ART guidelines. Multivariable logistic regression was used to identify factors associated with virological non-suppression.

Results: The median age was 36 years (IQR=26-45) and the median time on ART was 24 months (IQR=24-48). Of the 14,955 PLHIV included in the study, 59% (8,796/14,955) were females and 19% (2,848/14,955) had a viral load above 400 copies/ml or virally unsuppressed. From the analysis, the following factors were significantly associated with viral unsuppression: non-disclosure of HIV status to partner (AOR = 3.7, CI = 3.0–4.8), alcohol consumption (AOR = 1.86, CI = 1.60–2.17) , being on ART for less than 12 months (AOR,1.34 ,95%CI=1.24,1.47) and being less than 35 years of age (AOR = 1.32, CI = 1.22 -1.45).

Conclusion: Among PLHIV enrolled in Community-based HIV care, alcohol consumption, non-disclosure of HIV status, younger age-group, and pre-dispose patients were associated with unsuppressed viral load.   There is a need to develop targeted interventions for patients exposed to these factors including behavioral and social messaging on the effects of alcohol consumption, and disclosure of HIV status to strengthen viral suppression amongst all PLHIV on ART.

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Improving retention in ART care using Call-2Care© approach: A snapshot from Defence Forces of Zambia (DFZ)

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Background: Globally, adherence to antiretroviral (ARV) medication and retention in care remain a challenge. An estimated six clients drop out of care for every new client commencing antiretroviral therapy (ART). In Zambia (DFZ alike), patient retention rate is 72 percent at 6 months and 93 percent at 12 months. We share experiences from implementing the Call-2-Care© approach in the US DOD funded FHI 360-led Zambia Defense Forces Prevention, Care and Treatment (ZDFPCT) project.

Approach: To improve adherence to ARV medication and retention in ART care, ZDFPCT deployed client experience associates (CEA) and introduced Call-2-Care©. The approach uses hospitality and public relations principles to build strong client-focused professional relationships. We analyzed the data and line listed all clients that missed appointment between June 2019 and July 2019. We trained CEA in telephone etiquette and availed them cellphone airtime to provide respectful, responsive and responsible client experience. Data from registers was analyzed in excel for gender, percentage reported active, inactive, dead and unreached clients. We interrogated the SmartCare database, triangulated it with patient paper records, registers and pharmacy documents.

Results: Service data demonstrates that Call-2-Care© was successful at improving retention in ART care in the 16 high-burden facilities. When comparing the four months before Call-2-Care© roll out (January to March 2019) and after (April to August 2019), the average monthly ART re-starts increased four-fold.

Following the roll out of Call-2-Care© (April to August 2019):
• 1,326 (Male, 631; Female 695) missed clinical appointment.
• Contact were established in 788 (59%) cases via telephone.

Of these;
• 428 (54%) restarted ART at DFZ sites.
• 306 (39%) were undocumented transfers;
• 32 (4%) were reported dead and,
• 23 (3%) stopped ARVs.

Conclusion: Overall, introduction of Call-2-Care© demonstrates that adopting hospitality and public relations principles to improve client experience is effective in retaining clients in ART care. Thus, we recommend scaling up Call-2-Care© approach as an effective means for retention for ensuring compliance to prescriptions and appointments, both key ingredients for attaining epidemic control.

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The effect of home-based care in achieving viral load coverage in two high volume facilities in Akwa Ibom state, Nigeria

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Background: Studies have shown that home delivery of ART by community health workers (CHWs) can improve outcomes by decongesting the clinics and improving quality of care for the clients. This paper presents an assessment of the effect of home-based care in achieving viral load coverage compared to facility-based viral load testing.

Methods: Retrospective review of data collected through routine service provision in August and September 2019 in two facilities in Akwa Ibom state supported by Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) project, funded by PEPFAR through USAID. A list of clients eligible for viral load was generated from the Electronic Medical Record and given to a group of trained community health workers. For four (4) weeks in August 2019, clients were contacted to come to the health facility for viral load services through phone calls and home visits. Using the same line list of clients yet to access VL, teams were constituted to provide home based care including chronic care screening, ART refill and viral load services to clients and these teams worked for 4 weeks in September 2019. Each team had a phlebotomist for viral load sample collection.

Results: The combined viral load coverage for the two facilities at the end of July was 42% with a total of 3,367 clients eligible for viral load services. During the 4 weeks in August, using facility-based approach, 750 (22%) eligible clients received viral load services; 72% (541) were females and only 1% (11) were children. When home-based care was introduced, 2,156 (64%) clients received viral load services. Of these, 73% (1566) were females and 3% (55) were children. Combined viral load coverage at the end of the 2-months period improved from 42% (M-40%, F-43%; adult-43%, paediatric-34%) to 96% (M-96%, F-96%; adult-96%, paediatric-100%). Viral suppression rate was 71% and 80% in August and September respectively.

Conclusion: This study demonstrates the feasibility of home-based viral load testing and it's potential to contribute to achieving the UNAIDS 3rd 95 target.

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Improving linkage to antiretroviral therapy using a peer attachment model in selected facilities in the Southern Highland Zone of Tanzania

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Background: Linkage of HIV positive individuals to antiretroviral therapy (ART) remains a challenge in Tanzania, reducing progress towards epidemic control. In April 2019, the PEPFAR Tanzania program launched a national intervention targeting 241 high volume facilities to boost performance in key indicators, including linkage and early retention on ART. To address this gap in the Southern Highlands, we sought to build on evidence from the Bukoba Combination Prevention Evaluation study, which had previously demonstrated good outcomes for linkage and early retention through a Peer Attachment Linkage Case Management (LCM) model.

Description: HJFMRI, an implementing partner of the U.S. Military HIV Research Program, adopted LCM in 54 high volume health facilities. All newly identified and consenting PLHIV are assigned and attached to a case manager, a trained expert client. The case manager provides escort and ART clinic navigation, in-person meetings or phone calls for psycho-social support and appointment reminders. During the meetings, they offer counselling on the importance of same-day ART initiation, remaining on ART for life and disclosure of status. The expert clients assess and resolve enrollment and retention barriers during each session. They closely manage clients through their second ARV refill. LCM activities are monitored through a dedicated register, while linkage and retention information is extracted from the facilities' routine monitoring system.

Lessons Learned: During the first six months, 13,050 of the 13,656 adult PLHIV newly diagnosed in the 54 facilities consented to be attached to expert clients for LCM. Of these, 12,034 (92%) consented for rapid ART initiation, including (88.6%) who were initiated on ART on the day of diagnostic. After six weeks, 10,661 (88.6%) were retained on treatment. In these facilities, the intervention increased linkage to 90%, compared to 84% before the introduction of LCM. The LCM model also had a significant impact on index testing, increasing the percentage of acceptance of index testing from 77% to 96%, while the average number of elicited contacts increased from 0.9 to 2.

Conclusions: LCM is a successful strategy for active linkage and early retention amongst adult PLHIV and is likely to improve program performance if implemented in other PEPFAR countries.

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Acceptability of Quadrimune, a new Abacavir/Lamivudine/Lopinavir/Ritonavir paediatric fixed dose combination

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Objective: Worldwide 1.8 million children below 15 years were living with HIV in 2018 and only half of these children have access to anti-retroviral (ARV) medication. The main obstacles to access remain availability of age-appropriate ARV formulations, easy to swallow and with acceptable taste. Cipla Ltd and DNDi have developed a strawberry-flavoured Abacavir/Lamivudine/Lopinavir/Ritonavir 30/15/40/10mg fixed-dose combination (FDC) of granules in capsule (Quadrimune) for HIV-infected children between 3-25kg. This study assessed its acceptability and the related factors compared to Lopinavir/Ritonavir (LPV/r) 40/10mg pellets plus dual Abacavir/Lamivudine (ABC/3TC) 60/30mg dispersible tablets.

Methods: A phase I/II, open label, randomized cross-over PK, safety and acceptability study with an embedded qualitative component was carried out in 3 sites in Uganda (2 in Kampala, 1 in rural Mbarara). Sixteen children weighing between 6-19.9kg were recruited. Data on caregivers' and children's acceptability were collected through structured questionnaires. Besides, of the planned 20 caregiver-child dyads semi-structured interviews, 11 were conducted thus far. Interviews were transcribed and analysed inductively using Nvivo12. Questionnaires were analysed descriptively to assess concordance between the two data sources.

Results: All caregivers found the Quadrimune formulation highly acceptable. Factors contributing to high acceptability were sweet taste, ease of administration, easy storage and the child's acceptance. High adherence levels were achieved due to effective support received from health providers and visible improvements in children's health. Administration instructions enabled caregivers to find most effective and individually tailored ways to administer Quadrimune and to overcome struggles such as initial vomiting. Questionnaire data and interviews were concordant validating the findings.

Conclusion: For the first 11 caregivers and children of this study, Quadrimune formulation was highly accepted compared to the previous pellets/tablets combination.

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Limited increase in primary HIV-1C drug resistance mutations in treatment naïve individuals in Ethiopia

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Antiretroviral drug resistance is a major challenge for management and control of HIV-1 infection worldwide and particularly in resource limited countries. The frequency of primary drug resistance mutations (DRMs) and of naturally occurring polymorphisms was determined in 83 antiretroviral treatment (ART) naïve Ethiopian individuals infected with HIV-1, consecutively enrolled in 2010. In all individuals HIV-1C was found. The median (interquartile range) of CD4+ T-cell count and viral load were 100 (49–201) cells/µl and 44,640 (12,553–134,664) copies/ml, respectively. Protease (PR) and reverse transcriptase (RT) genes of HIV-1 RNA were amplified and sequenced. The proportion of primary DRM to any drug class, using the World Health Organization mutation lists, was 7.2% (6/83), thus exceeding the WHO threshold limit of 5%. Three individuals (3.6%) had non-nucleoside reverse transcriptase inhibitor (NNRTI) mutations, two individuals (2.4%) had protease inhibitor mutations, and one (1.2%) had mutations associated with two drug classes (nucleoside reverse transcriptase inhibitor and NNRTI). In addition, the frequency of polymorphisms in the PR and RT genes was higher compared with previous studies in Ethiopian as well as worldwide isolates. Hence, genotypic drug resistance testing as part of routine management of individuals seems reasonable even in resource limited countries prior to treatment in order to allow proper choice of ART. J. Med. Virol. 87:978–984, 2015. © 2015 Wiley Periodicals, Inc.

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Comparative study on the liver profile of HIV positive pregnant women and HIV positive non-pregnant women attending the Bamenda Regional Hospital, Cameroon

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Background: Antiretroviral therapy has significantly improved prognosis of HIV and AIDS infections by restoring immune veracity and limiting opportunistic infections. However, HIV treatment results in toxicities that complicate management and increases the cost of health care especially when the patient is pregnant. Pregnancy can also be associated with increase in liver function enzymes and hence pregnant women on ART are likely to be exposed to twice as much risk to hepatotoxicity as compared to non pregnant HIV-infected women on ART. Moreover, increase in transaminases can lead to cesarean section, post-partum hemorrhage, fetal distress, premature birth, and premature rupture of membranes (PROM). Hence the purpose of this study was to examine the differences in liver analytes in HIV positive pregnant women and HIV positive non-pregnant women visiting the ANC services of the BRH and receiving treatment at the Day hospital Bamenda, Cameroon.

Materials and Method: This study adopted a hospital based cross sectional study in which 50 HIV-infected non pregnant women and 50 HIV-infected pregnant women were recruited for the study using a convenient sampling technique. Liver function tests were analyzed on the blood sera samples collected from the participants based on standard operating procedures (SOPs) written and maintained in the clinical chemistry laboratory at the BRH using COBAS 111 and Roche 9180 automatic analyzers and their analytical reagents from Roche diagnostics (Germany). Clearance was obtained from the Northwest Regional Delegation for Public Health Bamenda. Administrative authorization was also obtained from the Director of the Regional Hospital Bamenda.

Results: The findings obtained from this study indicates that the ALT value in HIV positive pregnant women was double that of HIV positive non-pregnant women within the study population. The ratio of pregnant to non-pregnant AST value was 1.29 : 1 which indicated that the AST value in HIV positive pregnant women increased than that of HIV positive non-pregnant women within the study population. The ratio of pregnant to non-pregnant ALP value was 1 : 0.76. which indicated that the ALP value in HIV positive pregnant women increased than that of HIV positive non-pregnant women within the study population. There was no difference in the total bilirubin level of pregnant when compared to their non pregnant counterpart.

Conclusion: Based on the findings obtained from this study, it can be concluded that ART has certain impart on the liver function enzymes hence the government of Africa especially Cameroon should draw up policies that favors free LFTs of pregnant women on ART.

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PREVALENCE OF DRUG RESISTANCE MUTATIONS AMONG HIV POSITIVE INDIVIDUALS WITH LOW LEVEL VIREMIA ON ANTIRETROVIRAL THERAPY IN BOTSWANA

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Introduction: Monitoring HIV-1 drug resistance mutations (DRM) in treated patients with a detectable viral load (VL) is important for selection of appropriated combination Antiretroviral therapy(cART). Currently, there is conflicting data on the impact of low-level viremia (LLV), that is, VL<1000 on development of DRM while there is consensus on the need to investigate DRM in patients with VL of ≥1000copies/ml. The study aimed at determining the prevalence of DRM among HIV positive individuals with varying VL levels whilst on cART in Botswana.

Methods: This was a cross-sectional analysis of 6078 HIV positive individuals enrolled in the Botswana Combination Prevention Project (BCPP) (2013-2018) residing in 30 communities. LLV was defined as any detectable VL between 50 -1000 copies/ml; categorized into low and high for ranges of 51-400 copies/ml and 401-999 copies/ml respectively. Proviral HIV sequences were obtained by long range genotyping. Pol sequences were analysed for DRM associated with nucleoside reverse transcriptase inhibitors (NRTI), non-nucleoside reverse transcriptase inhibitors (NNRTI), Protease Inhibitors (PI) and integrase strand transfer inhibitors (INSTI) using the Stanford HIV DRM database. We estimated proportions of DRM with 95% confidence intervals using binomial exact method. Proportions of mutations at different VL groups were compared using chi square test.

Results: Amongst 6078 HIV sequences, 6030 were from patients with known ART status. A total of 4748/6030 (78.7%) participants were on cART, 4741 had VL data. Of the participants with VL data, 4385 (92.5%) were virologically suppressed and 354 had detectable VLs; 179 (3.8%) had LLV and 175 (3.7%) had VL ≥ 1000 copies/ml. Stratified by LLV group, 78.8% and 21.2% had low and high LLV, respectively. The prevalence of any DRMs was 34.0% (95% CI 26.3-42.5%) on low LLV, 39.5% (95% CI 24.0-56.6%) on high LLV and 44.6% (95% CI 37.1-52.3%) among VL ≥ 1000 copies/ml group. Out of 143 participants with at least 1 DRM; 57% had NRTI, 34.5% NNRTI, 5.5% PI and 3.0% INSTI associated mutations. The most predominant NRTI, NNRTI, PI and INSTI associated mutations were M184I, K103N, G73S and E157Q respectively.

Conclusion: There is no statistical difference in the prevalence of DRM amongst VL groups suggesting the need for extending HIV drug resistance mutations genotyping to patients with LLV. We found low prevalence of PI and INSTI resistance mutations in this cohort reflecting the low usage of these ARV classes at the time of the study in Botswana.

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4-IN-1 GRANULES FOR HIV TREATMENT IN CHILDREN: LOLIPOP STUDY INTERIM ANALYSIS RESULTS

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Background: Lopinavir/ritonavir (LPV/r) in combination with abacavir (ABC) and lamivudine (3TC) is a first-line treatment for HIV-infected children under 3 years. To date, this triple combination has not been available for young children in a fixed dose combination (FDC). In partnership with DNDi, Cipla Ltd has developed a strawberry-flavoured ABC/3TC/LPV/r (30/15/40/10 mg) "4-in-1" granule FDC formulation (Quadrimune) for children. In the LOLIPOP study, the safety, pharmacokinetics (PK) and acceptability of Quadrimune is assessed for the first time in children.

Methods: This is an ongoing phase I/II, open label, randomized, crossover trial of Quadrimune (test formulation [T]) versus ABC/3TC 60/30 mg in dispersible tablets plus LPV/r 40/10 mg pellets (reference formulation [R]) in 50 virologically suppressed (<1,000 cp/mL) HIV-infected children in Uganda (NCT03836833).
Study drugs are dosed by WHO weight bands (WB): 3-5.9 kg (WB1), 6-9.9 kg (WB2), 10-13.9 kg (WB3), 14-19.9 kg (WB4), or 20-24.9 kg (WB5). Enrollment was initiated in WB2-5, and children were randomly assigned by WB 1:1 to one of two treatment sequences: R followed by T for 21 days each ("RT"), or T followed by R for 21 days each ("TR"). Intensive PK evaluations were performed after 21 days of treatment with each formulation. We report the results of the planned interim analysis in the first 16 children.

Results: By the end of July 2019, 16 children were enrolled: 8 assigned to RT and 8 to TR. At baseline, mean age was 2.7 years, weight 11.3 kg (5 children in WB2, 8 in WB3 and 3 in WB4) and CD4 percentage 33%. All children completed the study except one (lost to follow-up). With Quadrimune, the geometric means (GM) AUC0-12 for ABC, 3TC, and LPV were 5,369, 6,242, and 97,246 ng.h/mL, respectively, and GM for Cmax were 1,859, 1,170, and 11,043 ng/mL, respectively; no child had LPV C <1,000 ng/mL. At the study's end, all 15 children remained virologically suppressed, including 12 (80%) with VL<50cp/mL (versus 6/16 (38%) at baseline). Out of 50 Treatment-Emergent AEs reported, 47 were mild and 3 moderate; none was serious nor led to treatment discontinuation. Of the 15 caregivers, 10 (67%) reported administering Quadrimune was "very easy" and 5 (33%) "easy"; 12 (80%) reported the child had no difficulty in swallowing it.

Conclusion: In the first 15 young HIV-infected children who completed the study, Quadrimune was safe, well accepted and had adequate drug exposures.

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Virological suppression among HIV infected adolescents and youths receiving ART in the National teaching and referral hospital in Kenya.

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Background: HIV virological suppression is poor among the adolescents and youths which may be related to several factors including adherence to antiretroviral therapy. This study aimed to determine the HIV virological response and the associated risk factors among adolescents and youths on ART.

Methods: This was a cross-sectional study among adolescents and youths aged 10 to 24 years in Kenyatta National Hospital who were on ART for at least six months. Patient characteristics were captured in a questionnaire and viral load was abstracted from electronic medical records. Viral suppression was presented as a proportion based on viral load less than 1000 copies per milliliter of plasma. Viral suppression rate was associated with categorical independent factors using chi square test and means were compared using independent T –test.

Results: The mean age was 17 years (SD 4.3 years) and 55.6% were females. The median CD4 count was 573 cells per micro liter of blood (IQR: 344- 1780). A total of 227 (74.2%) HIV infected adolescents and youths were virologically suppressed (viral load less than 1000 copies/ml blood). As compared to children 10-14 years old who had 83.2% suppression rate, adolescents 15-19 years had poorer suppression rate at 69.6% [OR 0.5 (95% CI 0.2-0.9), P= 0.022]. Similarly youths 20-24 years had a lower suppression rate at 70.8% compared to the children [OR 0.5 (95% CI 0.2-0.9), P= 0.022]. Only 56.2% of the study participants had undetectable HIV viral RNA (as per UNAIDS 90-90-90 strategy). RNA Viral suppression rate was lower among ART defaulters (47.2%), those defaulting clinic appointments (51.7%) and those not honoring ART refill (50%). Majority of the participants (86.3%) were in WHO stage I whereas 2% were in WHO stage IV. Among those with unsuppressed viral loads, 20.7% had been diagnosed with Tuberculosis. None of the study participants had Hepatitis B virus infection.

Conclusions: HIV viral suppression among adolescents and youths was low and even much lower among 15 to 24 year-olds. Poor ART adherence and non-compliance to clinic appointments increased the risk of poor virological response.

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HIV-1C proviral DNA for detection of drug resistance mutations

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Background: Using HIV proviral DNA as a template may be suitable for initial detection of transmitted drug resistance mutations (TDRMs) as it is easy to handle and less expensive compared to RNA. However, existing literatures which are mainly focused on HIV-1B subtypes DNA extracted from PBMCs revealed controversial findings ranging from the detection of significantly lower or higher mutations in proviral DNA compared to historic viral RNA. Thus, to verify whether viral RNA or proviral DNA has improved sensitivity in detecting transmitted genotypic drug resistance mutations paired viral RNA and proviral DNA (which is directly extracted from stored whole blood) samples were tested from Ethiopian antiretroviral naïve HIV-1C infected subjects.

Methods: In the present comparative study the frequency of TDR mutations was assessed in paired samples of viral RNA and proviral DNA (extracted directly from stored whole blood) of HIV-1C infected treatment naïve patients and interpreted using the 2009 WHO drug resistance surveillance mutation lists, Stanford University drug resistance data base and International Antiviral Society-USA mutation lists.

Results: High agreement in rate of TDR between the two compartments was observed using the WHO mutation lists. While mutations G190A and E138A were concurrently found in both compartments, others such as G73S on PR and A62V, M184I, M230I on RT were identified in proviral DNA only. All signature mutations seen in viral RNA were not missed in proviral DNA.

Conclusions: The concordance of major genotype drug resistance mutation between RNA and proviral DNA in treatment naïve patients suggests that proviral DNA might be an alternative approaches for an initial assessment of drug resistance prior to initiation of antiretroviral therapy using the WHO mutations lists in resource-limited countries. However, the clinical importance of TDRMs observed only in proviral DNA in terms of being a risk factor for virologic failure and whether they limit future treatment options needs additional investigation using more sensitive sequencing approaches such as Next Generation Sequencing (NGS). 10.1371/journal.pone.0205119

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Durability of Second-line Anti-Retroviral Therapy and Predictors of a Viral Rebound Among HIV Patients on Second-line ART in an HIV Specialist Clinic in Uganda: A 10-Year Retrospective Cohort

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Background: It is projected that up to 19.6% of patients on ART in Sub-Saharan Africa will need second-line treatment by 2030, but the durability of such therapy has not been well studied. This study investigated the durability of second-line ART and the predictors of a viral rebound in patients on second-line ART in Uganda.

Methods: A retrospective review of electronic records of patients initiated on second-line ART in an adult HIV clinic was conducted. Patients that had taken second-line treatment for ≥6 months between 2007 and 2017 were included. Patients were followed until they experienced a viral rebound (Viral load ≥200copies/ml). Cumulative probability of viral rebounds and factors associated with viral rebound were determined using Kaplan-Meier methods and Cox proportional hazard models, respectively.

Results: 1101 participants were enrolled. At base-line, 96% reported good adherence, 64% were female, the median age was 37 years (IQR 31-43), median duration on first-line ART was 3.7 years (IQR 2.7-6.7), and the median CD4 and viral load were 128 cells/ul (IQR 58-244) and 45978 copies/ml (IQR 13827-139583) respectively. During the 4454.17 person-years, the incidence density of viral rebound was 79.70 (95% CI 71.83- 88.44) per 1000 person-years. The probability of a viral rebound at 5 and 10 years was 0.34, 95% CI (0.31 -0.37) and 0.5250, 95% CI (0.46 -0.60) respectively. The durability of second-line ART estimated as the median survival without a viral rebound was 9.47 years. Older age categories were protective against viral rebound, but a high switch viral load ≥100,000copies/ml was associated with viral rebound aHR 1.5, p-value < 0.001, 95% CI (1.20- 1.86). Also, later calendar years were associated with viral rebound aHR1.51, 95% CI (1.15-1.99), p-value< 0.003 for 2011-2014 and aHR 2.83, p-value< 0.001, 95% CI (2.00-4.01) for 2015-2017.

Conclusions: The study affirms that among patients with good adherence in Uganda, second-line regimens are durable, and 50% of patients switched to second-line survive for 9.47 years without experiencing a viral rebound. Meanwhile, a high switch viral load and later calendar years are significant predictors of a viral rebound, suggesting a need for closer follow-up of at-risk individuals in order to maximise the durability of second-line ART.

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Zimbabwe's National Third-Line Antiretroviral Therapy Program: Cohort Description and Treatment Outcomes

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Background: In 2015, Zimbabwe introduced third-line antiretroviral therapy (ART) through four designated treatment centers; three government clinics in Harare and Bulawayo, and Newlands Clinic (NC), operated by a private voluntary organization in Harare. National protocol to manage second-line ART failure emphasizes the need for enhanced adherence support and HIV genotyping before switching to third-line. Newlands Clinic offers comprehensive HIV services at no cost to the patient. We describe characteristics of patients receiving third line ART and analyzed treatment outcomes in the national programme as of 31 December 2018.

Methods: Routine clinic level data was obtained from the four national third-line centers. We described the population using proportions for categorical variables, and medians and interquartile ranges for continuous variables. Patients from NC, where data were more complete, were followed from the date of starting third-line ART until death, transfer, loss to follow up or 31 December 2018.

Results: A total of 209 patients had ever received third-line ART: 124 at NC and 85 from the three government clinics. HIV genotype results were available for 89 (72%) patients at NC and nine (10.6%) patients in the government clinics. Median duration of third line ART (years) in the three government clinics was 2.3 (IQR:0.6-3.4), 1.3 (IQR: 0.7-1.7) and 1 (IQR:0.6-1.9). Of the 67 patients who received third line ART in the government clinics for at least six months, 53 (79%) had most recent viral load (VL) < 1000 copies/ml.
From NC: a total of 109 (88%) patients were still in care, 13 (10.5%) had died and 2 (1.5%) were transferred. Median duration of third-line ART was 1.4 years (IQR: 0.6-2.8). Among the 111 NC patients who had received third-line ART for at least 6 months, 83 (75%) had a most recent VL <50 copies/ml and 106 (95.5%) had a most recent VL <1000 copies/ml. One patient developed four class HIV drug resistance after third-line failure.

Conclusion: Our findings demonstrate that with comprehensive care, patients failing second-line ART can achieve high rates of virological suppression on third-line ART regimens. Access to HIV genotyping in Zimbabwe is low and may be a barrier to effective diagnosis of second-line ART failure and inappropriate switches to third-line ART

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MOBILE HEALTH (mHEALTH) IN SUPPORTING RETENTION IN CARE AND HIV VIRAL LOAD COVERAGE; LESSONS FROM A USAID SUPPORTED PROJECT IN LANGO SUB REGION NORTHERN-UGANDA.

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Background: 1.4 million Ugandans lived with HIV in 2018: District viral load coverage was over 90% in 58 districts and above 70% in 97 districts. The coverage has not reached anticipated targets because of barriers like missed appointments, patients not understanding the purpose of the tests, and poor or non functional post health facility follow up services. This made it impossible to attain the 90-90-90 UNAIDS targets by 2020. Surveys showed that 24.47 million (over 50%) of Ugandans owned smartphones in 2018, we seek to show how SMS and voice call services can support appointments and Viral Load coverage among people living with HIV.

Materials/methods: The USAID RHITES-N, Lango (Regional Health Integration to Enhance Services-North, Lango) project is a district-led and community-focused project committed to working with the Government of Uganda and local institutions and networks to increase the effective use of sustainable health services in the Lango sub-region of Uganda. Clients in this project consented for mobile Health support from doctors of The Medical Concierge Group (A digital Health company headquartered in Uganda that partnered with the project). A 24/7 incoming/outgoing voice call and SMS service was offered from October 2018 to December 2019 to support retention in care and Viral Load coverage. This specifically encompassed routine follow up calls to assess well being, promote keeping of appointments, dissemination of translated health information on positive healthy living and responding to Inquiries on taking medicines and implications of viral load values.We did a random survey on data generated to assess the impact of this intervention.

Results: 14767 Participants consented to receive mobile health support. 13,128 (89%:65%-male ,35%-female) of the total number of participants honored 100% of their appointments and were successfully retained in ART care throughout the entire period. 3,636 of clients were supported with viral load SMS reminders; At least 93% of those supported returned for Viral load testing, 88% of which got viral suppression.

Conclusions: Mobile Health has the potential to improve attendance and retention in HIV care, promote adherence to treatment as well as viral load coverage and suppression among PLHIV.

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Low Baseline-Resistance to Integrase Inhibitors in Cameroon: Implications in the Era of Dolutegravir-based Regimens in Sub-Saharan Africa

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Background: Transition to Dolutegravir-based antiretroviral therapy (ART) as preferred first-line regimen is ongoing in sub-Saharan Africa. However, in this new ART-paradigm, there is limited evidence on HIV-1 non-B and non-C clades that circulate commonly in Central African settings like Cameroon. Prior to transitioning to Dolutegravir-based ART in Cameroon, we sought to analyze drug resistance mutations (DRMs) in HIV-1 integrase sequences from integrase strand-transfer inhibitor (INSTI)–naïve patients.

Methods: A cross-sectional analysis of INSTI-DRMs was conducted among 787 HIV-1 integrase sequences each from different INSTI-naive individuals living in Cameroon. Briefly, 89 sequences (27 ART-naive and 62 ART-experienced) were generated at the Chantal BIYA International Reference Centre for research on HIV/AIDS prevention and management (CIRCB) in Yaoundé, Cameroon. Then, 698 sequences (69 ART–naïve and 629 ART-experienced) were retrieved in the Los Alamos database from HIV-infected Cameroonians. Major and minor DRMs were assessed using the Stanford HIVdb V8.9-1, and subtyping was done by phylogeny. Data were analyzed using Epi-info V7.

Results: Available data revealed 55.93% were female; median [interquartile range (IQR)] age was 41 [35–48] years; median [IQR] CD4 was 121 [43–353] cells/mm³ and median [IQR] plasma viremia was 106,840 [16,568–522,234] copies/mL. Overall prevalence of major INSTI-DRM was 1.02% (8/787) [95%CI: 0.54–2.07], giving a rate of 2.08% (2/96) [95%CI: 0.27–7.88] among ART–naïve versus 0.87% (6/691) [95%CI: 0.41–1.95] among ART-experienced patients (p=0.25). Predominantly, major INSTI-DRMs were E92K (2/8), T66A (2/8), E92Q (1/8), G140R (1/8), N155K (1/8), N155T (1/8), Q148V (1/8), R263K (1/8). The overall prevalence of accessory mutations was 10.29% (81/787) [95%CI: 7.62–11.81], giving a rate of 12.50% (12/96) [95%CI: 5.52–19.69] among ART–naïve versus 9.98% (69/691) [95%CI: 7.31–11.72] among ART-experienced patients (p=0.27). Predominantly, accessory mutations were T97A (46/81), E157Q (25/81), L74I (3/81), Q95K (2/81), A128T (1/81), D232N (1/81), E157H (1/81), G140E (1/81), L68I (1/81), Q146R (1/81), and V151A (1/81). Following phylogeny, 35 HIV-1 clades were found, which include groups M (89.96%), N (1.65%), O (8.26%), and P (0.13%); with CRF02_AG being predominant (45.11%). According to major circulating subtypes, overall distribution of both major and accessory DRMs was similar between CRF02_AG (12.68%) [95%CI: 8.43–15.28] versus non-CRF02_AG (9.72%) [95%CI: 7.00–12.59], p=0.11.

Conclusion: The very-low level of INSTI-DRMs (only 1%) in this Cameroonian population suggests effectiveness of Dolutegravir-based ART within the national ART programs of sub-Saharan African countries with similar features. However, in this new era of ART paradigm, the effect of viral diversity merits further investigations when monitoring acquired INSTI-DRMs in countries with broad viral diversity like Cameroon.

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In Urban settings, Vertically-Infected Adolescents Experience Treatment Failure driven by HIV Drug Resistance Emergence: Results from a Follow-up Analysis in Cameroon

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Background: With recent increase uptake of antiretroviral therapy(ART) and subsequent global decrease in HIV-associated mortality, adolescents living with perinatal HIV infection (ALPHI) continue to experience persistently high mortality rates.This is particularly true for those living in Sub-Saharan Africa (SSA). Thus, within the Cameroonian context, we aimed to assess the burden of ART failure and its adequacy with acquired HIV Drug resistance (HIVDR) among ALPHI in urban settings.

Methods: A study was conducted in a cohort of ALPHI monitored in two reference urban paediatric centres in 2019. At clinic-level, WHO clinical staging and self-reported adherence were assessed. At the 'Chantal Biya' International Reference Centre for research on HIV prevention and management (CIRCB, Yaoundé, Cameroon), CD4-count, plasma viral load (PVL) and genotypic HIVDR testing (if PVL>1000copies/ml) were performed. Drug resistance mutations were interpreted with Stanford HIVdbv8.8. Seven HIVDR early warning indicators (EWIs) were evaluated. Data were analysed with EpiInfo v7.2.2.6,using Chi-square or Fisher exact test (where applicable) for categorical data and Student t test for quantitative data; with a p<0.05 considered statistically significant.

Results: Out of 196 ALPHI, 56.1%(110) were female, median [interquartile range, IQR] age was 16 [14-18] years, 61.7%(121) were on non-nucleoside reverse transcriptase inhibitors (NNRTI)-based regimens and 30.1%(59) were poorly adherent to ART. Clinical failure rate (WHO-stage III/IV) was 9.2% (18). Median [IQR] CD4 was 541[330.5-772] cells/mm3, immunological failure rate (CD4<250cells/mm3) was 15.8% (31) and associated with late adolescence (OR=1.24 [95% CI: 1.03-1.50], p=0.02), female gender (OR=2.45 [1.01-5.94], p=0.04) and poor adherence (OR=2.30 [1.00-5.24], p=0.04). Virological failure(PVL>1000 copies/ml) rate was 34.2% (67/196), associated with poor adherence (OR=2.14 [1.11-4.13], p=0.02) and being on NNRTI-based as compared to PI-based ART (OR= 2.58 [1.29-5.17], p=0.01). Overall HIVDR rate was 92.2% (59/64), appeared higher with first-line as compared to second-line ART (95.9% vs. 80%, OR=5.66 [0.58-74.82, p=0.08]. By drug-class, 89.1% had NNRTI-DRMs, 78.1% NRTI-DRMs and 4.7% PI/r-DRMs; with up to 81.3% dual-class resistance. Using 70% acceptable efficacy threshold, the most potent drugs were tenofovir (72.0%) for NRTI and all PI/r. 12 viral strains were found (76.5% recombinants vs. 23.5% pure subtypes). Following EWI, drivers of HIVDR were delayed drug pick-up (81.7%), drug stock outs (75%) and sub-optimal viral suppression (71.1%).

Conclusion: Among Cameroonian ALPHI on ART living urban settings, immunological failure is consistent with poor adherence, late age and female adolescents. However, virological failure is high due to emerging HIVDR, driven by poor adherence, being on first-line ART (low genetic-barrier drug-regimen). TDF and PI/r are highly active for managing ALPHI experiencing ART failure. Thus, a successful transition of ALPHI to adult care requires: improving drug supply, enhancing adherence to ART,and use of PI-based ART following therapeutic failure, targeting mainly female and late age adolescents.

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Where are the men in Gaza? A cross-sectional study to understand the residency patterns of male partners of women accessing HIV services in Gaza, Mozambique

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Background: Gaza province has the highest HIV prevalence in Mozambique, at 24.4% (higher in women [28.2%] than in men [17.6%]). In Gaza, fewer men are utilizing HIV services with significantly lesser ART coverage (42%) than in women (64%). We determined residency patterns of male partners of women accessing HIV services in Gaza to ascertain whether migratory behavior was a contributing factor.

Methods: A cross-sectional survey enrolled 526 HIV-positive women receiving services at ART and child at risk consultation (CRC) clinics in 19 health facilities, across 11 districts, May–June 2019. Data on demographics, male sexual partners, primary partner residence, disclosure and male partner HIV/ART outcomes was collected using standardized questionnaire. Descriptive analyses were performed to assess characteristics of participating women and their male partners.

Results: Of 526 women, 65.0% were between ages 25-44 years (mean = 39 years), and 52.3% had been on ART>5 years. Primary male partner data provided by 377/526 (71.7%) women; 91.0% reported disclosing HIV status to their partner and 84.1% reported their male partner had accepted HIV testing (75.1% reported having an HIV-positive partner). Of the participants who disclosed 98.8% reported informing partner that they are on ART. Of the 75.1% with an HIV-positive partner, 98.3% reported that the partner is on ART (81.2% reported that the partner is on ART in Gaza). Of the 377 women who reported a primary partner, 41.4% reported these partners spend on average ≥9 months outside of Mozambique, 51.0% in Gaza and 7.7% outside Gaza. All the men working outside Mozambique were in South Africa. The mean number of times that the partner living outside of Gaza returned was 3.7 per year. The mean number of days a partner stayed in Gaza upon return was 16.9 days. Over 80% of partners were reported to return for Christmas, and 50% returned for Easter.

Conclusions: Our study demonstrated that a large proportion of the male partners of women utilizing ART and CRC clinics are residing outside of Gaza. It provides important information about when men return to Gaza, which has programmatic implications in designing differentiated care models for migratory men, moving across country borders for work.

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Accurate HIV Viral Load in Primary Healthcare Centers using Plasma Separation Cards

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Background: The use of Dried Blood Spots (DBS) instead of plasma for HIV viral load (VL) testing allowed a rapid scale-up of virological monitoring to remote areas in sub-Saharan Africa, mainly due to the stability of DBS for storage and transportation at room temperature. However, proviral DNA and intracellular RNA present in whole blood often generate inaccurate VL values in DBS specimens. Plasma Separation Cards (PSC) are a novel technology for collecting whole blood and separating plasma without centrifugation, and that also stabilize nucleic acids for transport and storage at room temperature. This study evaluated the performance of the cobas® PSC for VL testing at primary health care facilities.

Methods: A total of 2452 specimens including fresh plasma, DBS, venous PSC and capillary PSC were collected from 613 HIV-1 infected adults on ART in two primary health care facilities in Maputo City, Mozambique, between August and November 2018. All specimens were tested for VL using CAP/CTM 96-Roche. Sensitivity and specificity of VL measured on DBS, capillary PSC (cPSC) and venous PSC (vPSC) for detecting virological failure (1000 copies/mL) were determined, with VL obtained in fresh plasma as a reference. Agreement between VL obtained by the various collection methods was analysed using the Bland-Altman statistics. The stability of HIV RNA in PSC was evaluated for one, three, seven, 21 and 28 days under four temperature conditions of 2-8oC, 25oC, 37oC and 42oC.

Results: The bias between VL obtained from fresh plasma and that obtained from DBS, vPSC and cPSC was 1.0log copies/ml, 0.09log copies/ml and 0.08log copies/ml, respectively. The sensitivity of the cobas® PSC (99.8%, capillary and 100% venous) in identifying virological failure at the clinically relevant threshold of 1000 copies/ml, as determined by plasma, was statistically significantly better than DBS (97%), as shown by non-overlapping confidence intervals. This is similarly evident with the specificity, with DBS (81.4%) performing poorly compared to the cobas® PSC (97.3%, capillary and 98.2% venous). This performance is further compounded by the higher misclassification rate for DBS (5.9%), compared to lower rates of misclassification for the cobas® PSC (0.7%, capillary and 0.3% venous).
In specimens with quantifiable VL, a slight decline in the level of HIV RNA was detected from day 7 for PSC stored at 37ºC and 42ºC. On day 28, VL determined on PSC stored at 2-8oC, 25oC, 37oC and 42oC were in average lower by 0.09 log, 0.06 log, 0.23 log and 0.26 log, respectively, when compared to values obtained in plasma on collection day.

Conclusions: VL determined on PSC are in good agreement to VL obtained on fresh plasma, also accurately identifying patients on virological failure. Specimens collected on PSC are stable for up to 28 days at room temperature (25ºC). PSC obtained from either venous or capillary blood constitute a more accurate alternative to DBS for virological monitoring of ART.

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Burnett Plasma Separation device as alternative for HIV Viral Load Determination

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Background: The HIV viral load (VL) testing is the best method for monitoring the antiretroviral therapy (ART) among HIV-infected individuals. In low and middle-income countries, the coverage of HIV viral load testing has significantly increased with the adoption of Dried Blood Spot (DBS) specimen, mainly due to its stability at room temperature. Nevertheless, overestimated VL in DBS specimens has been reported and this is due to cell-associated RNA molecules contained in DBS specimens. Burnett Plasma Separation Device (BPSD) is an easy to collect novel device used for specimen collection and transport. This device allows blood collection and plasma separation without the use of centrifuge. Our study aimed to evaluate the performance of the BPSD for VL testing among patients on ART.

Methods: A total of 1200 specimens including fresh plasma, DBS, venous BPSD (vBPSD) and capillary BPSD (cBPSD) were collected from 300 HIV infected adults on ART in two primary health care facilities in Maputo, Mozambique, between October 2019 and January 2020. All specimens were tested for HIV VL at INS reference laboratory using the CAP/CTM 96 automated platform (Roche Diagnostics). HI2CAP96, IFS96CDC and HI2PSC96, test definition files were used for plasma, DBS and BPSD specimens, respectively. Bland-Altman analyses was performed to assess agreement between VL obtained using plasma related to venous and capillary BPDS. Sensitivity and specificity of DBS, venous and capillary BPSD specimens to detect viral suppression were measured using plasma as reference specimen and a clinically relevant threshold of 1000 copies/ml was considered.

Preliminary Results: We observed a mean of difference of +0.155 log10 copies/ml (95% limits of agreement: -0.904 to +1.215) and +0.216 log10 copies/ml (95% limits of agreement: -1.222 to +1.655) for HIV VL obtained using plasma and vBPSD or cBPSD respectively. The misclassification rate at the threshold of 1000 copies/ml was 2.5% for vBPSD, 4.9% cBPSD and 4.0% for DBS. The sensitivity and specificity to identify viral suppression at the threshold of 1000 copies/ml was higher than 90% in both venous and capillary BPSD. For vBPSD, the sensitivity and specificity was 97.9% and 91.3%, respectively. For cBPSD, the sensitivity and specificity was 95.9% and 83.3%, respectively.

Conclusion: Our preliminary results shows that HIV VL obtained from vBPSD specimen, using HI2PSC96 test definition file perform well to identifying viral suppression at the threshold of 1000 copies/ml.

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Acquired drug resistance patterns and implications of use of tenofovir-lamivudine-dolutegravir (TLD) as second- or third-line regimens: evidence from real life experience in Cameroon

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Background: HIV remains a public-health priority in Cameroon (2.7% prevalence). Moreover, antiretroviral therapy (ART) scale-up has increased risks of HIV drug resistance (HIVDR), which in turn might jeopardize future/new regimens. In this era of transition to the fixed dose tenofovir-lamivudine-dolutegravir (TLD) combination, we sought to ascertain patterns of acquired HIVDR in routine clinical practice and its adequacy with the potential use of TLD as second- or third-line regimens in resource-limited settings (RLS) like Cameroon.

Methods: A cross-sectional study among adults (≥15 years) experiencing virological failure (>1000 copies RNA/ml) was carried out between 2011-2019 at the Chantal BIYA International Reference Centre (CIRCB), for Research on HIV and AIDS prevention and management, Yaoundé, Cameroon. CD4 and viremia were measured; genotypic HIVDR testing was performed; and HIVDR mutations and subtyping were interpreted using Stanford HIVdb v.8.5, and molecular phylogeny, respectively.

Results: A total of 759 participants failing ART were enrolled: 63.9%-female; mean age 42±14 years; mean duration on ART 63 [35-105] months; 76%-first versus 24%-second line-ART. Median [IQR] CD4 count 153 [50-308] cells/mm3, viremia [IQR] 138,666 [28,979–533,066] copies/ml. CRF02_AG was the predominant viral clade (58.5%). After first-line failure, overall-HIVDR was 93.4%, and varied by drug class (87.7% NRTI; 92.2% NNRTI and 5% PI/r). For second-line failure, overall-HIVDR was 92.9%, and varied by drug-class (80.0%-NRTI; 41.3%-PI/r and 39.7%-NRTI_PI/r). After first-line failure, 46.3% of patients preserved AZT-efficacy versus 35.8% for TDF, suggesting 64% TLD suboptimal efficacy in subsequent second-line. All PI/r preserved high levels of efficacy (94.4%, 94.6% and 92.6% for ATV/r, LPV/r and DRV/r respectively). For second-line failure, DRV/r preserved efficacy in 87.92% of patients as compared to 61.4% for ATV/r and LPV/r each. Importantly, AZT effective in 34.8% of patients while TDF was effective in 44.6% of patients, suggesting 55% TLD suboptimal efficacy in third line.

Conclusion: In this RLS, acquired HIVDR remains high after first- or second-line failure. PI/r remain potent back-bones for subsequent second-line ART, after first line failure. Of note, after second line failure, DRV/r remains recyclable for third-line despite exposure to ATV/r and LPV/r. While the use of first-line TLD would be optimal, its use as public health approach in subsequent second- and third-line regimens may be sub-optimal and merits rigorous monitoring/surveillance.

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Using analysis of Viral Load Result for Targeted Index Testing (using 3rd 90 to achieve 1st 90)

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Background: Over the years, stakeholders including organizations have engaged in different forms of HIV testing strategies in pursuit of achieving the 1st 90 of the UNAIDS 90-90-90 objective. This led to the adoption of targeted strategies like door to door, social network testing, index testing etc. All these strategies were employed in the past and has yielded some results but did not achieve the positivity target hence the need to introduce more targeted approach (Viral Load Result Index Testing) that can give high yield to help achieve the 1st 90.

Material & Method: Under the USAID Strengthening the Care Continuum Project and Global Fund New Funding Model II through WAPCAS, Maritime Life Precious Foundation (MLPF) MLPF introduced Viral Load Index Testing into its testing activities in the period of October 2019 to January 2020. This approach involves the use of viral load result of PLHIV clients as a bases for conducting more targeted index testing across some MLPF implementing sites. Again, Index testing is a testing strategy where people living with HIV are encouraged to voluntarily refer their sexual partners for HIV testing. We analyzed all viral load results available and used clients with high viral load as index cases to get their partners tested as it is believed that clients with high viral load poses high risk to their partners without the necessary protection. MLPF upon providing appropriated counselling to these clients with high viral load result, used them as index cases for index testing.

Result: In the period, we analyzed 40 viral load results of which 24 were virally suppressed and 16 had very high viral load results. We used the 16 clients with high viral load results for index testing and elicited 30 Contacts with 28 receiving HIV testing out of which 13 tested HIV positive.

Conclusion: In conclusion, MLPF diagnosed 13 positives out of a total of 28 tests conducted giving a positivity yield of 46.4%, an indication that these targeted Index Testing approach is a high yielding approach that should be intensified and adopted by all to help increase HIV positivity yield in pursuit of achieving our HIV objectives.

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Prevalence and factors associated with delayed antiretroviral therapy switching at rural public health facilities in Kiboga district, Uganda.

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Background: Timely switching from first to second-line anti-retroviral therapy (ART) is recommended by World Health Organization (WHO) for people living with HIV (PLHIV) with confirmed virological failure. Delay in switching contributes to drug resistance, advanced HIV disease and an increase in HIV-related mortality. This study assessed the prevalence and factors associated with delayed switching at rural public HIV care health facilities in Kiboga district under the PEPFAR- supported Mildmay Mubende project.

Methods: A retrospective review of HIV care documents of patients meeting the WHO criteria for virological failure at 3 public health facilities in Kiboga district was conducted during the month of July 2019. All PLHIV on ART with two consecutive viral load measurements of >1000 copies/ml were included. A patient was considered to have had delayed switching to second-line ART if they were retained on a first-line ART regimen for longer than 1 month after receipt of the second unsuppressed viral load measurement at the facility. Logistic regression analysis was performed to identify factors associated with delayed switching to second-line ART.

Results: A total of 114 patients met the inclusion criteria. The mean age (standard deviation) was 32.1 (16.6) years and 58.8% were females. The prevalence of delayed switching to second line ART regimen was 73.7%. Factors associated with delayed switching were being single (adjusted odds ratio (aOR) 4.1, 95% confidence interval (CI) 1.04-16.25 p=0.044) and receiving care from Kiboga hospital, a high level health facility (aOR 4.4, 95% CI 0.97-20.71 p=0.05).

Conclusion: There was a high prevalence of delayed switching from first to second line ART regimens. This indicates that PLHIV with virological failure stay longer on a potentially ineffective ART regimen. Interventions are needed to reduce this delay especially in rural high level facilities and among PLHIV with low social support. Key words: Anti-retroviral therapy, Virologic failure, Switching, HIV, second-line ART.

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Improving viral load suppression rates among HIV positive children on ART in a large volume HIV clinic in Western Uganda.

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Background: Achieving the UNAIDS global target of 95% viral suppression among HIV clients on ART is critical to ending HIV/AIDS by 2030. In March-2018, viral load suppression rate (VLS) among children living with HIV (CLHIV) 0-15yrs at Fort Portal Regional Referral Hospital (FPRRH) was 74%. Unsuppressed viral load delays growth and development, increases the risk of opportunistic infections and death. The objective of the project was to increase VLS among CLHIV (0-15 years) from 74% in March-2018 to 85% in April-2019.

Description: In March-2108, a quality improvement team led by the clinic manager, and comprising of health workers, adolescents and PLHIV held a 2-hour brainstorming session for root causes of low VLS at FPRRH among CLHIV. Interventions were identified in a driver diagram, prioritized using a focusing matrix, and monitored in Plan-Do-Study-Act cycle. Monthly VL tests were extracted from the national VL dashboard and we computed the proportion of children with suppressed VL between Apr-18 and Apr-19.

Lessons learnt: Reasons for low VLS included: caregivers factors(non-disclosure, inadequately informed multiple caregivers, difficulty administering pellets, missing appointments, and representing children during clinic visits); health systems factors (long waiting time, lack of family centered care, partial differentiation of care, loss of records due to disorganized filing system), and unclear policies for differentiated HIV services for families. Prioritized interventions that were implemented included; Filing charts in serial order and by category(child, adolescent, adult), fast tracking lopinavir/ritonavir pellets for the < 3 years, scheduling children for weekly child-friendly clinics, conducting facility-based peer-group meetings for 10-15 year olds, mobilizing school going children for facility-based viral load campaigns during holidays, and conducting home based psychosocial support by social workers to address viral non-suppression. Between Apr-18 and Apr-19, 734 children had valid VL test result, of whom 52% were female. The mean monthly number of VL tests conducted was 62(SD 11). The proportion of CLHIV with suppressed VL test increased from 74% in March-2018 to 85% in April-2019.

Conclusion: VLS among children improved through stakeholder involvement to provide patient-centered interventions that bridge the gap to reach UNAIDS targets.
Next steps: Low availability and difficulty administering lopinavir/ritonavir require innovative solutions.

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"One size does not fit all" – views by stakeholders, men on ART and men in communities on improving men's access to and continued engagement in ART in Malawi

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Background: Facility-based antiretroviral care has not shown the same uptake for men as for women in Sub-Sahara Africa. According to the 2019 UNAIDS data for Malawi men lagged behind women by over 10% in terms of access to treatment and viral load (VL) suppression. Our study explored the views of stakeholders, men on ART and men in the communities in Blantyre with regard to a treatment model that would improve men's ART uptake and retention.

Methods: We conducted a qualitative study in Malawi based on in-depth-interviews among stakeholders (n=16), men in the community (n=17) and men on ART: n=24 with detectable VL, n=17 with undetectable VL. Two interviews with men on ART were disregarded for unclear registration and/or viral load issues. We conducted interviews in Chichewa and English in Blantyre and surrounding communities in November/December 2019. Our analysis is based on English transcripts and debriefs using inductive and deductive coding.

Results: All respondent groups raised the issues of privacy and shyness of men who do not want to be seen by others and feel uncomfortable in a hospital setting when not sick. Juggling work commitments with clinic visits was depicted as an additional challenge for men on ART. Respondents suggested adjusted hospital services or alternative service delivery models as better options to attract and retain men.
Adjusted hospital services included: night and weekend opening times; male-friendly services; separate waiting areas catering for men and women's needs (tailored entertainment); more privacy and less open spaces; incentives for coming to the clinic; games being offered; faster services and less frequent clinic visits.
Alternative models included: providing services where men are (at workplaces; in clubs, bars, schools, markets, churches); separate clinics for men; ART dispensaries which would work like an ATM (installed in bars or shops); a national data registry allowing PLHIV to access ART anywhere in the country; community delivery (either through heath workers, individuals or groups); mobile ART and information (in bars, workplaces, at chief's place; at music and dance events or sports competitions); self-testing of viral load. Respondents also saw young men as needing special interventions such as own clubs as they would not want to mix with older people and or be seen by their girlfriend's friends or relatives.
Additional ideas for better adherence and retention of men in ART programs included: less frequent ART (through injections or longer lasting ARV formulations); conveying the importance of disclosure to and support from family and friends to men and providing more information on ART and viral load; being able to send partner to collect ARVs or receiving a bigger ARV supply because of relocation; a chart for monitoring the taking of tablets in the first few months; various practical ideas for remembering to take ART consistently such as taking ARVs to work or putting a stone in one's shoe.

Conclusions: Standard clinic-based ART services have not been designed for men and therefore need further adjustment or new service delivery models catering for the needs of younger and older men. The suggestions put forward by respondents will have to be further developed and tested to determine which approaches may be best suited to increase men's uptake and retention of ART leading to suppressed viral loads.

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Targeted CQI improves Early Retention of HIV+ Clients Newly Initiated on Anti-retro-viral Therapy; Lessons from the Pediatric Infectious Diseases Clinic-Mulago, Uganda.

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Background: The UNAIDS goals of achieving 90-90-90 targets by 2020 requires retention of clients in care and on treatment for HIV epidemic control to be possible. In March 2019 at the Pediatric Infectious Diseases Clinic (PIDC)-Mulago, only 75% of PLHIV returned within one month of initiating ART against MOH target of at least 95%. This presented a risk of increased HIV transmission, drug resistance, drug adverse events, and a failed ART program. We set out to improve early retention (proportion of HIV+ clients returning for their second visit within 1 month of initiation on ART) to 95% by June 2019.

Methods: A Work Improvement Team (WIT) comprising clinic staff and community volunteers conducted brainstorming sessions using affinity diagrams and fish bone techniques to identify barriers to early retention. We used an Interventions Prioritization Matrix to address inadequate counselor skills, work load, forgetting appointments and lack of monitoring system for newly initiated clients. Interventions included conducting a Continues Medical Education (CME) on the Early Retention Care Bundle, registering and updating all new client appointments, designating a focal person for newly enrolled clients, using peers to fast-track new clients, phone call and SMS pre-appointment reminders, same-day follow-up of missed appointments and immediate referral of clients who are unable to return. Progress was monitored using a Quality Improvement Journal and weekly performance review meetings.

Results: 156 patients were rapidly initiated on ART between March and June 2019. 17% of the patients came from upcountry and 93% were women. Early retention increased from 75% in March 2019 to 98% by June 2019 which was above the target.

Conclusions: A combined quality improvement initiative has shown to improve early retention and some of them can be used on patients who are already in care.

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EARLY EXPERIENCES OF SWITCHING TO DOLUTEGRAVIR IN WOMEN ENROLLED IN OPTION B+, MALAWI

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Background: Malawi recently adopted the World Health Organization-recommended dolutegravir (DTG) for HIV treatment, including all women of reproductive age. However, its acceptability and experiences of switching from efavirenz (EFV)-based to DTG-based regimen among women is unknown in Malawi.

Methods: Provision of DTG started in June 2019 at Bwaila Hospital, Lilongwe. After June 2019, women were offered the chance to switch to DTG, per Ministry of Health policy and had a chance to opt-out. Women were also offered long acting family planning methods. We used six months' data (July-December 2019) to describe early experiences of switching to DTG-based ART among a cohort of women who had been taking EFV-based ART through Option B+ from 2015 to 2019. Percentages were used to summarize acceptability of DTG, reasons for acceptance and refusal, and early experiences with DTG as recorded during their subsequent first clinic visit. We used logistic regression to identify factors associated with DTG switch.

Results: From June to December 2019, 133 women were counselled and offered to switch from EFV-based to DTG-based ART, among which 56 (42.8%) accepted to switch. A total of 19 women who had declined at baseline visit were re-offered to switch again during follow-up visits but none accepted. Most popular reasons for switching to DTG included that DTG would result into rapid viral load (VL) suppression (85%), carry fewer side effects (60%) and once daily (34%). Switching to DTG was not associated with any information provided during counselling about DTG-based regimen, although information about potential birth defects after starting DTG tended to be the only discouraging factor(OR=0.82, 95%CI 0.38, 1.77). Over 80% of women who declined switching to DTG indicated they were happy with their current ART, 33.7% indicated had concerns about birth defects and 23% had concerns with side effects. Among those who switched to DTG, 40/56 (71.4%) accepted to start or continue using long term family planning methods, and 4(7%) were already sterilized. Among those who switched, 43 came back for their monthly follow-up visit, with headache (11), nausea (12) and increased appetite (18) mentioned as side effects. All patients but one (due to confirmed pregnancy) preferred to continue using DTG.

Conclusion: DTG-based regimen is expected to be preferred, but less than half of women accepted to switch after the first counseling session, mostly due to familiarity with their current regimen and concerns about potential birth defects and side effects. To optimize HIV programs, counseling messages should target motivators such as the potential for rapid VL suppression, reduced side effects and drug interactions while addressing concerns about birth defects especially among child bearing women with the recognition that women will desire choice in the decision-making.

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The Impact of the 2014 Antiretroviral Therapy Policy on Adherence and Opportunistic Infections among Youths Living with HIV in Central Uganda: A retrospective cohort study

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Background: In 2014, Uganda adopted the antiretroviral therapy (ART) policy to initiate ART in youths living with HIV (YLWH) at CD4 count ≤ 500cells/mm3 irrespective of WHO disease stage. The recommended first line regimen (TDF/3TC/EFV) was one pill a day, providing a low pill burden. However, the effect of these changes on treatment outcomes among YLWH have not been widely documented. We evaluated the effect of implementing this ART policy on adherence and opportunistic infections (OIs) among YLWH in Uganda.

Methods: This retrospective cohort analysis, used medical records to compare adherence and occurrence of OIs among YLWH, 15-24 years old, who initiated ART pre-policy (Jan 2012 – June 2014) and post-policy (July 2014 – December 2016), at Mulago pediatric infectious diseases clinic, Uganda. Adherence was measured by pill count. Good adherence was defined as taking ≥95% of prescribed pills, and occurrence of OIs, as any OI during the study period. The effect of policy change was assessed using Generalized Estimating Equations (GEE) regression models.

Results: Of the 495 YLWH [79.8% female; mean age(sd):19(2.96) years] who initiated ART, 48.28% (239) were pre-policy and 51.72% (256) were post policy. 348 (77%) had good adherence and 122(25%) had an OI during the follow up period. The post-policy group had lower odds of having good adherence (aOR: 0.77, 95%CI: 0.61, 0.97) compared to pre-policy group after adjusting for age, gender, WHO stage, regimen, duration in pre-ART care and on ART; and lower odds of OI occurrence (aOR: 0.59, 95%CI: 0.46, 0.76) compared to the pre-policy group after adjusting for age, gender, adherence, duration on ART and regimen.

Conclusions: Our findings suggest that implementing the 2014 Uganda ART policy resulted in fewer OIs among YLWH, but they were less adherent to ART. Plausible reason for lower adherence could be the short duration between diagnosis and ART initiation in the post period which did not allow adequate adherence preparation. However, more studies are needed using more objective methods to measure adherence like viral load and explore reasons for lower adherence.

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Prevalence of HIV1-C gag mutations associated with resistance to Protease Inhibitors in Botswana

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Background: Studies of mutations outside the HIV protease (PR) region, particularly in gag have contributed to the understanding of new Protease inhibitor (PI) resistance mechanisms. The increasing importance of gag mutations and their impact necessitates further evaluation and may help explain virologic failure (VF) to PI inclusive regimens without resistance in PR. We determined the prevalence of HIV1-C gag mutations associated with resistance to PIs in Botswana.

Methods: HIV1-C sequences of antiretroviral therapy (ART) naïve and experienced participants enrolled in the Botswana Combination Prevention Project (BCPP) (2013-2018) were obtained by long-range HIV genotyping and analysed for previously described gag mutations. Viral sequences were screened for G-to-A hypermutations (HM). A threshold of 2% was used for HM adjustment. Frequency of mutations were compared by ART status among participants with viral load (VL) > 1000 copies/mL.

Results: Among 6078 participants with HIV-1C sequences, 1259 (20.7%) had a VL of above a 1000copies/ml. Amongst 1259, 1060 (84.2%) were ART naïve and 175 (13.9%) were ART experienced. The prevalence of gag mutations were 25.8% (95% CI 23.1-28.5%) and 25.1% (95% CI 18.9-32.2%) in the ART naïve and experienced, respectively. Mutations that exceeded a threshold of 50% were identified as the main variants of HIV1-C in both groups which are otherwise associated with PI resistance in other subtypes. A total of 18.2% (95% CI 2.3-51.8%) mutations associated with PI resistance and/or exposure remained statistically significant.

Conclusion: We report for the first in Botswana, the prevalence of HIV-1C gag mutations associated with PI resistance. We did not observe any difference in prevalence between the ART naive and experienced as these were lumped together as virologic failures and current data did not disintegrate the specific regimen info. Our results however confirm that indeed substitutions in gag are also evident in ART naive HIV positive isolates. These results contribute to the knowledge of resistance mutations in gag but further studies are warranted.

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Correlation of efavirenz concentrations in blood and hair with pharmacy refill adherence monitoring among People Living with HIV in Nigeria.

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Background: Adherence to antiretroviral therapy (ART) is critical for treatment success. In resource limited settings, strategies to support adherence are constrained by the lack of tools to objectively monitor medication intake. Antiretroviral concentrations in plasma and hair objectively measure short-term and long-term adherence, respectively. The aim of this study was to compare short-term and long-term efavirenz (EFV) exposures with pharmacy refill adherence data (PRA) in Nigeria.

Method: Paired hair and dried blood spot (DBS) samples were collected from 91 adults living with HIV in an ART clinic in Nigeria who were receiving 600 mg efavirenz-based ART for at least two months. Efavirenz concentrations in each matrix were measured via validated liquid-chromatography-tandem-mass-spectrometry (LC-MS/MS)-based methods. PRA was estimated from the pharmacy records, based on the number of days a patient collected medication before or after the scheduled pick-up date. HIV viral loads closest to the hair sampling time (within six months) were also abstracted. PRA was categorized into ≤74%, 75 − 94% and ≥95%, defined as poor, medium and high adherence respectively. The association between patient demographics and PRA was also assessed. Descriptive statistics summarized the data and Spearman Rank correlation was used to assess the relationship between pharmacy refill adherence, pharmacologic adherence metrics, and relevant covariates.

Result: Based on pharmacy refill adherence, 81% of the participants had high adherence while 11% and 8% had medium and poor adherence, respectively. The median (IQR) EFV concentrations was 6.85 ng/mg (4.56 - 10.93) in hair while the median EFV concentration in blood was 1495.6 ng/ml (1050.7 - 2365.8). There was a strong correlation between EFV levels in hair and blood (r = 0.61, P< 0.001). The correlations between EFV concentrations in blood and hair with PRA were positive (r = 0.12, P= 0.27 and r = 0.21, P= 0.05, respectively) but weaker for blood. Age showed a trend with PRA, where younger participants tended to have better PRA compared to older participants (r = -0.18, P = 0.08). PRA was higher among females than males (X^2 =0.63; P=0.427). Higher PRA and efavirenz blood levels were not associated with lower HIV viral loads (r = -0.12, P=0.34; r = 0.13, P= 0.30, respectively). Higher hair concentrations did not also show significant association with HIV viral loads (r = -0.14, P = 0.27).

Conclusion: Pharmacy refill adherence was not well correlated with objective adherence metrics (efavirenz levels in hair and blood), suggesting that pharmacy refill adherence may not accurately describe adherence in our patient population. Non-adherent patients may collect medicines but not take daily doses. PRA and blood efavirenz levels were not significantly associated with HIV viral load. Although hair levels were weakly associated with virologic outcomes, the duration between hair sampling and viral load metrics may have affected these results. Resource-limited settings require easy-to-perform objective adherence metrics in order to both monitor and support adherence.

Abstract 86 is withdrawn

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Provider Assisted Self-testing among Men who Have Sex with Men is gaining prominence in Ghana.

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Background: Anecdotal evidence from Maritime Life Precious Foundation's (MLPF), a civil society organization (CSO) working in with MSM in the western region of Ghana, indicated that some MSM clients were refusing HIV testing because of fears of breach of confidentiality and stigma. Although Ghana has not yet fully rolled out HIV self-testing, MLPF introduced the provider assisted HIV self-testing, using the Ghana health Service approved Oral quick to reach out to these MSM to test and link them to treatment.

Materials & Methods: During the implementation of this strategy (October 2017 and December 2019), MLPF reached 190 MSM who would only accept HIV testing if they could do the test themselves. Not wanting to lose potential HIV positive MSM, MLPF agreed to guide and support the 190 MSM who were willing to test, read, and interpret their own result and disclose to the counselor. The HIV counsellors and case manager were involved in the process by providing each of them with pre-test and post-test counselling. The 190 MSM were then guided to do the HIV test on their own and interpreted the result. After further engagement with clients for testing, all of them were willing to disclose test result for further support from the case managers and health care workers.

Result: The provider assisted Self-testing strategy was successful in testing all the 190 MSM clients who had opted for self-testing and willing to disclose result. This strategy resulted in a high HIV positivity yield (48 out of 190 clients tested positive). Currently, 42 out of 48 are on ART with 30 virally suppressed. The results indicate that the process of actively involving the client through coaching to self-test, gave them the confidence to accept their status and initiate treatment. Provider assisted Self-testing is feasible and acceptable to MSMs in Ghana

Conclusion: To ensure total coverage in achieving the 90-90-90 in Ghana, the Government should consider rolling out self-testing immediately·

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Adherence to antiretroviral medication and associated factors among HIV positive adolescents attending the Korle Bu Teaching Hospital, Accra, Ghana

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Background: Treatment adherence, essential for the success of antiretroviral therapy, remains a major challenge in the care of children and adolescents living with HIV. Self-reported adherence in perinatally infected HIV adolescents may be anywhere between 40% and 84% in resource-rich countries. Poor adherence increases the risk of viral drug-resistance and limits treatment efficacy. This results in disease progression, reduction of future therapeutic options and increases the risk of infection transmission due to unsuppressed viral replication. In Ghana, no separate official guidelines exist for adolescent HIV care and there is no formal transitioning protocol or preparation. As a result, the rate of non-adherence to antiretroviral therapy may increase after transitioning to the adult care setting. It is important to determine adherence among adolescents who have assumed responsibility for medication administration, along with the factors associated with adherence. This will enable the healthcare provider to put in place practical interventions to promote good clinical outcomes.

Aim: The aim of the study was to evaluate antiretroviral medication adherence and its associated factors among HIV positive adolescents attending the Korle Bu Teaching Hospital.

Method: This was a cross sectional study amongst an adolescent cohort aged 10-19 years with HIV infection, on antiretroviral therapy for at least 6 months. Study sites were the paediatric and adult HIV clinics at the Korle Bu Teaching Hospital. Recruitment was done consecutively for 6 months with a final sample size of 210. Data was captured using structured questionnaires and a data extraction form. The three-day self-report validated score used in the Paediatric AIDS Clinical trials, was used to measure adherence. Data was described by frequencies, proportions, means and medians. Adherence was dichotomized as a categorical variable. Chi square was used to determine the association between adherence and categorical data and the T test was used to describe the association between adherence and continuous data. A multivariate regression analysis was used to determine the independent predictors of adherence. A p value < 0.05 was considered significant.

Results: There were 210 study participants with a mean age of 13.2 years (SD ± 2.4). There was a higher male preponderance of 110(52.4%).
Based on the 3-day self-report, the adherence rate to prescribed antiretroviral doses was 50.0% among the study population.
Only 52(24.8%) of the study participants took their medication at the same time daily, and this was significantly associated with adherence, aOR 1.82 (CI 95% 2.88-14.29); p<0.0001.
The participants who had other people in the home taking antiretroviral therapy were 2.5 times more likely to adhere to their medication; aOR 2.47 (CI 95% 1.30-4.69); p=0.04.
The most reason for missing medication was forgetfulness,102(97.8%).
Facilitators like personal reminders, alarm clocks and short message services text messaging were suggested by participants to overcome barriers to adherence.

CONCLUSION: There was a low rate of adherence to antiretroviral therapy in this adolescent population and the education on adherence must be intensified at every clinic visit.
Taking medication at the same time every day, and the use of treatment partners could assist adolescents with adherence issues.
The commonest reason for missing medication was forgetfulness, and personal reminders like alarm clocks and short message services text messaging, may help to improve adherence.

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Enhanced adherence counselling and viral load suppression in HIV seropositive patients with an initial high viral load in Harare, Zimbabwe: Operational issues

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Background: In people living with HIV (PLHIV) who are on anti-retroviral therapy (ART), it is essential to identify persons with high blood viral loads (VLs) (≥1000 copies/ml), provide enhanced adherence counselling (EAC) for 3 months and assess for VL suppression (<1000 copies/ml).

Methods: Our study objectives were to determine the proportion who had a high viral load in those people who underwent viral load testing between 1 August 2016–31 July 2017 at Wilkins Hospital, Harare, Zimbabwe. Of those with high viral load to assess; a) the proportion who enrolled for EAC, the demographic and clinical characteristics associated with enrolment for EAC and, b) the proportion who achieved viral load suppression and demographic, clinical characteristics associated with viral load suppression.
Retrospective cohort study using routinely collected programme data. Data was collected from PLHIV who were on ART and had a high viral load from 1 August 2016 to 31 July 2017.

Results: Of 5,573 PLHIV on ART between 1 August 2016 and 31 July 2017, 4787 (85.9%) had undergone VL testing and 646 (13.5%) had high VLs. Of these 646, only 489 (75.7%) were enrolled for EAC, of whom 444 (69%) underwent a repeat VL test at ≥3 months with 201 (31.2%) achieving VL suppression. The clinical characteristics that were independently associated with higher probability of VL suppression were: a) undergoing 3 sessions of EAC; b) being on 2nd line ART. Initial VL levels>5,000 copies/ml were associated with lower probability of viral suppression.

Conclusion: The routine VL testing levels were high, but there were major programmatic gaps in enrolling PLHIV with high VLs into EAC and achieving VL suppression. The full potential of EAC on achieving viral load suppression has not been achieved in this setting. The reasons for these gaps need to be assessed in future research studies and addressed by suitable changes in policies/practices.

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Operation Triple Zero (OTZ) strategy improves adherence to clinic appointments, ART adherence, and Viral suppression among Adolescents and Young people living with HIV at Kericho County referral hospital, Kenya

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Background: HIV and AIDS still causing significant morbidity and mortality among adolescents in Africa and the second leading cause among adolescents globally. More than 60% of all adolescents worldwide who are living with HIV are in Eastern and Southern Africa and are about 2.1 million. About 500,000 adolescents living with HIV are just in two countries, Kenya and South Africa (UNAIDS 2015).82% of the estimated 2.1million were in sub-Saharan Africa and the majority of these (58%) were females (UNICEF 2015). Young people (15-24 years) contributes to 40% of adult new infection, adolescents constitute 19% of people living with HIV (NACC 2018). Kericho prevalence stands at 2.9% and about 2000 adolescents are infected. By December 2017,715 adolescents had been enrolled in our facility and program data showed that there was poor adherence, Missed appointments and high rates of viral suppression. In January 2018, our facility initiated OTZ CLUB to reduce missed appointment, missed drugs and improve viral suppression.

Objective: To compare adherence, and viral suppression before and after rolling out OTZ strategy.

Methods: Three day OTZ training was done to all coordinators, clinicians, managers, CASCO, healthcare workers and adolescent champions. Adolescents and young people were categorized according to their age groups 10-14, 15-19 and 20-24. OTZ sensitization meetings were done during Saturday adolescents clinics. 538 staffs in the entire six sub-counties who had adolescent and young people living with HIV Saturday clinics were sensitized on OTZ club objectives. 519 Caregivers whose children were above 10 years were sensitized. 396 adolescents were sensitized and enrolled into OTZ clubs and adherence to clinic appointment, drug ingestion and viral loads were monitored every three months. 3-day Adolescent Mentorship Orientation program (AMPO) Training of 10 mentors from high volume facilities and 2 from low volume was done to support roll out of OTZ clubs in the county. Adolescents and young people WhatsApp group initiated through OTZ, which has decreased missed appointment and drugs uptake. Club members composed OTZ anthem, designed T-Shirt and a flag. OTZ champions participated during national conference and technical working groups

Results: Number of adolescents enrolled are 715 (M=317, F =398.Out of 715,396 were sensitized (55%) Out of 396,331 joined OTZ club, (84%) 10-14=123(37%) 15-19=136(41%) 20-24=72(22%) Of 331.310 were virally suppressed (94%) M=136(44%), F=174(56%).

Conclusion: OTZ strategy improves adherence to clinic appointments, drug adherence and improves viral suppression.

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Effect of highly active antiretroviral treatment on TB incidence among HIV infected children and their clinical profile, retrospective Cohort study, South West Ethiopia

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Background: Children younger than 15 years, carries almost 80% of the global burden of HIV/ AIDS. Nearly, 50% of cases of tuberculosis are attributed to HIV infection. HIV worsen the progression of latent TB to active TB disease. Despite antiretroviral treatment has shown marked reduction in Tuberculosis incidence , TB continues to occur in Sub Saharan country including Ethiopia. The effect of highly active antiretroviral treatment is quite successful in developed country while in developing country TB/HIV co-infection remains perplexing among children on the treatment. The aim of the study was to investigate the impact of ART on the incidence of tuberculosis among Children infected with HIV in southwest Ethiopia.

Methods: A retrospective cohort study was conducted on randomly selected 800 samples from ART clinic; between 2009 to 2014. We used chi-square test, and Mann-WhitneyU test to compare HAART naïve and HAART cohort. We used marginal structural models to estimate the effect of HAART on survival while accounting for time-dependent confounders affected by exposure.

Result: A total of 844 children were followed for 2942.99 child-years. The children were observed for a median of 51 months with IQR 31 and for a total of 2942.99 child-years. From 506 OIs that occurred, the most common reported OIs were Pneumonia (22%) and TB (23.6 %). The overall TB incidence rate was 7.917 per 100 child years (95% CI, 6.933-9.002). Whereas among HAART (7.667 per 100 -years (95% CI, 6.318-9.217) and 8.1686 per 100 person-years (95% CI 6.772-9.767) for HAART naïve. The mortality hazard ratio comparing HAART with no HAART from a marginal structural model was 0.642 (95% CI 0.442-0.931, p<0.02)

Conclusions: HAART reduced the hazard of TB in HIV-infected children by 36%. This is by far less than expected.

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Surge Strategies Improve HIV Testing Efficiency and Linkage to Treatment among Female Sex Workers in Nairobi, Kenya

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Background: Kenya has made significant progress in the fight against HIV/AIDS but is unlikely to achieve epidemic control by 2020—hence, the need for accelerated optimized testing and treatment strategies. We sought to optimize case finding and linkage to treatment among female sex workers (FSWs) in Nairobi, Kenya through the implementation of surge strategies.

Material & Methods: Bar Hostess Empowerment and Support (BHESP), a key population (KP)-led organization working with the USAID/PEPFAR-funded LINKAGES project led by FHI 360, implements KP programming for FSWs by providing comprehensive HIV services at the drop-in center (DIC) or through outreach as part of differentiated service delivery models. In July–November 2019, the program initiated a surge strategy to accelerate case identification through the adoption of risk network referral (RNR), whereby FSWs at high risk for or living with HIV were asked to mobilize members of their social networks with similar risk profiles to access HIV testing at the organization's DIC or outreach locations. To ensure prompt linkage to HIV treatment among those testing HIV positive, service providers undertook individualized follow-up through phone calls and escorted referrals to the linkage facilities/DIC.

Results: BHESP increased HIV case-identification rates from 2.1% (64/3,043 FSWs who tested January–June 2019) to 9.7% (220/2,275 FSWs who tested July–November 2019), representing a four-fold increase in the case-identification rate. Of the 220 new cases identified, 193 (88%) resulted from RNR and 12% from routine outreach and testing. During the same period, the linkage rate increased from 65% to 98%. Creating buy-in from the FSWs living with HIV in identifying their higher-risk social networks was instrumental in identifying more cases. Involvement of clinical staff was also key, as the staff took ownership of the surge strategy, including setting weekly targets and reviewing results.

Conclusions/Next Steps: Surge approaches enable programs identify implementation gaps and put in place more effective approaches. The lessons learned from these approaches should be built into routine program activities, thus optimizing outcomes. BHESP will continue to use these approaches with the aim of further improving case identification and linkage to HIV treatment.

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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 aimed to explore the medium-long term impacts of Anti-Retroviral Treatment (ART) on Hypertension in a sample of HIV-positive in Malawi.

Methodology: This was a retrospective case control study carried out at DREAM health Center in Blantyre/Malawi on patients who were enrolled from 2005 to 2019, Information about age, gender, blood pressure, ART regimen, BMI, CD4 count, Viral load, Biochemistry, hemoglobin, marital status, education level, survival and period on ARVs were retrieved from data base from 01/01/2006 to 31/12/2015.. In total, we enrolled (alive and on HAART) 1350 patients > 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 (or have taken) ARVs for more than 6 months at the date of enrollment and who were 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: The sample was made up by two groups of patients, 675 who developed hypertension and 675 who did not, with similar age and gender composition. Among patients with hypertension, 30/675 (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). At 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: this study shows 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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The Health Questionnaire in clinical practice, a valid and reliable tool to support Quality of Life in PLWH.

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Background: In this cross-sectional study we present an integrated analysis of a self-reported Health Questionnaire, socio-demographic and treatment outcome data from the national Swedish HIV cohort in order to evaluate the Health Questionnaire and identify the main determinants of adherence. In clinical practice the Health Questionnaire is administered to PLWH in Sweden before meeting the HIV-Team. The answer is transferred in real time to a clinical support tool accessed by the HIV team. The Questionnaire outcome is then used to improve the consultative call between members of the HIV-team and the PLWH.

Method: The National quality assurance registry has an annual self-reported nine-item HQ. We analyzed 9,476 HQs from 4,186 PLWH together with their prescribed ART and relevant biomarkers collected 2011–2017. Data were analyzed by descriptive statistics, mixed logistic regression and Pearson correlation coefficient.

Results: The cross-sectional analysis of the annual HQ data showed that there was a high concordance between self-reported adherence to ART in the past seven days and treatment outcome, with 94% of patients who reported optimal adherence having a viral load <50 copies/ml. The main determinants of optimal adherence were heterosexual transmission path, being male, not reporting experience of ART side effects and being fully satisfied with care. The frequency of reported side effects decreased from 32% 2011 to 15% 2017. During the same period, a shift in ART prescription from efavirenz to dolutegravir took place. The correlation coefficient between percentage per year of patients given efavirenz and patients reporting side effect was 0.94 (p0.0016) and the correlation between percentage per year of patients given dolutegravir and patients reporting side effect was -0.83 (p0.02).

Conclusion: We found the Health Questionnaire to be valid and reliable when used in ordinary clinical practice. It can identify patients at risk of treatment failure, those in need of clinical assessment of adverse events and those with impaired physical health.

Abstract 95 is withdrawn

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SOCIODERMOGRAPHIC FACTORS AND CORRELATES OF CONDOM USE AMONG HIV POSITIVE MEN THAT HAVE SEX WITH MEN IN AN URBAN AREA.

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Background: Nigeria peaks as the country with the 2nd largest epidemic with its adult HIV prevalence at about 1.5%. Men who have sex with men (MSM) have the highest HIV prevalence rate which is still on the rise with 10% of new HIV infections occurring among them. The most effective way of preventing STI and HIV infection among MSM who are sexually active is through consistent and correct use of condom. Consistent and correct use of condoms provide protection against sexually transmitted infections such as HIV. The MSM population is poorly studied in Nigeria mainly because of legal restrictions.

Methods: This was a cross-sectional descriptive study using convenience sampling. 209 men who have sex with men were recruited for the study from an ART clinic in Port Harcourt Rivers State.
The data was collected using an interviewer administered questionnaire. The study was conducted between March and May 2019.

Results: Majority of the respondents were in the age group 21-25 (58.4%), had tertiary education (80.9%), were single (88.5%) and were students (60.8%).
The prevalence of consistent condom use was 8.6%. Reasons for inconsistent condom use included inconvenience (40.3%), impedes pleasure (25.6%), non availability (19.9%). The most inconsistent condom users (57.2%) were within the 21-25yrs age bracket. 92.5% of respondents that used condom inconsistently admitted to having multiple partners. The study showed a statistically significant association between income and condom use (p=0.002, X^2 =20.3)

Conclusion: This study showed a young educated HIV positive MSM population with a low prevalence of consistent condom use despite multiple sexual partners.

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Impact of Enhanced Adherence Counselling for Clients with High Viral Load at Nkurenkuru Health Centre

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Background: The aim of Antiretroviral Therapy (ART) is to suppress the HIV virus in people living with HIV (PLHIV) to allow them to live full and healthy lives. However, some PLHIV experience barriers to taking ART as prescribed, which can lead to treatment failure, defined as viral load (VL) ≥1000 copies/ml. By identifying specific barriers for each individual, it may be possible to find solutions. At Nkurenkuru Health Centre (HC), in Kavango West Region of Namibia, strategies were designed to manage such patients.

Material & Methods: In Nkurenkuru HC, between August and October 2018, 64 patients (adults and children, males and females) on first- and second-line ART were identified as having a VL≥1000 and their names entered into a High VL Register. Staff at the HC implemented a team-based approach, with teams consisting of Mentors, Nurse, Health Assistant and Health Educator. The team met weekly, reviewing all medical files of patients with high VL. The patients were individually asked to come to the clinic where the team conducted enhanced adherence counselling (EAC) for each patient. For children, the caregiver was also present. EAC included open-ended questions about family and social support, details of patient's previous and current challenges with taking medication, and the involvement of any treatment supporters. They explained to the patients the meaning of past and current Viral Load (VL) results, treatment failure and HIV resistance. The team and patient mutually addressed the barriers affecting the his/her adherence to ART and identified feasible solutions to be implemented. Patients were then given monthly follow-up appointments, and enhanced adherence counselling (EAC) was offered at each visit. After 3 months of good adherence, a repeat VL was collected. Outcomes of EAC sessions and VL outcomes were recorded in the High VL Register.

Results: In August 2019, results for 64 baseline clients showed that, 43 (67%) achieved viral suppression (<1000 copies/ml).
Among the 21 patients (33%) who still had high VL, 10 were switched to 2nd line ART after proven evidence of an improved adherence. By August 2019 they were not yet due for VL monitoring.
Thus, in total, 53 patients (83%) benefited from EAC, by already achieving VL suppression or being switched to the next line of ART.

Conclusion: An EAC team approach and close patient monitoring was successful in addressing barriers to poor adherence in patients failing ART. The process also helped staff to fully identify which patients required switching to second line treatment. This strategy may also be successful in other health facilities in which some patients with HIV are failing treatment.

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Achieving the third 95: Keeping adolescents living with HIV virally suppressed in rural Nigeria in test and treat era using Continuous Quality Improvement Model of Peer Counseling & Support Group

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Background: In 2016, Nigeria transitioned to "Test & Treat", a policy where all people living with HIV (PLHIV) are treated with lifelong antiretroviral therapy (ART). There are unique challenges achieving viral suppression in ALHIV mainly due to increased stigma, discrimination & lack of social support. Hypothesis tested was antiretroviral therapy adherence effect on viral load outcome. We examined viral suppression among adolescents living with HIV in rural Western Nigeria.

Methods: This study was an observational study of adolescents living with HIV (ALHIV) already initiated on antiretroviral therapy for at least six months, enrolled in health facilities in rural parts of Western Nigeria, during a 12-month observation period starting October 2018 till September 2019. Quantitative viral load analysis was done using Polymerase Chain Reaction, Roche Cobas Taqman 96 Analyzer. All data were statistically analyzed, using Statistical Package for the Social Sciences (SPSS), with multiple comparisons done using Post Hoc Bonferonni test.

Results: A total of 316 (151 males & 165 females) subjects eligible for the study were recruited. Most of them are in the age range of 10 – 19 years, with a mean age of 13.51 ± 2.86 years. 222 (70.3%) & 52 (16.5%) of the subjects had viral suppression of <1000 RNA copies per ml and <20 RNA copies per ml respectively. The 94 subjects went through peer counseling by trained ALHIV and enhanced adherence counseling (EAC) for three months and viral load test repeated thereafter. 22 patients who had completed the three sessions of EAC and repeated viral load increased the entire suppression numbers to 244 (77.2%) & 60 (19.0%) <1000 RNA copies per ml and <20 RNA copies per ml respectively during the period of observation. The ALHIVs in the process joined the institutionalized social-media driven support group & adolescent decentralized care model ensuring they achieve the third 95 at undetectable viral load level. ART adherence has significant effect on viral load outcome (χ^2 = 20.902, df = 1, P = 0.001).

Conclusion: Antiretroviral therapy (ARV) treatment adherence counseling is key to the achieving viral suppression and determine infection prognosis, thus, developing robust continuous quality improvement (CQI) plans to address issues across the cascade ultimately helping in the monitoring of HIV/AIDS disease progression and decrease treatment failure tendencies.

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Children and adolescent on ART in Bulawayo, Zimbabwe: How many are virally suppressed by month six?

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Introduction: In 2014, the Joint United Nations Programme HIV/AIDS (UNAIDS) announced ambitious new global 90-90-90 fast-track HIV targets for 2020. With the expansion of antiretroviral treatment (ART) coverage, investments in the global response are shifting towards sustained viral suppression for improved survival and epidemic control. This is in the context of scaling up viral load (VL) monitoring to ensure 90% of people in care are virally suppressed (VL<1000 copies per ml) The national ART guidelines recommend routine VL monitoring at six, 12 months and annually if stable on ART. [8] The extent to which routine VL monitoring is being implemented specifically for children and adolescents in the "treat-all" era has not been explored in Zimbabwe. We therefore assessed the gaps in routine VL monitoring at six months for children (0-9years) and adolescents (10-19years) initiated on ART at a large tertiary hospital in Bulawayo, Zimbabwe.

Methods: We conducted a cohort study involving secondary data. We included all children (0-9 years) and adolescents (10-19 years) newly initiated on first line ART at Mpilo OI clinic between January 2017 and September 2018.

Results: If 295 patients initiated on ART, 196(66%) were children and 99(34%) adolescents. 244(83%) underwent VL test at six months, significantly lower among adolescents when compared to children (73% versus 88%). Of 295, 52(18%) were virally unsuppressed, 161(54%) virally suppressed and 82(28%) unknown. Unsuppressed VL was not different among children and adolescents, though unknown VL suppression status, was higher among adolescents (40% versus 22%,) Switch to second line was among 18/52(35%) patients, with no significant difference between adolescents and children (21% versus 39% .

In conclusion: The study points to gaps in VL monitoring among children and adolescent in Bulawayo. Future studies are needed to understand reasons for attrition along the care cascade to better target interventions.

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POOR RETENTION ON HIV TREATMENT HALTS PROGRESS IN ACHIEVING VIRAL SUPPRESSION-LAST 90: ART RETENTION AUDIT IN 2 STATES IN NIGERIA

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Background: According to Nigeria HIV /AIDS Indicator and Impact Survey, viral load suppression among people living with HIV (PLHIV) age 15-64 years is 44.5 %(below 90% target). To ensure good health outcomes of PLHIVs, it is essential that PLHIV are retained on treatment. High drop out of PLHIVs from Antiretroviral Treatment (ART) leads to higher risk of developing resistance to ARV medications, mortality, detectable viral load and increased risk of viral transmission.
Nigerian government supports 51 ART sites in Abia and Taraba states through the NACA Comprehensive AIDS Programme with States (NCAPS). An ART retention audit was conducted using Retention and Audit Determination Tool (RADET) across NCAPS supported sites in 2019. The aim of the study was to determine rate of retention and drop out from ART at health facilities in Abia and Taraba state, Nigeria.

Methods: Folders for PLHIVs in 51 ART sites i.e. (21 Taraba and Abia 30) was audited using the RADET Tool. ART records in the folders for PLHIV who started ART in 2014, 2015, 2016 and 2017, were reviewed to extract data on those still on ART after 12 months using the RADET tool.

Results: The audit revealed that in Abia, only 53% of PLHIV who started ART in 2014, 49% of PLHIV that started ART in 2015, 50% of PLHIV that started ART in 2016 and 57% of PLHIV that started ART in 2017, were still on treatment after 12months. In Taraba state only 42% of PLHIV who started ART in 2014, 54% of PLHIV that started ART in 2015, 56% of PLHIV that started ART in 2016 and 59% of PLHIV that started ART in 2017, were still on treatment after 12months. This showed that almost half of the clients exited ART within the first year on initiation.

Conclusion: To achieve viral suppression, retention on ART must improve. Therefore attention should be given to PLHIVs within the first year of ART initiation. Tailor-made adherence counseling focused on new PLHIVs on ART within their first year and deployment of innovative tracking strategies for PLHIVs missing appointments cannot be overlooked.

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Experiences of participants in an HIV Optimize treatment study at research site in the inner city of Johannesburg, South Africa

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Introduction and background: Clinical trials study participants' recruitment has been recorded to be challenging but retention of the recruited participants remains a huge challenge. Retention of the enrolled participants leads to valuable and good quality study results. Most studies are done in developed countries, urban and rural areas but not in a mobile community like inner city of Johannesburg in Gauteng.

Aim/objectives: The aim of the study was to explore the experiences of participants enrolled in the 96 weeks HIV Optimize treatment research study and to establish their reasons to remain in the study.

Method: Collection of participants compliments, complaints and suggestions letters from the suggestion box placed visibly at reception area. Participants living with HIV on ART, were recruited for a Randomised Controlled trial which had 96 weeks visits from the health facilities around Johannesburg but mainly in the inner city and Ekurhuleni municipalities. Participants are to remain in the study for two years and getting reimbursement for their scheduled visit for time and inconvenience. During their visit they were encouraged to write complaints, compliments and suggestions in the provided box. They had a choice to use any language and be anonymous or mention their names and staff names.

Results: The study enrolled 1053 participants: 1039 adults and 14 adolescents with retention rate of above 85% throughout the study. The study is still ongoing with less than 50 participants in the study and (17.8%) early withdrawals due to reasons like relocation, lost to follow up, death, worsening conditions and consent withdrawal.
About forty-six percent of participants voiced out their wish not to be transferred back to their local clinics but remain in the research clinic even without financial reimbursement. Participants stated some of their reasons being less time spent during clinic visit (4.3 %), staff positive attitude (49.6%), welcoming environment (50.4 %).They recorded prepared sandwiches, fruit and juice not being enough as they came to clinic fasted as some of the complaints (7.8 %). Participants also had some suggestions that the clinic should consider installing free WIFI and provide full meal for scheduled visits (17.4 %). Twenty-six percent mentioned their names and 6.0 % mentioned staff names. Participants used different languages (18.3% isiZulu, 1.7% Sesotho and 80% combination of pure English, mixture of English, isiZulu and Sesotho.

Conclusion: Participants reported their interest to remain in the research clinic irrespective of the end of study. They attributed that to the positive staff attitude, less time spent at the clinic, respect given to them and freedom to know the names of health professionals and allowed to use them for compliments and complaints.

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Why are HIV infected individuals after home-based same-day treatment start not linking to care: An observational two-year follow-up of the CASCADE trial conducted in Lesotho

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Background: The World Health Organization has recommended fast, possibly same-day, initiation of antiretroviral therapy (ART) for individuals diagnosed with HIV. The CASCADE trial has shown that compared to usual care (UC), the offer of same-day (SD) ART start during home-based HIV testing results in significantly higher rates of engagement in care and viral suppression at 12 months after diagnosis. However, 31% of participants in the SD-arm had no or delayed linkage to care. In this study, we report the reasons for non-linkage.

Methods: CASCADE trial was a parallel-group, open-label, randomised clinical trial that assigned individuals who tested HIV-positive during a home-based HIV testing campaign to either the SD or UC arm. After completion of the primary endpoint at 12 months, the protocol was amended to allow a 24-months follow-up. At 24 months, the status of all CASCADE trial participants was systematically assessed again to determine reasons why they did not link. All participants who were offered SD ART and did not link were followed through phone call or home visits and interviewed for 30 minutes using a structured questionnaire in the local language. Responses were summarized by categories and key concepts were identified. To guide the analysis, the social-ecological model was used, applying the four levels of intrapersonal, interpersonal, community and health care system. Trial registered on clinicaltrials.gov (NCT02692027).

Results: Of the 13 participants who were offered SD ART but subsequently did not link to care, 8 agreed to be interviewed. Findings at the intrapersonal level highlighted that participants' reaction to ART was mostly due to fear of long-life treatment, side effects and not able to cope with treatment adherence in general. Others expressed a struggle to accept their HIV result. Interpersonal factors such as lack of financial and emotional support, difficulty in disclosing HIV status to partners were mentioned. Community factors that influenced failure of linkage included poverty, unemployment, belief in traditional medicines. Two health care system factors were documented: Poor accessibility and healthcare workers' negative attitude towards patients.

Conclusion: The findings of this study show that different socio-ecological factors influence patients' ability to link to care following same-day ART initiation in the community. Access and stigma continues to play a role in health care seeking behaviour. Therefore, to maximize the potential of same-day ART start, these barriers need to be addressed in a holistic approach.

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Effects Of Dissatisfaction On Patient Retention – A 12 Month Cohort Analysis Of Respondents From A Patient Satisfaction Survey.

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Background: Patient retention for any anti-retroviral therapy (ART) program is crucial for the program and beneficial to the patient. Patient satisfaction is key in measuring healthcare quality and plays a critical role in medication adherence. Retention in care and viral suppression is vital for Persons Living with HIV (PLHIVs) on ART. Patient Satisfaction Surveys (PSS) are an avenue for patients to assess the services provided and express their opinion about the quality of care (QoC) received at the Service Delivery Facility (SDF). Caritas Nigeria supports 90 Comprehensive Care & Treatment and 35 ART Stand-alone SDFs in Delta, Ebonyi, Enugu & Imo States to provide HIV Care & Treatment services for 58,698 PLHIVs. A PSS was conducted in all 4 states.

Materials & methods: A cross sectional study involving completion of a semi-formal questionnaire covering accessibility & convenience, provider behavior/attitude, facility & confidentiality, respect & care, payment, integration of services and spiritual support. Patients' responses were reviewed and those who expressed discontent for these indicators were separated from other respondents. A retrospective desk review was then conducted for those affected by clinical influencers to ascertain their status 12 months after the initial survey was conducted. Data was analyzed using R.

Results: Out of 568 PLHIVs that were not attended to on time, 396 (69%) remain active; 125 (22%) LTFU (M-27; F-96; NI-2); 7(1%) Died (M-6; F-1); 6 (1%) Transferred Out (M-4; F-2); 1 (0.1%) Stopped (F-1). Of the 963 that felt Lab staff didn't explain test procedures, 671 (70%) remain active; 180 (19%) LTFU (M-56; F-124); 8 (0.8%) Died (M-6; F-2); 8 (0.8%) Transferred Out (M-3; F-5); and 1 (0.1%) Stopped (F-1). Of the 1456 that had difficulty understanding Dr.'s response, 931 (64%) remain active; 238 (16%) LTFU (M-61; F-168; NI-9); 13 (0.9%) Died (M-6; F-6; NI-1); 12 (0.8%) Transferred Out (M-2; F-9; NI-1). Of the 1101 whose sessions with Dr. were interrupted by phone calls, 688 (62%) remain active; 164 (15%) LTFU (M-55; F-107; NI-2); 4 (0.4%) Died (M-1; F-3); 11(1%) Transferred Out (M-4; F-7); 1 (0.1%) Stopped (F-1). Out of the 699 that couldn't get emergency prescription, 492 (70%) remain active; 103 (15%) LTFU (M-28; F-75); 10 (1%) Died (M-6; F-4); 13 (2%) Transferred Out (M-7; F-6). 1066 felt poorly treated, out of which 632 (59%) remain active; 163 (15%) LTFU (M-52; F-108; NI-3); 8 (0.8%) Died (M-4; F-4); 9 (0.8%) Transferred Out (M-3; F-6). Of the 749 that thought of leaving the SDF, 438 (58%) remain active; 92 (12%) LTFU (M-26; F-64; NI-2); 5 (0.7%) Died (M-4; F-1) and 7 (0.9%) Transferred Out (F-7).

Conclusion: PSS provide insight into amenable factors that could negatively impact patients retention and treatment outcome. It is therefore crucial that regular patient satisfaction surveys are conducted, STOCs initiated to address areas of complaints. These can better improve both patient and program outcomes with increased retention rates.

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Pre-treatment HIV Drug Resistance to NRTI and NNRTI: Implications on Dolutegravir-based-regimens within the Cameroonian context

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Background: The scaling up of Antiretroviral Therapy (ART) is associated with an increasing risk of the emergence and transmission of HIV drug resistance, particularly resistance to NNRTIs (at least 1 in every 10), in patients initiating Antiretroviral (ARV) treatment, leading to a loss of efficacy of first-line EFV-based regimen. WHO therefore recommends that countries transition to Dolutegravir-based regimens, for optimal effectiveness of national HIV treatment programs. We therefore assessed the genotypic resistance profile of HIV-1 in patients initiating ART and its implication on Dolutegravir-based protocols in the Cameroonian context.

Methods: A sequential and analytical cross-sectional study was carried out from 2014 to 2019, in patients infected with HIV-1 initiating ART in several health facilities in eight regions of Cameroon. Sequencing of HIV-1 protease and reverse transcriptase regions was performed using a home-made protocol. Drug resistance mutations (DRMs) were interpreted using Stanford HIVdb.v.8.8. Sequence alignment was done using BioEdit software v.7.0.5.3 and phylogenetic analysis done using MEGA software v.7.0.2.1. Statistical analyses were done using Epi Info software v.7.2.2.6. Comparison of proportions was done using the Chi-square test, with a significance threshold of 5%.

Results: A total of 379 sequences were obtained in eight regions (53 for the Centre, 40 for the Far-North, 46 for the East, 41 for Littoral, 44 for the North, 61 for the North-west, 49 for West and 45 for the South-west regions). The female gender was most represented (62%) and average age was 36 ± 10 years. Genetic diversity was relevant, with a total of 18 viral strains obtained; CRF02_AG being the most prevalent (65.4%). The overall rate of Pre-treatment Drug Resistance (PDR), regardless of the ARV drug class, was as high as 15.0% [95% CI: 11.8-19.0] at the national level, with a significant disparity between the eight regions (p= 0.03); ranging from 9.8% in the Littoral region to 27% in the Far-North. The ARV drug class with the highest PDR rate was NNRTI at 12.4% [95% CI: 9.5-16.1], of which 7.9% [95% CI: 5.6-11.1] had DRMs to first generation NNRTIs (EFV/NVP). Two of the eight regions had PDR to EFV/NVP above the critical threshold of 10%; notably the Far-north (15%) and East (10.9%). The rate of PDR to NRTI was 3.2% [95% CI: 1.9-5.4] and 1.1% [95% CI: 0.7-3.4] to PI/r. The most prevalent mutations were K103N (5.5%), V106I and E138A/G/K (3.0%) for NNRTIs and M184V/I (1.6%) for NRTIs. As prediction of the effectiveness of regimens, we observed a statistically significant superiority of TDF-3TC-DTG (98.4%) over TDF-3TC-EFV (92%); p <0.0001 on a national scale, and in all eight regions. No association was found between PDR and gender (p = 0.08) nor with PDR and viral strain (p = 0.30).

Conclusion: In the Cameroonian context, comprised mainly of individuals infected with the circulating recombinant 02_AG virus, the national threshold of PDR to EFV/NVP is generally intermediate and specifically high in two regions (Far-North and East). This emphasizes the need for a rapid switch to Dolutegravir-based regimens for patients initiating ART, as recommended by WHO, with a priority for those from Far-North and East regions.

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Reconstitution immunologique chez les patients adultes VIH positifs en première ligne du traitement antirétroviral à Hôpital de District de Nylon, Douala, Cameroun

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Introduction: L'évolution de la maladie liée au VIH a été modifiée de façon importante depuis la systématisation des traitements antirétroviraux (TARV). Ces traitements ont permis d'induire une réduction importante et durable de la charge virale. Cependant, demeure le problème de la restauration immunitaire complète des LT CD4, coordinateur centraux de la défense immunitaire contre les agressions externes. Le but de notre étude était d'évaluer la reconstitution immunitaire chez les patients à VIH positifs sous traitement antirétroviral à l'hôpital de District de Nylon(HDN).

Méthodologie: Nous avons mené une étude rétrospective sur une période de 6 mois allant de Novembre 2018 à Avril 2019 à l'unité de prise en charge de HDN. Une fiche d'enquête a été utilisée pour la collecte des données à partir du dossier médicale. Seuls les patients sous TARV de première ligne depuis quatre ans ont été inclus. Après toutes autorisations administratives, nous avons recensé 500 patients. Les fréquences des différents états immunitaires à l'initiation et à quatre ans de traitement ont été calculées. Les logiciels Microsoft 2015 et XLStat version 7.5 ont été utilisé pour les analyses statistiques. La comparaison des moyennes entre les lymphocytes TCD4 à différentes année de traitement, type de protocole thérapeutique et charge virale inferieure ou supérieure à 1000 copies/ml a été effectuée en utilisant le test de variance (ANOVA) et la probabilité P considérée significative si inférieur à 5%

Résultats: De cette étude il ressort que 339/500 (68%) était de sexe féminin et l'âge moyen 40±10 ans avec une prédominance dans la tranche [36 - 45] ans 164/500 (32,8%). Tous les patients étaient soumis sous deux protocoles thérapeutiques dominées par 401/500 (80%) sous Tenofovir/Lamivudine/Efavirenz (TDF/3TC/EFV) contre 99/500 (20%) sous Tenofovir /Lamivudine /Nevirapine (TDF/3TC/NVP) .Globalement le taux de lymphocyte TCD4 a varié très peu entre l'initiation et une année de traitement ; Cependant après quatre années de traitement, nous avons observé une reconstitution immunitaire liée de façon statistiquement significative chez les patients sous protocole (TDF /3TC/EFV) et de charge virale (CV) inférieur à 1000 copies/ml . De même une différence de fréquence d'environ 24% a été révélé aussi bien chez les immunocompétents que les patients en immunodépression grave entre l'initiation et après quatre années de traitement.

Conclusion: Certes, des reconstitutions immunologiques ont été observées, mais satisfaisant après quatre années de traitement. Par ailleurs, le taux de 12% de patients en immunodépression grave demeure important après quatre années de traitement, nous interpellant à renforcer la vigilance dans la prise en charge thérapeutique des PVVIH pour espérer de meilleurs résultats.

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HIV treatment outcomes in children and adolescents <24yrs: Addressing barriers in access, availability and utilisation of services in a remote area of Zimbabwe

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Introduction: To reach the global targets of the 90-90-90 UNAIDS target -leaving no one behind and subsequently ending HIV epidemic by 2030 - HIV programs need to identify and address those challenges that limit access, availability and utilisation of HIV treatment services. Zimbabwe's context harbours an extensive array of challenges. Resource-availability is depressed, with extensive electricity blackouts, severe fuel and money shortages, affecting health-service delivery and accessibility. SolidarMed, is an AID organisation supporting the Zimbabwe Ministry of Health (MoH) HIV program in Masvingo province, Zimbabwe. We review HIV treatment outcomes in relation to some of the support strategies that were implemented in one of the most remote areas of the province, specifically targeting HIV infected children, adolescents and youth.

Methods: We conducted a review of clinic-based data from a remote and hard to reach area situated in the Southern part of Masvingo Province, Zimbabwe. Data were collected from 1 district hospital serving 7 rural health clinics (RHC), the furthest of which is 114km from the hospital. Access, availability and utilisation of HIV treatment were ensured through training and mentoring of frontline nurses in HIV management, with a focus on paediatric and adolescent. Viral Load (VL) monitoring was done using Dried Blood Spots (DBS) sample collection and processed through a laboratory in South Africa. Through support group attendance, children and adolescents received psycho-social and adherence support. We assessed the treatment outcomes, management of treatment failure and loss to follow up of all patients aged below 24years attending support groups to support through SolidarMed.

Results: In 2019, 12'837 patients were registered on ART within the hospital's catchment area; only 179(1.4%) were aged below 24years. About half of them (74/57.4%) regularly attended a support group, the median age being 13 yrs and IQR of 9.5yrs-16yrs, with an average duration on ART of 6 years, and 55% of them being female. VL samples were collected during support group attendance, resulting in all 74 members having a VL test done in 2019. DBS turnaround time (TAT) was 31 days. The majority (41/55.4%) had a undetectable VL, but a quarter (19/25.7%) had a detectable VL > 1000 cps/ml. By the time of review, only 10/52.6% had a repeat VL done after an average time of 17weeks from time of receiving initial results. Three of these (30%) had confirmed treatment failure and were switched to 2nd line treatment, 6 re-suppressed after enhanced adherence counselling, and 1 patient had poor adherence and limited social support and could not be switched to second-line but continues to be monitored.

Conclusions: In remote hard to reach areas, paediatric and adolescent support groups can provide a reliable and differentiated service delivery model allowing to closely monitor and support this group leading to potential good clinical outcomes.

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High HIV viremia among adolescents aged 10-19 years on antiretroviral therapy receiving a scaled up differentiated service delivery in Malawi: Teen club experience

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Background: Viral suppression is lower in adolescents living with HIV (ALHIV) compared to adults. In Malawi, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) established monthly "Ariel teen clubs" to provide a psychosocial and care package to ALHIV to improve their clinical outcomes. We evaluated the factors associated with high viral load (VL) in ALHIV enrolled in these clubs.

Methods: This cross-sectional study used program data from 38 health facilities in four districts in Malawi. The inclusion criteria were all ALHIV age 10-19 years who attended Ariel teen clubs between September 2018-July 2019, who were on antiretroviral therapy (ART), and had a documented routine VL result. High VL was defined as >1000 copies/mL, and optimal ART adherence was defined as having a pill count of 95%-105%. Descriptive analysis, chi-square tests and backward elimination multivariable logistic regression modelling was used to identify factors associated with high VL, adjusting for sex, age, district and disclosure of one's HIV status.

Results: Our analysis included 1,345 ALHIV, with a median age of 15 years. More than half of the ALHIV were females (n=712, 53%). High VL was identified in 30% of the ALHIV. ALHIV with poor ART adherence had higher odds of high HIV viremia (adjusted odds ratio [aOR] 1.98, 95% confidence interval [CI] 1.46-2.98) compared to those with optimal ART adherence. Furthermore, ALHIV on second line regimen (Lopinavir-based tail) had increased odds of high viremia (aOR 3.15, 95% CI 1.03-9.6) compared with those on first line (Nevirapine-based tail), while there was no statistically significant difference within the nucleoside backbone of the ART regimen. ALHIV in secondary school were less likely to be virally unsuppressed (aOR 0.5, 95% CI 0.33-0.78) compared to those still in primary school.

Conclusion: The study noted a substantial proportion of ALHIV with high VL. Factors associated with high VL included a low or high pill count suggestive of adherence problems; being transitioned to second line regimen; and primary school education. A continual focus on adolescents is required to identify interventions that can improve consistent ART treatment adherence. Furthermore, interventions to improve the proportion of youth progressing from primary to secondary school could benefit HIV-related health.

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Sex differences in virological suppression and mortality in select PEPFAR countries—January to March 2019

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Background: In sub-Saharan Africa, more women than men access HIV testing and treatment, which likely results in better viral load suppression (VLS) and reduced mortality. Using a new President's Emergency Plan for AIDS Relief (PEPFAR) indicator, we assessed VLS and mortality across multiple countries to determine if differences existed by sex.

Materials & Methods: VLS and mortality data for people aged 15+ living with HIV on antiretroviral therapy (ART) from January-March 2019 were extracted from two separate PEPFAR indicators for six countries with high HIV burden. PEPFAR-reported data for these indicators are not de-duplicated. Data were included at facility level and disaggregated by age (15-49 and 50+), sex, and subnational units (SNU). VLS was calculated as VL ≤ 1000 copies/mL among ART recipients within the last year. Mortality was calculated as documented deaths divided by current treatment counts plus documented deaths. We fit linear regression models to VLS, and negative binomial models to mortality. All models were weighted for SNU size and controlled for age, sex, and country and one mortality model controlled for VLS at SNU level.

Results: VLS among SNUs ranged from 75.6% to 98.8% and was higher among women than men (87.4% vs. 85.1%, p<0.0001). Mortality ranged from 1.85 to 7.43 per 1000 persons and was nearly two times higher among men (5.55 vs. 3.08, p<0.0001). Controlling for VLS, age, and country, mortality ranged from 1.4 to 7.3 per 1000 persons and remained higher among men (5.43 vs. 3.29, p<0.0001).

Conclusions: Mortality was higher among men, despite adjusting for VLS, suggesting possible sex differences in immunological response to HIV and co-infections. In high mortality SNUs, these data may be used to target and deploy the advanced disease package of care, including screening, treatment and/or prophylaxis for opportunistic infections including tuberculosis, meningitis, and cryptococcal disease, and to inform ART adherence support interventions.

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Shedding new light on viral load suppression: Evidence from the People Living with HIV Stigma Index 2.0

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Background: In working towards the goal that all people living with HIV (PLHIV) achieve viral load (VL) suppression, it is critical to understand VL-literacy and VL-testing experiences, as well as how stigmas may influence VL-suppression. We sought to further such understanding through cross-sectional surveys with PLHIV in four countries.

Methods: Data come from the PLHIV Stigma Index 2.0, implemented from 2017-19 with PLHIV diagnosed ≥1 year ago in Uganda (n=389), Cameroon (n=377), Senegal (n=390) and the DR (n=889). Both venue-based and snowball sampling were used to recruit a diverse group of PLHIV. VL-status was assessed by: "In the last 12 months, have you been told you have an undetectable viral load or are virally suppressed?". Multiple logistic regression assessed associations between VL-suppression and (a) internalized stigma (score on a validated six-item scale) and (b) reporting that stigma-related fears led to missing doses of antiretroviral therapy (ART), controlling for socio-demographic characteristics. Qualitative data from in-depth interviews (IDIs) with a convenience sample of an additional 20 respondents in Uganda helped elucidate how PLHIV understood and felt about VL-suppression.

Results: A majority of respondents were female, mean age ranged from 36-42, and mean time since HIV diagnosis was about seven years. Nearly all (≥95%) reported currently taking ART. However, of the full sample in Senegal/Uganda/Cameroon/DR, respectively, only 60/82/94/96% knew what viral load was, 45/71/77/77% reported receiving VL-testing/result in the last year, and 43/63/64/56% reported being virally suppressed. Mean internalized stigma scores fell in the middle of the range of 0-6, from 2.0 in the DR to 3.3 in Cameroon. Reporting missing ART doses due to stigma-related fears ranged from 14.5% in the DR to 31.1% in Cameroon. In multivariable analyses, PLHIV reporting VL-suppression had lower internalized stigma scores in each country except Senegal, reaching statistical significance in Uganda (aOR=0.83, 95%CI 0.74-0.94, p<0.01). And in each country, those reporting VL-suppression had lower odds of reporting that stigma-related fears led to missing ART doses, reaching significance in the DR (aOR=0.58, 95%CI 0.39-0.86, p<0.01) and Uganda (aOR=0.51, 95%CI 0.31-0.83, p<0.01). In IDIs (Uganda only), respondents had varying levels of VL/VL-suppression understanding. A few respondents had no awareness of VL, whereas most knew that VL has something to do with treatment. A minority was able to explain that VL is the amount of virus in the body/blood and that low/undetectable VL means good adherence/effective treatment. Some respondents emphasized why knowing their VL-status was important to them: "it gives me the morale to adhere well to treatment…"; "…it's my right to know my viral load…[and] even if my adherence is good it lets me fight stress."

Conclusion: Only about half of PLHIV reported VL-suppression, despite near-universal ART use. PLHIV with higher internalized stigma, and those reporting stigma-related fears caused them to miss doses, consistently had lower odds of being virally suppressed, warranting close attention to potential adverse effects of stigma/discrimination. Additionally, to promote VL-suppression, as well as informed health decision-making and peace of mind, it is critical to improve VL-literacy and testing practices alongside ART adherence.

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Implementing HIV Differentiated Service Delivery in Eswatini: Healthcare Workers' Perspectives

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Background: As the Eswatini Ministry of Health scales up antiretroviral therapy (ART) for people living with HIV, it has prioritized six differentiated service delivery models (DSDM), including appointment spacing, fast track services, facility-based groups, Teen Clubs, community-based groups, and mobile outreach services. These less-intensive treatment models are designed to improve service quality by providing client-centered care, decongest health facilities (HF), and reduce the time and financial burden on HIV-positive clients doing well on ART. To date, Eswatini has not evaluated the perspective of healthcare workers (HCWs) implementing these new models of care.

Materials & Methods: We conducted 20 in-depth interviews (IDIs) with HCWs providing DSDM services. The transcribed IDIs were analyzed through an inductive-deductive qualitative data analysis approach with the use of Dedoose™ software. In order to complete qualitative data analysis, specific definitions were assigned to codes. Barriers to DSDM implementation were defined as any difficulties or obstacles that HCWs encounter in implementing DSDM, facilitators of DSDM implementation were defined as anything that helps in promoting DSDM implementation, and Deviation from Standard DSDM was defined as instances when DSDM is implemented differently than national standards or with non-standard models.

Results: IDI participants included HCWs from the four regions of Eswatini: 6 senior nurses, 4 registered nurses, 4 expert clients, 3 pharmacists, 1 nurse assistant, 1 pharmacy assistant, and 1 medical officer, wherein 13 (65%) of the HCW were female. Many HCW noted that DSDM implementation had decreased the daily number of ART clients and reduced their workloads; they also felt that wait times had dropped for clients, especially those in the Fast Track DSDM, and that client demand for the less-intensive models was high. When asked about implementation barriers, HCW reported that staff shortages made management, oversight and documentation of multiple DSDM difficult and that stigma and non-disclosure of HIV status decreased client interest in group models due to concerns about lack of privacy and confidentiality. HCW also noted that they occasionally deviated from implementation guidelines in order to adapt models to clients' needs – and that these adaptations caused some confusion and documentation challenges, as the same terms were used for different delivery strategies.

Conclusions: HCWs perceived benefits of DSDM, including reduced HCW workload and reduced client wait times. HCW also reported that both "supply side" barriers (such as staff shortages) and "demand side" requests (such as client preferences) had led to changes in DSDM design and deviations from national protocols. While these non-standard models were felt to be responsive and contextually appropriate, they may also create challenges for monitoring, evaluation, and training. Balancing the public health approach, which requires some standardization, with the need for tailored, client-centered services, will be a priority for Eswatini moving forward. Hence, this priority is an important note that will guide the review of the National Guidelines and Standard Operating Procedures for DSDM implementation in Eswatini. Future research would need to assess how to mitigate this contention and how benefits and barriers to successful implementation differ by cadre, facility setting, and DSDM offered.

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Maternal Tenofovir Exposure in Pregnancy and Risk of Preterm Delivery among Women Living with HIV in Malawi.

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Background: Safety of Tenofovir disoproxil fumarate (TDF) use during pregnancy has important public health implications as TDF use during pregnancy has been linked to adverse birth outcomes, particularly preterm delivery (PTD). We assessed whether TDF plasma concentration during pregnancy associated with increased odds of preterm delivery among women living with HIV (WLHIV) initiating on Tenofovir (TDF)/Lamivudine (3TC)/Efavirenz (EFV) regimen in Malawi.

Methods: We used data from a prospective observational cohort study of pregnant WLHIV engaged in care at high-volume Bwaila maternity hospital in Lilongwe, Malawi. We measured TDF plasma concentration at 3 time points (enrolment, third trimester >28 weeks, and during labor and delivery) among those on TDF-containing ART. We used mean TDF plasma concentration for this analysis. Our primary outcome was PTD, <37 weeks gestational age (GA) based on either last menstrual period or ultrasound scanning. We used Wilcoxon rank sum test to analyze the differences in median of the mean TDF concentration between women who had delivery at term and PTD. We assessed the association between TDF concentration and pregnancy outcome using ordinary logistic regression adjusting for age and gravidity.

Results: We analyzed a total of 1062 blood samples from 497 pregnant WLHIV, among which 39(7.9%) had preterm delivery. The baseline medians were: 29 years (Interquartile range: IQR 25-33), GA 40 weeks (IQR 38 - 40). The overall median of Tenofovir plasma concentrations was 57.5 ng/ml (IQR 40.8-72.2ng/ml). There was no difference in median Tenofovir plasma concentrations between women who had term delivery and PTD (Term: 57.6 ng/ml, IQR 41.6 -72.7ng/ml) vs PTD: 55.6 ng/ml, IQR 38.6 -69.1ng/ml, p-value= 0.766). In both univariate and multivariable logistic regression analysis, adjusting for age and gravidity, there was no significant association between TDF concentration and pregnancy outcomes: term delivery vs PTD (OR: 0.997; 95% CI: 0.985, 1.009).

Conclusions: Exposure to TDF-containing ART during pregnancy was not associated with increased odds of PTD among pregnant WLHIV in our study. These findings are similar to the existing evidence on the safety of TDF exposure and address concerns on the use of TDF-based regimens for HIV treatment and prevention during pregnancy.

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Priority Clubs: An integrated adherence counselling support and clinical management approach for patients with unsuppressed Viral Loads

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Background: Gaps remain in achievement of viral suppression, the crucial endpoint of the HIV treatment cascade, driven mainly by poor adherence to ART as well as other clinical and non-clinical barriers. In Lejweleputswa district, a rural district of the Free State, South Africa, the Wits Reproductive Health and HIV Institute together with the Department of Health initiated Priority Clubs (based on the Risk Of Treatment Failure model) for patients with two consecutive unsuppressed viral loads (VLs) of more than 1000 copies/ml. According to the 2015 National Consolidated ART Guidelines, implemented at the time, adult patients on ART with two or more high Viral Loads (>1000copies/ml) had to receive specific interventions which address that.

Methods: Adult patients from Matjhabeng, Tswelopele and Nala sub-districts who were on ART with ≥2 high VL (>1000copies/ml) were identified either through routine clinic visits or electronic ART register reports and were invited to attend Priority Clubs. Patients were booked and seen monthly for three integrated adherence-clinical consultations by the same nurse and psychosocial mentor at every visit, ensuring continuity of care. Repeat VL testing was conducted after 3-months. Suppressed (VL<1000copies/ml) patients were transferred to a check-in support group. Unsuppressed patients were offered 3 additional counselling sessions within the club with further clinical support and management as per guidelines. Effectiveness of priority clubs was determined using VL suppression (VL<1000copies/ml) conducted after three sessions and for those who failed to suppress after the first three sessions, effectiveness was measured after they received 3 additional support sessions based on their repeat VL three months later

Results: From March to December 2019, 18 facility-based Priority Clubs (with   between 5-15 patients in each club) were established, comprising 120 adults: 42 (35%) males and 78 (65%) females. Retention at time of submission was 80%, as 24/120 patients (20%) did not complete the intervention due to relocation, transfer out or work commitments. To date, 14 clubs with 59 patients have completed all 3 integrated sessions and had VL outcomes. Of these patients, 24 (41%) were virally suppressed and had graduated to check-in support groups while 35 (59%) were not yet suppressed and remained in Priority Clubs for additional support and possible regimen switch. The majority of patients (75%) were on efavirenz-based regimens, with similar numbers receiving efavirenz among those who suppressed and those who did not (25% vs. 26% respectively). The remaining 41 patients are yet to complete their sessions.

Conclusions: This model has shown promising results with patients willing to enroll in clubs and good retention in club care. Re-suppression rates are in alignment with other studies on re-suppression after enhanced adherence counselling. The contribution of treatment resistance to these outcomes was not assessed and ongoing evaluation of suppression rates after regimen switch is underway. Implementation of this intervention in the context of more robust first-line regimens, such as a dolutegravir-based first-line regimen, requires further investigation.

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Differentiated Anti-Retroviral Therapy (ART) Delivery for MSM

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 Background: This model hinges on the MSM context and puts into consideration the specific health needs they face. It downscales the unwarranted   burdens on healthcare workers and the health system. Differentiated ART delivery serves more than the clinically stable adult MSM clients. DSD involves the entire HIV care continuum which entails linkage to prevention. This Decision Framework pivots on ART delivery for MSM. It has a network of DSD providers for men who have sex with men. Differentiated ART delivery is client-centric and addresses to not just the needs of clients who are clinically stable and those in need of additional thorough medical re-examination but to the entire whole MSM population.

Method: The lay providers and the confidential peers were involved in delivering Comprehensive / ART health services and influencing behavior change for sustainable safer sexual behaviors. Longer ART refills was done for MSM who received ART for at least one year; who did not have negative drug reactions that required systematic supervision, had no ongoing illnesses, had a good understanding of lifelong adherence, and evidence of treatment success (two consecutive viral load measurements below 1,000 copies/mL, rising CD4 cell counts or CD4 counts above 200 cells/mm3).
The MSM confidential peers were engaged in ART delivery model to support distribution of ART (by facilitating group refill models at the facility and in the community/ delivering ART to community ART groups with the client's consent), provide psychosocial support and trace MSM clients who missed appointments. In addition to supporting treatment literacy and adherence to ART, engaging these confidential peers allowed   clients to address, with someone with shared experiences, the challenges of stigma, discrimination and related legal and social barriers MSM face.

Results: About 200 clinically stable adult MSM clients' accessed differentiated ART delivery model had less frequent clinical visits and longer ART refills.   MSM had Improved access to quality health services   Helped in bridging the gap between the first 90 and the third 90 and the retention and adherence to care was coupled with viral suppression.   DSD reduced unnecessary burdens on the health system.
Over 4600 MSM and over 300 MSW (MSM Male sex workers) have been mobilized by the peer educators; all of them have been offered comprehensive health education, about 4600 have been STI/HTS Screened. Over 300 are maintained in ART. About 200 are adhering to PrEP.

Conclusion: This more intensive follow up and a package of intervention should be implemented far and wide and scaled up to reduce morbidity and mortality in MSM.
More resources should be provided to support DSD model for MSM ART Delivery.

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ESTIMATING PROGRESS TOWARDS UNDETECTABLE HIV VIRAL LOADS AMONG PATIENTS RECEIVING ANTIRETROVIRAL THERAPY THROUGH DIFFERENTIATED MODELS OF CARE IN AKWA IBOM STATE

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Background: The recent U equals U (undetectable equals transmittable) campaign has been promoted as a concept that can reduce stigma and improve engagement with care among people living with HIV (PLHIV). Simultaneously, the population of PLHIV receiving antiretroviral therapy (ART) through various differentiated models of care (DMOC) has grown as more PLHIV gain access to ART. While differentiated care has been offered to stable and unstable patients on ART, the majority are stable, accessing both in-facility and out-of-facility based DMOC. We therefore sought to assess progress towards undetectable viral load among stable patients on ART in Akwa Ibom State, Nigeria.

Methods: Routinely collected records of patients enrolled between March 2017 and May 2019, on either Community Pharmacy ART Refill Program (CPARP), 3 months multi-month dispensing (MMD-3), or 6 months multi-month dispensing (MMD-6) and had been on DMOC for at least 6 months were analyzed. HIV viral load results were classified as undetectable ($\leq$40cells/ml), suppressed but detected (41-999cells/ml) .Data was summarized using descriptive statistics and multivariate logistic regression models were used to assess associated factors with undetectable HIV viral load. We considered statistical significance at $p < 0.05$.

Results: A total of 513 patients were reviewed with a mean age of 37.1 years (SD 12.01) and median duration on DMOC of 9 months (IQR: 7-10 months). Of these, 356 (69.4%) were female, 112 (21.8%) were on CPARP, 249 (48.5%) were on MMD-3 and 152 (29.6%) were on MMD-6. A total of 429 (83.6%) of patients had received a recent HIV viral load and of these, 346 (80.7%) were undetectable and 83 (19.3%) were suppressed but detected. In multivariable analysis, patients on CPARP had higher odds of being undetectable (aOR:1.13, 95%CI: 0.53-2.19), while those on MMD-3 had lower odds of being undetectable (aOR: 0.79, 95%CI: 0.44-1.41) compared with MMD-6 and adjusted for age and sex. However, none of these were associations were statistically significant.

Conclusion: Stable patients on ART maintain good HIV viral load suppression rates and even achieve or sustain their undetectable status while receiving ART through various models of differentiated care. DMOC can therefore be a sustainable approach to ART as the U equals U campaign gains traction.

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A COMPARATIVE ANALYSIS OF ADHERENCE AND COMPLETION RATES IN TB PREVENTIVE THERAPY (TPT) AMONG PEOPLE LIVING WITH HIV ON 3-MONTHS & 6-MONTHS MULTIMONTH ART DISPENSING

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Background: Multi-month dispensing (MMD) of Antiretroviral therapy (ART) has the potential to reduce the pressure on already overburdened health systems. As more programs transition patients to longer refill intervals, the impact of spaced client visits on receipt of other medications such as TB preventive Therapy (TPT) remains unknown. We sought to compare adherence and completion rates of TPT among people living with HIV (PLIHIV) on MMD of ART at comprehensive HIV centers in Akwa Ibom State.

Methods: This was a retrospective review of routinely collected program data for stable HIV infected patients on ART and TPT between March 2017 and October 2018. Data were collected from initiation of TPT to 6 months after TPT initiation as minimum required for TPT completion .Adherence was assessed as good (≥95%) or poor (<95%) based on patient-self report while TPT completion was assessed as either completed or not at the end of 6 months follow up. Deidentified data were extracted from electronic medical records and analyzed using SPSS ver. 20. The data was summarized using descriptive statistics and multivariable logistic regression was used to determine differences in adherence and completion rates between the PLHIV on 3 months and 6 months MMD

Results: Overall, a total of 917 patients on MMD were initiated on IPT, with a mean age of 39.3 years (SD: 11.6). Of these, 648 (70.7%) were females and the median duration on ART was 4 years (IQR: 2 years - 6 years). Majority of patients were on MMD-6 (n = 642; 70.0%), while 275 (30.0%) were on MMD-3. Adherence to TPT was 95.6% (n=263) among patients on MMD-3 compared with 98.3% (n=631) among those on MMD6 (p=0.19). In addition, 95.6% (n=263) of patients on MMD-3 completed TPT compared with 98.4% (n=631) among those on MMD-6 (p=0.011). In multivariate analysis, patients on MMD-3 similar odds of being adherent to TPT (aOR = 0.46 95% CI: 0.12-1.13, p=0.09) and completing TPT (aOR = 0.49, 95% CI: 0.20-1.19, p=0.12) compared with patients on MMD-6, adjusted for age, sex and duration on ART.

Conclusion: Overall, adherence to TPT and TPT completion rates were good in both MMD models. We also found that TPT adherence and completion rates were comparable both MMD-3 and MMD-6. MMD-6 can therefore be reliably rolled out without fear of negative impact- non-adherence on TPT. However, client centered care approaches should be considered in implementing differentiated models of care for clients also receiving TB Preventive therapy

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Assessment of Community Adherence Club Implementation in Namibia's ART Programme

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Background: In 2017, the Government of Namibia launched the community adherence club (CACs) programme as an alternative method of ART delivery for stable patients in three regions: Khomas (urban), Oshana (peri-urban), and Zambezi (rural).

Methods: During July-October 2018, we evaluated Namibia's CAC programme to inform national rollout. Stata 15.0 was used for quantitative data analysis while transcripts were manually coded. We conducted a total of 7 focus group discussions with CAC members (CMs) in Khomas (2), Oshana (3) and Zambezi (2). A total of 37 in-depth interviews were conducted with various stakeholders, including 12 ART providers (APs), 15 fieldworkers (FWs), and 10 individuals who refused to join or dropped out of a CAC. Retention in CACs after six months was assessed using pill pick up data.

Results: The degree of success differed by region. CACs were reported to be highly successful in Oshana, resulting in more efficient pill pick-ups and reduced congestion in clinics. In Zambezi and Oshana, CACs motivated patients to take their medications and be proactive in their care. Many CMs said that CACs taught them invaluable lessons in cooperation, trust, respect, responsibility, and supporting one another financially, physically, and psychologically. Challenges were more apparent in Khomas and Zambezi, where HIV stigma was reported to be a major barrier to recruitment. In Zambezi, protected indoor meeting spaces were lacking, compromising privacy for some CACs. In Khomas, language differences, conflicting work schedules, transient populations, and lack of a sense of community were major hindrances. Retention rates in CACs were lower in Khomas (Khomas 76%, Oshana 92%, Zambezi 88%), primarily due to referrals back to facility care (18%).

Conclusions: We identified challenges from which implementers in other settings can learn; for example, the importance of ensuring private meeting spaces in rural settings and the need to adapt recruitment and CAC formation strategies to accommodate more transient and culturally/linguistically diverse urban populations.

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TREATMENT FAILURE AND ASSOCIATED FACTORS AMONG INDIVIDUALS ON SECOND LINE ANTIRETROVIRAL THERAPY ATTENDING MBALE REGIONAL REFERRAL HOSPITAL

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Background: ART failure is a growing public health problem and a major threat to the progress of HIV/AIDS control, yet little is documented on treatment outcomes and their associated factors among individuals on second line ART regimen in Uganda.

The rapid scale-up of ART over the past has resulted in substantial reductions in morbidity and mortality. However, as millions of people must be maintained on ART for life, individuals with ART treatment failure are increasingly encountered and the numbers are expected to increase. This could be attributed to factors such as sub-standard regimens, limited access to routine viral load monitoring, treatment interruptions, suboptimal adherence, among others. The purpose of this study was to estimate five-years' cumulative treatment failure and the associated factors among individuals on second line ART regimen attending Mbale regional referral hospital.

Materials and methods: A retrospective analysis of 541 HIV positive patient records switched to second line ART regimen from Jan 2012 to Dec 2017.

Chi square test and multivariable logistic regression analysis of the selected demographic, laboratory and clinical factors was performed. Association between treatment failure and the predictors was based on a p-value of less than 5% and confidence intervals level of 95%.

Results: We reviewed 541 records of individuals on second line ART regimen, of which 350 (64.7%) were female, 226 (41.8%) were married, and 197 (36.4%) were older than 35 years. The mean age at ART initiation was 30 years (SD=14. 8), while the mean weight at ART initiation was 47kgs (SD=18.6), (range 4-97 kgs).

The overall proportion of treatment failure was 23%. The cumulative mortality risk for five years was 12.4% and the mortality rate was 2.5 deaths per 100 individuals per year.

The odds of developing treatment failure among individuals switched to ATV/r-based regimen were 44 % lower as compared to individuals who were switched to LPV/r (ORadj0.56, 95% CI 0.35-0.90, p=0.016). while the odds of experiencing treatment failure among individuals that used AZT at ART initiation were 43% lower as compared to individuals that used a TDF based regimen at ART initiation (ORadj0.57, 95% CI 0.33-0.98, p=0.041).

Conclusion: The five year cumulative incidence of treatment failure in a cohort of 541 individuals was 23%. The type of protease inhibitor (PI) used in second line regimen and use of AZT at ART initiation were significantly associated with treatment failure. Our study also shows that the cumulative mortality risk while on second line ART regimen was 12.4% while the mortality rate was 2.5 deaths per 100 individuals per year.

Recommendations: The Ministry of Health should consider adopting early resistance testing for persons with viral loads beyond the threshold so as to facilitate early identification of resistance and subsequent regimen switch to higher regimens.

Given the high level of treatment failure among individuals on 2nd line ART regimen, we recommend that an alternative third-line ART regimen be availed for those individuals in district hospitals who are on a failing second-line regimen.

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Severe anaemia complicating HIV in Malawi; multiple co-existing aetiologies are associated with high mortality

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Background: Severe anaemia is a major cause of morbidity and mortality in HIV-infected adults living in resource-limited countries. Comprehensive data on the aetiology is lacking and needed to improve outcomes.

Methods: HIV-infected adults with severe (haemoglobin ≤70g/l) or very severe anaemia (haemoglobin ≤50 g/l) were recruited at Queen Elizabeth Central Hospital, Blantyre, Malawi. Fifteen potential causes of severe anaemia of anaemia and associations with anaemia severity and mortality were explored.

Results: 199 patients were enrolled: 42.2% had very severe anaemia and 45.7% were on ART. Over two potential causes for anaemia were present in 94% of the patients; including iron deficiency (55.3%), underweight (BMI<20: 49.7%), TB-infection (41.2%) and unsuppressed HIV-infection (viral load >1000 copies/ml) (73.9%). EBV/CMV co-infection (16.5%) was associated with very severe anaemia (OR 2.8 95% CI 1.1-6.9). Overall mortality was high (53%; 100/199) with a median time to death of 16 days. Death was associated with folate deficiency (HR 2.2; 95% CI 1.2-3.8) and end stage renal disease (HR 3.2; 95% CI 1.6-6.2).

Conclusion: Mortality among severely anaemic HIV-infected adults is strikingly high. Clinicians must be aware of the urgent need for a multifactorial approach, including starting or optimising HIV treatment; considering TB treatment, nutritional support and attention to potential renal impairment.

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Evaluation of the adherence and viral load completion accomplishments after ART initiation-Namibia

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Background: Namibia has enrolled 93% of all HIV patients into the ART programme.
Objectives: To evaluate the adherence and viral load completion accomplishments after ART initiation of all patients initiated on ART.

Methods: Retrospective cohort study of 943 patients. Data was collected from all patients between 2010 and 2015 in two health facilities in Windhoek. We first examined factors associated with treatment adherence. Second, patients with at least 95% adherence to those less than 95% adherence and the viral suppression at 6 and 12 months were compared. Lastly, we investigated factors associated with viral suppression. Both chi-square tests and multivariate binary logistic regression models were applied.

Results: About 69% adhered to treatment at least 95% and 25.2% defaulted treatment. Higher adherence was associated with viral suppression at 6 months (73.3% suppressed), and at 12 months, viral load suppression increased to 85.9%. Regression results study revealed that those who adhered more than 95%, were 1.65 times more likely to suppress the virus compared to those who did not (p=0.029). The results further show that having CD4 of more than 200 at the initiation of ART was likely to be associated with viral suppression (OR=1.55, 95% CI 1.03-2.33).

Conclusions: The adherence to ART, the viral load accomplishments, the viral suppression did not reach the expected outcomes, targets set by UNAIDS. Although, close to 90% of patients at 12 months showed viral suppression, the number of patients checked for viral load were far from 90% of patients (about 54.5%) ever started on ART. Efforts are needed to meet the UNAIDS target for Namibia to contribute to the HIV/AIDS elimination by 2030.

Abstract 120 is withdrawn

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Tracking and providing ART Services to Internally Displaced PLHA from the NW and SW Regions into the West Region, January to June 2019; a daunting task but wonderful commitment.

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Background: Active and lifelong Anti-Retroviral Therapy (ART) for all persons living with HIV/AIDS (PLWHA) is capital to achieve the 3rd 90 of the 90 90 90 goals. Since 2016 there has been socio-political instability in the North West (NW) and South West (SW) regions causing massive displacement of persons to other regions of the country and even to neighboring Nigeria among which PLWHA. The West region shares boundaries with both the NW and SW regions and serves as refuge to many internally displaced persons (IDPs). We aimed at tracking and providing ART to HIV infected IDPs in the West region from January to June 2019.

Methods: We followed up HIV infected IDPs on ART from the NW and SW regions in HIV treatment Centers in the West region. An IDP was defined as any person previously living and taking HIV medications in a treatment center in either the NW or SW regions who relocated in the West region as a result of the socio-political crisis in those regions. Registers were placed in the treatment centers to collect information on the IDPs during their drug refills. The   information collected in the registers included the patient's name, phone number, ART Code, health facility of origin in NW or SW regions, age, sex, ART regimen and outcome. Each client received for the first time was served for the month and given monthly appointments for two subsequent months, after 3 months of ART refill, the outcome was defined. The outcomes included; transferred into the treatment center's treatment current, returned to treatment centre of origin in the NW or SW, died or other reasons.
The registers were filled daily by trained statisticians at the level of the treatment centers who are responsible for day to day dispensation of drugs to PLWHA. Data from the registers were entered into Microsoft Excel 2016 where they were cleaned and analyzed. The excel file was shared with both NW and SW regions on a monthly basis to know the whereabouts of their displaced lost to follow up clients.

Results: Thirty two out of 41 (78.0%) treatment centers reported having served ARVs to at least one IDP during the period. A total of 667 IDPs were received of which 563 (84.4%) were from the NW region. The female sex was predominant with 453 (67.9%). The median age was 39 years ranging from 6 months to 87years. The Bamendzi Baptist Health center provided salvage ART services to the highest number of IDPs (21.4%, n=143). Also 439 (65.8%) IDPs received treatment just once in a health facility and did not return the subsequent months; only 57 (8.5%) and 30 (4.5%) of them came for two and three consecutive months respectively. More than half (58.1%, n=388) of the IDPs were transferred into the treatment center's treatment current, 21.4% (n=145) returned to their treatment centre of origin and 0.6% (n=4) were reported dead.

Conclusion: The rate of absenteeism of IDPs was high. It is important improve the retention of IDPs to care by reinforcing the psychosocial support offered to them and also to create a friendy environment at the treatment centers to reduce stigma and discrimination which IDPs can face.

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Intensified campaign to return people lost to follow-up to antiretroviral therapy: A success story from John F Kennedy Medical Center (JFKMC) Monrovia, Liberia

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Background: In Liberia, 43,000 people living with HIV (PLHIV) need to be diagnosed and initiated on treatment to achieve the 95-95-95 goals and epidemic control. So far, about 14,000 have ever been initiated on antiretroviral therapy (ART). As of July 2019, a total of 8,442 clients were reported as lost to follow-up (LTFU) across 11 health facilities. John F. Kennedy Medical Center (JFKMC), one of the largest facilities in the country and with a high caseload of PLHIV implemented a strategy to address this gap with the support of linkage retention coordinator (LRC) under the PEPFAR/USAID-funded LINKAGES project.

Methods: LINKAGES recruited and trained LRC to provide key-population-friendly, facility-based HIV services in collaboration with community partners as well tracking LFTU. A team led by the LRC and other ART staff reviewed PLHIV charts from January 2007–July 2019, identified the charts of all those LTFU, and grouped and labeled the charts by month and year of defaulting. LRCs used the names, unique identification codes, and contact numbers to track PLHIV LTFU either by phone and visits.

Results: The total of clients that were reported LFTU at this facility since inception of ART provision in 2007 is 2.219 and all were accounted for through intensive tracking.
•   594 (28%) PLHIV LTFU have been reinitiated on ART, 166 (28%) of whom were reinitiated during the intensive three-month tracking period (July–September 2019).
•   Four hundred fifty (20%) patients were reported as having transferred to other facilities closer to their residence.
•   Relatives reported 466 (21%) as deceased.
•   A total of 183 (8%) were not reachable by phone or through visits.
•   Clients LTFU numbering 526 (24%) were missing physical locator information or were not yet reachable by phone, but tracking efforts continue.

Conclusions:
•   LRCs are new to Liberia, and their introduction played a critical role in the tracking of those LTFU.
•   Intensification of tracking defaulters immediately returned 166 clients to treatment.
•   Additional measures of locator information such as peer home escort should be used to reduce LFTU.
•   The 450 clients who transferred to facilities closer to homes suggests the need to ensure the provision of services closer to where people reside.

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Magnitude of Virological Treatment Failure and its Determinate Factors among Adults on First line Antiretroviral Treatment at Defence Main Health Department - Level II & Level III Hospitals in Ethiopia, 2018

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Introduction: Highly active antiretroviral therapy (HAART) played a critical role in the medical management of HIV infected individuals by restoring the immune function and minimizes HIV related outcomes. But treatment failure minimized these advantages and leads to an increment of morbidity and mortality with poor quality of life in all HIV patients.

Objective: The aim of this study was to assess the virological treatment failure and its determinant factors of patients on first line HAART at five commandant Hospitals, Ethiopia.

Methods: A Retrospective hospital based study design was used to determine magnitude of treatment/virology failure and its determinant factors, among HIV positive adults enrolled to HAART program at five commandant Hospitals from February 1 to May 30, 2018. Data abstracted from patient charts or electronic data base was cleaned, coded, entered and analyzed using EPI data version 3.1 and SPSS version 23 statistical software package. Descriptive statistics, proportion of treatment failure cases among those diagnosed to have treatment failure was calculated. Bi-variate and multiple logistic regressions were used to analysis association between the outcome and the independent variables were taken as significant at $P < 0.05$ (2 tail test) and 95% confidence intervals (CIs).

Result: Among the 326 participants enrolled, 229(70.2%) were males. The mean ages were 36.84 years (SD+7.716) years and the median months on HAART from initiation were 81.50 months. A total of 75 (23%) participants were found to have treatment failure among those 50 (15.3%) immunological failure, 7(2.1%) virological failure and 16 (4.9%) all Treatment failure (VF, IF&CF in one). The mean CD4 T-cells at base line and at study time were 213.3 cells/ μl. Long duration on treatment (AOR= 4.231, 95% CI: 1.453-12.320) , IPT cycle (AOR = 3.060, 95% CI: 1.388-6.746), Type of drug AZT based therapy (AOR =2.572, 95% CI: 1.357-4.875) ,experience of PEP (AOR=7.950, 95% CI: 1.945-66.915) and lost to follow up (AOR= 9.104,95% CI: 2.973-27.873) were found to be significant predictors of treatment/virologic failure and showed positive odds ratio.

Conclusion: This study demonstrates high treatment /virologic failure and the determinant factors of treatmen/virologic failures among HAART first line adult are still shifting. Therefore, evidence-based intervention and early detection of treatment failure must be made to further identify the potential causes and set standardized protective mechanisms of treatment/virologic failures.

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Making A Living At The Cost Of Adherence - Challenges Faced By Middle Class Clients at AIDS Information Centre (AIC)

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Background: Adherence is the cornerstone of antiretroviral therapy (ART) and non-adherence translates into viral non-suppression with the resultant increased risk of HIV transmission and new infections as well as ARV drug resistance. The causes of non-adherence, among others, may be client related and includes stigma, discrimination and non-disclosure. AIC is a private not-for-profit non-governmental organization which provides HIV prevention, care and treatment services for the general public but has a patronage of middle class clients because of the relatively more private clinic setting compared to public (government) facilities.

Materials & Methods: Client tracking activities for clients on ART are undertaken to promote adherence to ART and retention in care. At AIC clients who miss their clinic appointments are tracked through phone calls and/or home visits. From July to December 2019, out of 1,020 clients on ART, 455 missed their scheduled appointments. An assessment of the client tracking activities (specifically for the phone calls) was undertaken in order to document and respond to the reasons for missed appointments of the persistently high numbers of clients with the same.

Results: Of the 455 clients tracked, 84 (41 male, 43 female) didn't return within a week of phone call follow up. Among reasons clients gave for missing appointments were: forgetting their appointment dates and transport related problems. However 77% (65 clients; 38 male, 27 female) missed appointments because of work related constraints including: busy work schedules, distant workstations and limited time/ days allowed off work for clinic visits.
Additionally because of non-disclosure and fear of stigma and discrimination, this category of clients do not declare their HIV status to employers and therefore cannot request for addition time/days off for clinic visits; do not have anyone to collect drugs for them and importantly decline alternate Differentiated Service Delivery Models (DSDM) models like community refills preferring facility based care thus compounding missed visits. Those were virally non-suppressed didn't adhere to schedules/ appointments for intensive counselling sessions and declined home visits for adherence support and home based index testing.

Conclusions: Middle class clients prefer more private HIV service delivery options but their work combined with stigma and non-disclosure puts them at risk for missed visits and therefore non-adherence. There is low uptake of available community DSDM for adherence promotion and therefore alternate community refill options like door to door service delivery for these clients may be more appropriate.

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Strategies To Improve Linkage To HIV Care In Urban Areas Of Sub-Saharan Africa: A Systematic Review

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Background: Of the 37 million people estimated to be living with HIV globally in 2017, about 24.7 million were in the sub-Saharan Africa region. Enrolment of newly diagnosed individuals into care in the region, however, remains poor with up to 54% not being linked to care. Linkage to care is a very important step in the HIV cascade as it is the precursor to initiating antiretroviral therapy (ART), retention in care, and viral suppression.

Methods: A systematic review was conducted to gather information regarding the strategies that have been documented to increase linkage to care of Persons living with HIV(PLHIV) in urban areas of sub-Saharan Africa. An electronic search was conducted on Scopus, Cochrane central, CINAHL Plus, PubMed and OpenGrey for linkage strategies implemented from 2006.

Results: A total of 189 potentially relevant citations were identified, of which 7 were eligible for inclusion. The identified strategies were categorized using themes from literature. The most common strategies included: health system interventions (i.e. comprehensive care, task shifting); patient convenience and accessibility (i.e. immediate ART initiation, community HIV testing); behavior interventions and peer support (i.e. assisted partner services, care facilitation, mobile phone appointment reminders, health education) and incentives (i.e. non-cash financial incentives and transport reimbursement). Several strategies showed favorable outcomes: comprehensive care, immediate ART initiation, and assisted partner services. They can be delivered either in a health facility or in the community but should be facilitated by health workers. However, the use of various incentives failed to improve linkage in the included studies.

Conclusion: Assisted partner services, same day home-based ART initiation and combination intervention strategies significantly improved linkage to care in urban settings of the sub-Sahara Africa region. There is, however, the need to conduct more linkage specific studies in the sub-region to assess the use of financial incentives and stand-alone versus combination intervention strategies in improving linkage.

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Relationship between self reported adherence and viral load among adults living with HIV in Ghana: a cross-sectional study

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Background: Antiretroviral therapy (ART) has changed the face of the HIV epidemic. It suppresses viral load so decreasing risk of viral transmission and also resulting in favourable clinical outcomes and decreased mortality rates. However for the full benefits of ART to be realised it is important that there is good adherence to therapy. Monitoring adherence should ideally be done by checking the viral load in people living with HIV but accessibility to viral load monitoring is a challenge in Ghana and parts of sub-Saharan Africa. An easily accessible, low cost tool for determining adherence would therefore be very useful in such settings. This study evaluates the association between self-reported adherence and raised HIV viral load in Ghana.

Methods: A cross-sectional study was carried out in January 2019 among consented, adult HIV patients who had been on ART for at least a year at the HIV clinic of Komfo Anokye Teaching Hospital in Kumasi, Ghana. Using a pre-tested, interviewer-administered, structured questionnaire; data was collected on socio-demographics and self reported adherence over the previous 3 and 7 days and the combined adherence was obtained. Viral load testing was also performed with a cut-off of greater than 1000copies/ml as the primary outcome.
A logistic regression was done to evaluate the factors significantly associated with unsuppressed viral load.

Results: A total of 178 people participated in the study with a mean (±SD) age of 46.1(±10.0) years. The male: female ratio was 1:4.
Most respondents who self-reported good adherence had viral load less than or equal to 1000copies/ml (n = 129, 90.2%) and 13 (37.1%) respondents who self reported poor adherence had viral load more than 1000copies/ml. Although not statistically significant, respondents with viral load greater than 1000copies/ml were more likely to be unmarried (16.0% vs 14.1%, aOR=1, 95% CI 0.397-3.161, p = 0.830), financially dependent (25.0% vs 12.7%, aOR = 2.5, 95% CI 0.785-7.969, p=0.121) and on ART for > 4yrs (16.7% vs 7.1%, aOR = 2.7, 95% CI 0.443-16.272, p=0.282).

Conclusions: Our study shows that self reported good or poor adherence (especially within a short time frame) ties in well with viral load levels and can be used as a useful tool for assessing compliance to ART especially in resource constrained settings where access to viral load is limited. Further studies should be done to determine the correlation between viral load and other adherence screening tools like pharmacy records in Ghana.

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The Effects of Teen Clubs on Adherence to Antiretroviral Therapy and Virologic Suppression among Adolescents in Windhoek, Namibia

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Background: Adolescents living with HIV have unique needs and are notably under-served globally and in national responses, which negatively affects their access to ART and results in poor ART adherence and inferior treatment outcomes such as achieving and maintaining virologic suppression. A Teen Club intervention was introduced in 2010 in Windhoek, Namibia to improve ART adherence and virologic suppression among ALHIV by providing psycho-social support in a peer-group environment. A retrospective cohort analysis of all adolescents aged 10-19 years receiving ART at the Intermediate Hospital Katutura Pediatric HIV clinic between 1 July 2015 and 30 June 2017 was conducted.

Methods: Patient data was extracted from the electronic Patient Monitoring System, individual Patient Care Booklets and teen club attendance registers. A sample of 385 participants were analysed: 78 in the Teen Club and 307 in standard care. Adherence to ART was measured through documented patient self-reports and pill counts by clinicians at clinic visits whilst virologic suppression was measured by assessing viral load results up to 24 months. Comparisons were assessed with the Chi-square test, and Risk ratios were calculated to analyze differences in ART adherence and virologic suppression between the two comparison groups.

Results: The average clinician-measured ART adherence was 89% good, 6% fair and 5% poor among all adolescents, with no statistically significant difference between Teen Club members and adolescents in standard care (p = 0.277) at 3 months. There were statistically significant differences between younger and older adolescents (p = 0.033), adolescents who were disclosed to and those not disclosed to (p = 0.035), and between adolescents on ART < 12 months and those on ART ≥ 12 months (p = 0.030). Virologic suppression was on average at 87% (68% fully suppressed, 19% suppressed) and 13% not suppressed, with no sufficient evidence of a statistically significant difference between club members and those in standard care. The chance of virologic suppression among Teen Club members at 6 months was about 6% less compared to virologic suppression among adolescents in standard care (RR = 0.938; 95% CI = 0.842-1.045), about 5% less at 12 months (RR = 0.952; 95% CI = 0.845-1.071), and about 10% less at 18 months (RR = 0.897; 95% CI = 0.792-1.016).
However, there was statistically significant differences in suppression levels between the younger (10-14 years) adolescents and older (15-19 years) adolescents at 6 months (p = 0.015) and at 12 months (p = 0.021). The chance of virologic suppression among the older adolescents was about 10% less compared to virologic suppression among younger adolescents at 6 months (93 % vs 83%, p= 0.015), and 12 months (90 % vs 80%, p= 0.021), and about 8% less at 18 months (90 % vs 83%, p= 0.091). There was also a statistically significant difference between adolescents on a first line ART regimen and those on second line at 6 months (p = 0.012), at 12 months (p = 0.004), and at 18 months (p = 0.005),with better virologic suppression among adolescents on a first line regimen.

Conclusion: Group-based adherence support interventions did not improve ART adherence and virologic suppression levels for younger adolescents in specialized pediatric ART clinics but may still hold potential for improving adherence and virologic suppression levels among older adolescents.

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HIV DIVERSITY IN CSF AND PLASMA OF INDIVIDUALS WITH HIV-ASSOCIATED CRYPTOCOCCAL MENINGITIS

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Background: HIV-1 can compartmentalize in reservoir sites such as the central nervous system (CNS) and this is a barrier to complete HIV eradication. We compared cerebrospinal fluid (CSF) and plasma viral load (VL), drug resistance mutations (DRMs), co-receptor usage and gag-cytotoxic T-lymphocytes (CTL) escape mutations in HIV-1 strains from individuals with HIV-associated Cryptococcal meningitis (CM) in Botswana.

Methods: This was a cross-sectional study utilizing CSF and plasma paired samples from 60 participants enrolled in a clinical trial evaluating the early fungicidal activity of 3 short-course, high-dose liposomal amphotericin B regimens for CM between 2014-2016. HIV VL was measured in 39/45 (87%) paired samples. Viral escape was defined as HIV-1 RNA ≥0.5 log10 in CSF than plasma and HIV-1 VL discordance as CSF/Plasma ratio >1. HIV-1 protease, reverse transcriptase, envelope and gag genes were sequenced using big dye sequencing chemistry. DRMs were analysed using Stanford HIV drug resistance database. Geno2pheno was used for prediction of co-receptor usage. Gag sequences were analysed for known CTL escape mutation positions documented in Los Alamos HIV database.

Results: A total of 34/39 participants (87%) had detectable VL in plasma and CSF with medians of 5.1 (Q1, Q3: 4.8-5.7) and 4.6 (Q1, Q3: 3.8-4.9) log10 copies/ml, respectively (p≤0.001). The prevalence of CSF viral escape was 1/34 (2.9%) [95% CI: 0.07-15.3]. HIV-1 VL discordance was observed in 6/34 (18%) pairs. Discordance was not associated with CD4 count, antiretroviral status nor mental status. A total of 26/45 (58%) pairs were sequenced and 14% were on antiretroviral drugs. The most predominant DRM in the plasma was K101E (n=2) whilst the other mutations occurred at equal frequency of 1 in plasma and CSF. HIV-1 DRM discordance was found in 3/26 (12%) paired samples. Of these, one had protease inhibitor (PI) associated mutation I84T and the other had M46I in CSF only, the third one had K101E in plasma and V106M in CSF. The V3 loop of HIV-1 envelope was sequenced from 18/45 (40%) pairs; 94% and 83% were CCR5-using strains in the CSF and plasma, respectively (p=0.8). A total of 8 HIV-1 gag CSF and plasma samples were sequenced and analysed for known CTL escape and compensatory mutations in 10 CTL epitopes. A total of 6/7 (87%) CSF and plasma paired samples had HIV-1 strains harbouring similar CTL escape mutations. The most predominant mutation was G357S which occurred in HIV-1 strains of 4/7 (57%) paired samples. All 8 participants had HV-1 strains with I223V compensatory mutation, 3/7 (43%) had H219Q, 1/7 (14%) M228L and S165N was found in 1/7 (14%).

Conclusion: Low rates of CSF viral escape were observed. PI-associated DRMs were found in the CSF compartment but none in the plasma. Co-receptor usage and CTL escape mutations were similar in both compartments. Our study shows little HIV-1C genetic difference between the CSF and plasma compartment in patients co-infected with CM.

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Effect of noresthisterone, combined contraceptive vaginal ring (CCVR) and COCPs on HIV cervical target cells in adolescent girls: A randomized crossover study

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Background: Majority of new HIV infections in Sub-Saharan Africa occur in adolescent girls and young women, who are also at risk for unintended pregnancies. While a variety of contraceptives are available, the use of progestin-only injectables particularly DMPA, have been associated with increased risk of HIV acquisition. Although the ECHO trial recently revealed that women on DMPA are no more likely to acquire HIV than those using other long-acting methods. We aimed to investigate the effects of NET-EN, combined contraceptive vaginal ring (CCVR) and combined oral contraceptive pills (COCPs) on the frequencies of endocervical T cells, and their expression of CCR5, HLA-DR and CD38.

Methods: Adolescent females (n=130; 15-19 years) were randomized 1:1:1 to receive either NET-EN, CCVR, or COCPs (Triphasil/Nordette), and followed for a total of 32-weeks, crossing over to another HC at 16-weeks. Cervical cytobrush-derived T cells were analyzed by flow cytometry for the expression of CCR5 and activation markers (HLA-DR and CD38).

Results: Between baseline and crossover, initiation of CCVR was associated with increased proportions of cervical CD4+ T cells that expressed CD38 singly (p=0.01), and HLA-DR together with CD38 (p=0.03), despite decreased overall frequencies of CD4+ T cells compared to NET-EN and COCPs use. In addition, both CCVR and NET-EN users had increased proportions of CD8+CD38+ T cells (p=0.01). Interestingly, expression of HLA-DR on CD8+ T cells was reduced at week 16 compared to baseline in all the HC arms.

Conclusion: Although all HC altered the phenotype of cervical CD8+ T cells, the use of the CCVR increased the activation (CD38+) of both cervical CD4+ and CD8+ T cells in adolescent girls. The use of the CCVR in adolescents at high risk of HIV warrants further investigation.

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Polymorphisms of P7(NC) – P6gag region of Gag polyprotein could explain Protease inhibitors combination treatment failure in non-B HIV-1 subtypes infected patients in Yaoundé, Cameroon.

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Background: HIV Gag mutations have been reported to confer PI resistance in B subtypes but very little is known about non-B. Understanding the role of P7 – P6gag in PI resistance and characterize relevant mutational patterns, could help to reduce failures to PI

Material and methods: We conducted at CIRCB a cross-sectional study on 334 individuals (96 on PI). Resistance mutations (RMs) were analyzed in the protease region using the Stanford algorithm v 8.3. Mutations were identified in the P7 – P6gag cleavage sites(CS) (P7/P1 and P1/P6gag) and non-CS of each sequence using HXB2 and Bioedit.7.2.5 software. Each Gag sequence was analyzed for the presence of specific P7 – P6gag RMs known or not to be associated with resistance to PIs. Samples containing a mixture of wild type and mutant were scored as mutants. CD4 T-lymphocyte (TL) count and viral load (VL) were quantified using the FACS instrument and Amplicor HIV-1 Monitor Test respectively. Statistical analysis was performed using GraphPad Prism 6. Data were analyzed by two-tailed unpaired t-test or ANOVA for multiple comparison. $p \leq 0.05$ was considered significant.

Results: We compared PI exposed patients to not exposed in P7 – P6gag CS and non-CS. In CS
we found the already described RMs given as exposed/not exposed frequencies: I437V 0%/0.84%; L449P 73.9%/ 80%; P453L 9.37%/3.36% with the respective p 0.861;0.675;0.04 in P7/P1 CS for the first RM and P1/P6gag CS for the others. In non-CS, we found V467E 84.37%/92.47% (p=0.607) and two new mutations with high entropies Q476K 79.16%/0.84% and E477Q 79.16%/0% (p< 0.0001).VL and TL did not differ between patients with the new mutations and those without (p=0.85 and p=0.40 respectively). Among the 96 (44.31% men, Mean age [IR]=41.21±12.66 [7-70] yrs.) on PI, 76 were failing PI with RMs (38.63% M46I, 7.95% I47IV/V/A, 4.54% I50L, 12.5% I54IM/M, 14.77% L76V, 4.54%, V32F11.36% V82S/T/A/F, 21.59% I84V and 5.68% L90M). We found out the prevalence of RMs in P7 – P6gag in patients with PI-RMs as compared to those with no PI-RMs. The mutations in term of PI-RMs/no PI-RMs were: P453L 55.5%/44.4%; Q476K 43%/55.26%; E477Q 42.10%/53.94% all with p>0.05. No P7 – P6gag RMs was linked to a particular subtype: CRF02_AG (63%), G (4%), F2(4%), A (17%), D (2.63%), CRF11_cpx (11.3%) or CRF09_cpx (1.3%) (p≥0.05).

Conclusion: Our analysis revealed in addition, two potentially important, not yet described, new mutations Q476K, E477Q in P7–P6gag non-CS of non-B Gag, that could have clinical implications. Subtypes, VL, TL and PI-RMs had no impact on these mutations. However, further phenotypic analyses and clinical correlates of drug failure will be needed before such information is suitable for amending existing resistance algorithms that are used for genotyping HIV resistance testing

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TNF-α (-308) Gene polymorphism and Type 2 Diabetic Mellitus in Ethiopian Diabetes Patients

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Background: Type 2 diabetes mellitus (T2DM) is a metabolic disorder resulted from insulin insufficiency or function. Predisposing factors for T2DM are mainly genetic and environmental. Genetic polymorphism of cytokines like Tumor Necrosis Factor alpha (TNF-α) is suggestive of interfering with insulin-sensitive glucose uptake and induces insulin resistance that ultimately could lead to T2DM. In this study, we assessed the effect of TNF-α (-308) G/A gene polymorphism and its association "with the development of T2DM in an Ethiopian population.

Methods: An institutional based cross-sectional study was conducted on study subjects with T2DM and non-diabetic healthy controls. DNA was extracted and genotyping was carried out by using amplification refractory mutation system polymerase chain reaction. A genetic-polymorphism on TNF-α (-308) G/A with T2DM was evaluated by Logistic regression and Student's t. A P-value < 0.05 was considered as statistically significant.

Results: In the present study, we have been observing a significant association between T2DM and TNF-α (-308) gene polymorphism's GG genotype [χ2 test P = 0.005, OR (95% CI) =2.667 (1.309-5.45d8)]. In contrast, no statistically significant differences were observed in the frequencies of genotypes AA and AG (χ2 test P=0.132 and 0.067, respectively). Moreover, T2DM individuals had higher concentrations of lipid profiles for those carrying TNF-α (-308) GG genotype as compared to the control group.

Conclusion: TNF-α (-308) genetic polymorphism may be implicated in the genetic susceptibility as well as the development of T2DM and lipid metabolism in the Ethiopian population. Therefore, a large-scale study and early screening of TNF-α (-308) genetic polymorphism may help in early management and control of diabetes and related outcomes.

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Triterpenoids from Ocimum labiatum Activates Latent HIV-1 Expression In Vitro: Potential for Use in Adjuvant Therapy

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Background: Latent HIV reservoirs in infected individuals prevent current treatment from eradicating infection. Treatment strategies against latency involve adjuvants for viral reactivation which exposes viral particles to antiretroviral drugs.

Materials & Methods: In this study, the effect of novel triterpenoids isolated from Ocimum labiatum on HIV-1 expression was measured through HIV-1 p24 antigen capture in the U1 latency model of HIV-1 infection and in peripheral blood mononuclear cells (PBMCs) of infected patients on combination antiretroviral therapy (cART). The mechanism of viral reactivation was determined through the compound's effect on cytokine production, histone deacetylase (HDAC) inhibition, and protein kinase C (PKC) activation. Cytotoxicity of the triterpenoids was determined using a tetrazolium dye and flow cytometry.

Results: The isolated triterpene isomers, 3-hydroxy-4,6a,6b,11,12,14b-hexamethyl-1,2,3,4,6,6a,6b,7,8,8a, 9,10,11,12,12a,14a,14b-octadecahydropicene-4,8a-dicarboxylic acid (HHODC), significantly ($p < 0.05$) induced HIV-1 expression in a dose-dependent manner in U1 cells at non-cytotoxic concentrations. HHODC also induced viral expression in PBMCs of HIV-1 infected patients on cART. In addition, the compound up-regulated the production of interleukin (IL)-2, IL-6, tumour necrosis factor (TNF)-α, and interferon (IFN)- but had no effect on HDAC and PKC activity, suggesting cytokine upregulation as being involved in latency activation.

Results: The observed in vitro reactivation of HIV-1 introduces the adjuvant potential of HHODC for the first time in this study.

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COMPARISON OF TREATMENT OUTCOMES AMONG TB PATIENTS IN AN HIV CLINIC: UNDERSTANDING THE EFFECT OF INDIVIDUAL AND FACILITY LEVEL.

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Background: In addition to providing effective treatment and reducing mortality, a primary aim of tuberculosis (TB) control programs in countries of high TB incidence is to reduce the transmission from infectious TB cases. Tuberculosis (TB) prevalence has not been thoroughly examined including lower geographical levels of aggregation that is at facility level. TB treatment outcomes could vary according to treatment initiation at the facility or being transferred to another facility. The aim of the study therefore is to explore TB treatment outcomes among TB patients who initiated treatment at the Infectious Diseases Institute (IDI) TB clinic and the new smear-positive adult PTB cases who were transferred in the Clinic.

Method: Between May 2013 and November 2015, we enrolled HIV-infected Ugandan adults with pulmonary TB, which included those who initiated TB treatment at IDI and those that were transferred in and initiated all of them on fixed dose combinations of TB drugs. Variables such as age, gender, ART duration, ART regimen, transfer in status and TB treatment outcome of all transferred in TB cases and original IDI TB patients were collected from routine program data including TB registers and patient treatment cards. TB treatment outcome was categorized as treatment success ("cured") or failure. We examined the effect of transfer in status on TB treatment outcome using a logistic regression model in R version 3.6.1

Results: We enrolled a total of 268 patients (148 males & 120 females) with median weight 53.5 (IQR: 47.5 - 59) kg and age 35 (IQR: 29 - 40) years. 111 patients initiated TB treatment at IDI and 157 patients were transferred in IDI for treatment. Among patients that were transferred to IDI, 23% got cured from TB well as, those that initiated TB treatment at IDI 88% got cured from TB. Patients with an age group greater than 40 (aOR; 0.71 95% CI: 0.30-1.67) had lower odds of TB treatment cure outcome as compared to age group 17-30. Patients who initiated TB treatment at IDI, transfer in status (aOR; 1.53 95% CI: 7.12-7.23) had higher odds of TB treatment cure outcome as compared to patient that where transferred in IDI for treatment. Male Patients (aOR; 1.78 95% CI: 0.96-3.36) had higher odds of TB treatment cure outcome as compared to Female Patients.

Conclusion: The treatment outcome of the TB patients who initiated TB treatment at the study area (IDI) was satisfactory as compared to patients that where transferred in IDI for treatment.

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Effects of yeast selenium on CD4 T cell count of CD4 T cell count and WAZ of non-institutioniled HIV type 1 at Orongo Widows and Orphans in Nyanza Kenya

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Background: Multi drug resistance HIV has emerged rendering the current conventional treatment of HIV ineffective. There is a need for new treatment regime which is cheap, effective and not prone to resistance development by HIV.

Methods: In randomized clinical study of 68 HIV positive children 3 – 15 years to asses the efficacy of yeast selenium in HIV/AIDS patients, 50μ yeast selenium was administered to 34 children while in matched control of 34 were put on placebo. Blood samples and weight of the both groups which were taken every 3 months intervals up to 6 months, were analyzed by ELIZA for CD4T cells, the data was analyzed by SPSS version 16, WAZ scores were analyzed by Epi Info version 6.

Results: No significant difference in age { $\chi 2$ (1, 62) =0.03, p =0.853}, cause of morbidity between test and controls { $\chi 2$ (1, 65) = 5.87, p= 0.015} and on condition of foster parents { $\chi 2$ (1,63) = 5.57, p= 0.0172} was observered.Children on selenium showed progressive improvement of WAZ and significant difference at six months{F (5,12) = =5.758, P=0.006}, and weight gain of up to 4.1 kilograms in six months, and significant CD4 T cell count increase t = -2.943,p< 0.05 compared to matched controls t = -1.258 p> 0.05. CD4 T cell count increased among all age groups on test 3-5years (+ 267.1),5-8 years(+200.3) 9-15 years (+71.2) cells/mm3 and in matched controls a decrease 3-5 years(-71),5-8 years (-125) and 9-13years(-10.1)cells/mm3 . No significant difference inCD4 T cell count between boys {F (2, 32) = 1.531 p= 0.232} and between boys {F (2, 49) = 1.040, p= 0.361} on test and between boys and girls {F (5, 81) = 1.379, p= 0.241} on test. Similarly no significant difference between boys and girls were observed {F (5, 86) = 1.168, p= 0.332}.In the test group there was significant positive correlation β =252.23 between weight for age (WAZ), and CD4 T Cell Count p=0.007, R2= 0.252,F< 0.05.In matched controls no significant correlation between weight gain and CD4 T cell count change was observed at six months p > 0.05.No positive correlation β =-138.23 was observed between CD4T Cell count, WAZ, p=0.934, R2 R2 =0.0337 F > 0.05.Majority (96.78%) of children on test either remained or progressed to WHO immunological stage I.

Conclusion: From this study it can be concluded that yeast Selenium is effective in slowing the progress of HIV 1 in children from WHO clinical stage I by improving CD4 T cell count and hence the immunity.

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Renforcement de la qualité et Pérennisation de la prise en charge des personnes vivant avec le VIH : la couverture maladie universelle, une opportunité pour l'association BOKK YAKAAR

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Contexte: L'accessibilité aux services de santé de base pour l'ensemble de la population est restée une priorité du gouvernement du Sénégal. Malgré les efforts réalisés en matière d'investissement public dans la santé, l'évolution du système de santé du pays n'a pas favorisé l'équité dans l'accès aux soins de santé et dans le financement de la santé, ainsi que la protection financière des ménages
Aujourd'hui, dans le contexte de la Couverture Maladie Universelle (CMU), le Ministère de la Santé à travers l'Agence de la CMU a mis en place des dispositifs spécifiques de prise en charge des soins en enrôlant les populations aux mutuelles de santé

Description: L'association BOKK Yakaar a commencé à sensibiliser les membres sur l'importance d'adhérer aux mutuelles de santé compte tenu de la réduction drastique des financements pour l'achat d'ordonnances et le paiement des bilans.
L'association, en partenariat avec l'ANCS et le Fonds Mondial a organisé en décembre 2016 des missions d'enrôlement des PVVIH au sein des mutuelles de santé. Quatre cellules de l'association ont été visitées.
Les cellules ont commencé par recenser les différents membres et leurs bénéficiaires qui pouvaient être leurs enfants, sœurs, frères ou parents. Ceci a permis de les mettre en confiance et de réduire l'auto stigmatisation.
Les missions ont ensuite rencontré les responsables des mutuelles pour déposer les listes et présenter les objectifs attendus ;

Leçons tirées: Au total, l'association Bokk Yakaar et l'ANCS ont inscrit 664 personnes vivant avec le VIH et leur famille aux mutuelles de santé des 4 cellules. Fatick commune 175 bénéficiaires, Foundiougne / Sokone 259 bénéficiaires, Gossas 118 bénéficiaires et Dioffior 112 bénéficiaires.
Ces personnes bénéficient de prestations auprès des centres de santé avec une prise en charge de 80% 134onsu par la mutuelle et 20% supporté par le patient.
Pour l'achat des 134onsummatio, la mutuelle prend en charge 50% du prix des produits spécialisés et 80% pour les génériques.
Au niveau de Foundiougne / Sokone, les patients avaient payés des tickets modérateurs qui leur permettaient de ne plus payer de consultation ou de 134onsummatio générique disponibles dans le centre.
L'inscription la CMU a permis de réduire de 30% la 134onsummation des fonds alloués à l'association pour l'achat d'ordonnances et de bilans. L'utilisation des carnets de la mutuelle a allongé le temps de 134onsummation des ressources disponibles pour la prise en charge

Etapes à suivre: L'association Bokk Yakaar entend étendre l'enrôlement des personnes vivant avec le VIH pour tous les autres centres de la région. Elle entend nouer des partenariats avec les collectivités locales pour les emmener à inscrire le plus grand nombre possible de PVVIH dans les mutuelles de leur localité. Ce plaidoyer est mené au niveau régional et l'association se chargera d'inscrire les PVVIH pour éviter la stigmatisation ou la levée de la confidentialité.

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Smart Boxing: Using the Arena to Cascade HIV Awareness and Linkage To Services

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Background: Being a contact sport, boxing frequently exposes players to blood. Many countries still require boxers to be tested for HIV prior to participating in tournaments despite there not being any known cases of boxers contracting HIV from boxing itself. Uganda Boxing Federation (UBF) conducts mandatory pre-tournament medical check-ups that include HIV testing. Boxers found HIV positive are not permitted to participate in matches and their boxing careers are cut short.

In October 2018 Uganda Boxing Federation (UBF) launched a campaign dubbed "Box HIV out of Uganda" with the purpose of increasing HIV awareness, preventing infection and fighting stigma and discrimination among the boxing fraternity. To achieve this UBF, with support from the UNAIDS country office, partnered with AIDS Information Centre (AIC) and other organisations. The role of AIC in the partnership was to provide socio-behavioural change communication, HIV Testing Services (HTS) and linkage to HIV prevention and treatment services.

Materials & Methods: The strategy used for this campaign was through mobilisation and sensitization of leaders of boxing clubs and cascading this to the boxers and their fans.

Between October 2018 and December 2019 three workshops were conducted for leaders (including coaches, referees and administrators) and 12 for boxers from selected boxing clubs in Kampala city. Participants received training on basic information about HIV, Pre- and Post Exposure Prophylaxis, Voluntary Medical Male Circumcision among other topics. Correct male and female condom use was demonstrated and HTS conducted during these trainings.

HTS were also provided during the mandatory medical check-up for boxers participating in 3 scheduled boxing championships and was made available to fans attending the boxing matches. Appropriate referrals were made for HIV prevention and treatment services including circumcision (performed by another partner).

Educational entertainment was used to convey HIV prevention and treatment messages via the use of placards displayed to boxers and fans in between boxing bouts.

Results:
• In total 2,889 persons (2,261 males, 651 females) were tested for HIV and 23 (17 males, 6 female) were found positive. The yield was <1% compared to the national prevalence of 5.7% (UNAIDS).
• At the leaders' trainings 157 (133 male, 24 female) were tested including 25 coaches and 20 referees. 2 males were diagnosed HIV positive. Coaches were empowered to become ambassadors to provide HIV awareness and link boxers to HIV services.
• 660 (229 female, 431 male) boxers were tested during trainings conducted at their boxing clubs. Of 9 positive results, 4 were female boxers. The age range for these was between 18-26 years.
• 1297 (1168 male, 129 female) boxers received HTS as part of the mandatory health checks at the weigh-ins preceding the tournaments. Only 6 male boxers tested HIV positive and the majority were first time testers.
• None of the HIV positive coaches or boxers was successfully linked to care despite being followed up. The majority were in denial.
• Of 775 fans tested, 6 (4 male, 2 female) yielded positive results
• An estimated 5,000 fans received HIV prevention and treatment messages.

Conclusion: Although boxing is a male dominated sport, it can be used to reach both young men and women with HIV services. The strategy of engaging coaches and boxing club leadership provides a sustainable model through which HIV awareness and referral for HIV services can be made.

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Nothing about us, without us! Lessons learnt from adolescent advisory groups with young people living with and closely affected by HIV

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Background: Despite a commendable increasing policy and programmatic focus, AIDS-related deaths and new HIV infections among adolescents and young people continue. There is a clear imperative to better understand their needs, find tools that facilitate young people's participation, and to co-develop responses that are generated by young people themselves.

Method: Building on 10-years of work with an advisory group of young people (n=18, ages 16-23) living with, or closely affected by HIV in South Africa, this project expanded adolescent advisory group activities. Located in the Western Cape (n=18) and Eastern Cape (n=19) Provinces, a total of seven group engagements over twelve days were held throughout 2019. Activities aimed to foster reciprocal participation between advisory groups of young people, engagement practitioners and researchers. Activities drew on participatory, participatory action research, and more traditional qualitative methods and included theatre, group discussions, drawing, young people led- focus group discussions, singing and story-telling. Methods were participant-generated or selected.

Findings: Advisory group members demonstrated comprehensive age-appropriate engagement about the research process and interest and ability to co-create activities and co-generate rich evidence on a variety of topics. Methodological findings include: the importance of taking time to clarify and co-determine advisory group purpose; delivering age-appropriate capacity-building activities on the research process to facilitate understanding and participation; encouraging participant-generated methods and ensuring adequate referral support.

Participants never discussed HIV as a stand-alone concern, but consistently identified it as a cross-cutting issue across challenges facing young people in South Africa. The most prominently discussed challenges included: (1) 'Blessers' (transactional, age disparate sex); (2) Substance abuse; (3) Medicine-taking and health; (4) Bullying; (5) Pregnancy; and (6) Careers and unemployment.

Conclusion: Adolescent advisory groups require time and resource investments, but are feasible and can generated rich methodological and empirical evidence to inform research, policy and practice – even with the most vulnerable adolescents. HIV was not an issue that was discussed on its own, but was rather understood as a complicating factor in many important life areas. This finding has relevance in the design of research, policy and programmatic responses and affirms HIV-sensitive (rather than specific), and combination approaches to adolescent health and development.

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Highly Successful Peer-led Recruitment and Retention of Transgender Sex Workers in Uganda

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Background: Transgender women (TGW) have a 49-fold higher risk of HIV infection than other adults in the general population but have received limited attention in HIV prevention policy and programming in sub-Saharan Africa. Peer-led approaches are effective in increasing HIV prevention uptake among hard-to-reach, vulnerable populations and are recommended by the World Health Organization for HIV testing and pre-exposure prophylaxis (PrEP) delivery. Given high rates of sex work among TGW, two robust evidence-based, self-controlled HIV prevention tools – HIV self-testing (HIVST) and antiretroviral pre-exposure prophylaxis (PrEP) – could decrease HIV acquisition among sex workers but are underutilized.

Description: The Empower Study is an ongoing randomized controlled trial testing if HIVST increases PrEP adherence, decreases sexual risk behaviors, and influences prevention choices among 110 HIV uninfected female, male, and transgender sex workers (TGSW) in Kampala, Uganda (NCT03426670). We used peer-led snowball sampling to recruit and retain TGSW. Peer recruiters were identified through collaboration with transgender-led organizations and by word-of-mouth. We trained 10 peers in research ethics and provided them with key messages on HIV risk, HIVST and PrEP. To minimize over sampling of personal networks, peers were changed every three months.
Peer recruiters facilitated discussions about the high burden of HIV and sexually transmitted infections (STIs) among TGSW and addressed stigma and socio-cultural discomfort associated with gender identity and sexuality. Fourteen TGSW were enrolled
(enrollment target was 5) of which 13 completed 12 months of follow-up.

Lessons learned: Populations at high risk of HIV infection can be meaningfully engaged in biomedical research despite a challenging environment. Feedback from peer recruiters improved cultural sensitivity of study staff and helped create a friendly and welcoming clinic environment. TGSW welcomed the opportunity to participate in HIV prevention research and were passionate about participating in the Empower study and initiating PrEP. Initial fears by prospective clients about discrimination by healthcare providers and entrenched social stigma were addressed through continual engagement with peer
recruiters.

Conclusions: TGSW at high risk of HIV infection were successfully recruited and retained in the first HIV prevention trial among this subpopulation in Uganda. Peer-led approaches can accelerate prevention delivery for hidden communities

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Community HIV Testing Services: Experience from Targeted Testing of Under-served Men in Nigeria

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Background: The 2019 UNAIDS report showed high AIDS related deaths among men which may be due to poor health seeking behaviour among them. In Nigeria, males have lower uptake of HIV testing services (HTS), and consequently lower antiretroviral coverage and higher AIDS-related deaths compared with females. To bridge this gap in uptake of services among males, the National Agency for the Control of AIDS (NACA), with support from her partners, used the World AIDS Day (WAD) 2019 as a platform to reach men with HTS/ HIV self-testing (HIVST).

Methods: Nine sites covering communities of mechanic village, spare parts village, motor park, and slums in the Federal Capital Territory were visited with a target of testing of 4500 men. One hundred HIV self-test kits was introduced on the 3rd day in one of the communities to determine acceptability. A mobilizer and four testers/counsellors were engaged in each community to create awareness, mobilize, and provide HTS for the clients. Those mobilized were counselled, tested, received result and given free condoms. Private booths were situated within the HIVST stands for individuals who opted for it. These booths were manned by a trained HIV tester who could provide assistance if need be. Individuals identified positive were referred and linked to care immediately. Services were also rendered to women within the vicinity who presented for testing.

Results: 3,348 individuals counselled and tested (male; 2,512, female; 836). The proportion of men who presented for testing (75%) was double the average proportion of men (35%) seen during similar outreaches. 19 individuals (0.6%) tested positive (male 10; female 9). 70% of the positive men and 30% of the positive females were new cases. Majority (75%) of the individuals in the community where HIV self-test kits were introduced requested/opted for HIVST and 81% of those who tested with HIVST were men.

Conclusions: Targeting communities where men can be found improves the yield for HIV testing among men. HIVST was acceptable and popular among men. HIV self-testing programming in Nigeria can be expanded beyond adolescents and key populations to high risk men.

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Achieving HIV treatment for all: the impact of direct escort services on HIV treatment linkage from community HIV testing in South-East Nigeria

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Introduction: Poor linkage and retention are major drivers of poor health outcomes, increased morbidity and deaths in persons living with in HIV/AIDS in Nigeria. Only about 33% of HIV positive individuals are successfully linked to HIV treatment facilities in the country. Directly escorting identified positive clients to treatment centers is one the efforts at reducing stigma and improving uptake of HIV treatment. The study examines the impact of direct escort services on linkage of identified HIV positive individuals within communities to treatment facilities.

Method: A retrospective cross-sectional data review of records from community HIV testing and referral services provided to 37,235 individuals across the 27 local government areas (LGAs) in Imo state Nigeria between February 2018 and May 2019 (16 months) was conducted. Statistical analysis was done using SPSS to calculate and show the prevalence rates from community testing in the state, as well as the referral completion rates from points of community HIV testing to treatment centers.

Results: Generally, more males were tested than females (rate ratio: 1.507; 95% CI = 1.379, 1.635) with an overall prevalence rate of 1.9% (95% CI = 1.6, 2.2). However, prevalence/positivity rates were higher in females - 2.8% (95% CI = 2.2, 3.4) than in males - 1.2% (95% CI = 1.0, 1.4).
Overall, 94.4% of HIV positive person identified completed referral through direct escorts and accessed treatment services (95% CI = 92.2, 96.6). Referral completion rates were 93.5% for males (95% CI = 90.5, 96.4) and 95.0% for females (95% CI = 92.8, 97.2).

Conclusion: Directly escorting clients from point of community HIV testing to the health facilities will support the drive on ensuring that at least 90% of HIV positive persons receive sustained antiretroviral treatment. Enduring strategies to improve and sustain escort services should be adopted to maximize treatment services and outcomes

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Role of Peer Leaders in Seeking, Testing, Treatment and Retention for people who inject drugs (PWID) in Kenya

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Background: HIV infections in sub-Saharan Africa increasingly occur among People who Inject Drugs (PWIDs), a key population (KP). Evidence-based services for PWIDs such as needle and syringe exchange programs (NSPs), opioid substitution therapy (OST), and IDU-specific antiretroviral therapy (ART) adherence support have been non-existent in this region for a while.Furthermore, with Kenya law stipulating drug use and possession illegal, the PWIDs are highly stigmatized, representing an underground subpopulation difficult to enumerate. The TLC-IDU Study leveraged Kenya's new NSP platform to seek out PWIDs, deliver rapid HIV testing, point of care CD4 count and link to ART.

Methodology: Respondent-driven sampling (RDS) was used to reach IDUs in Nairobi, coastal and Nyanza regions for baseline HIV-1 prevalence determination, then collection of six waves of study data as service sites rolled out, including behavioral data on PDAs. Rapid HIV testing and referal for addiction/mental health and OST was done. HIV-positives received prevention with positives (PwP) counseling and point of care CD4 counts. PIMA-CD4-POC assay was used   to determine those with CD4 <350/μL (prior to change of guidelines in 2014) and <500/μL (2014-2016) for people who inject drugs (PWID) with HIV infection, a peer-case-manager (PCM) was assigned to support linkage-to-care, initiation of ART and with adherence. Successful linkage to care was indicated by the first visit to the comprehensive care clinic after HIV testing. Both PCMs and PWID received a small conditional cash transfer for PWID adherence to HIV care visits.

Results: Since the beginning of the study, 245 participants were eligible for ART initiation as per GoK guidelines (before<350/currently <500). 232 (94.7%) were successfully linked to care and initiated on ART. of which 211 were retained in care, 11 stopped ART (defaulted), 6 were jailed, and 4 died. All participant deaths were properly reported to both Kenya and US IRBs, though cause of death was not related to study procedures. 88.4% (n=205) of the participants were linked within 10 days of HIV testing. The median number of days to linkage was 2, and days to linkage ranged from 0 to 89 days.

Conclusions: Successful linkage to care among the injecting drug users though challenging is feasible.POC-CD4 is helpful for timely ART-initiation. Continuum use of case managers is useful for timely linkage to care of newly diagnosed PWID and follow-up on the same to ensure retention to care.

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Evaluation of Integrated HIV&AIDS services to the refugees, returnees and surrounding host communities in the Great Lakes Region.

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Background: Great Lakes Initiative on AIDS (GLIA) was established in 1998; being the Pioneer HIV initiatives at a regional level in the Great Lakes Region (GLR). GLIA implemented a regional HIV&AIDS program, using a $20 million grant from the World Bank i.e. GLIA World Bank Support Programme (WBSP), in six member countries in GLR, from 2005-2010. Refugees and the returnees were some of the initial target population. Prior to GLIA WBSP, HIV interventions were only being provided on a very small scale to the refugees and returnees; but GLIA WBSP helped to scale the interventions up. Later, HIV services were extended to the surrounding host communities. Integration of HIV&AIDS services to the refugees, returnees, and the surrounding host communities was an innovation of GLIA WBSP. UNHCR was responsible for the programs in the refugees and returnees camps while National AIDS Commissions were responsible for programs in the surrounding areas, using funds from the GLIA WBSP. The justification for this integration was on the fact that social interactions and relationships between these communities were inevitable. In the era of HIV&AIDS, some of these relationships would be risk factors in the spread of HIV.
An evaluation of the project was undertaken to ascertain if it was a good practice to incorporate the surrounding host communities in the project targeting refugees and returnees.

Materials & Methods: This study was conducted from April to November 2019 at the GLIA Secretariat in Rwanda. It was an in-depth analysis of BSS and M&E Data Set, collected from the 10 project sites in GLR, for the WBSP implemented from 2006-2010. The study population included refugees, returnees, and the surrounding host communities.
It was a retrospective qualitative and quantitative evaluation study. Hypothesis were defined and Data Analysis conducted using SPSS. Literature review on the subject was also conducted. The study looked at the most significant changes e.g. in areas of access to packages of HIV&AIDS prevention, care, and treatment services; and also tried to establish whether the project promoted equity in HIV&AIDS service provision, fostered solidarity, and minimized the risk of strained relations. The performance indicators chosen included e.g.: percentage of men and women with correct knowledge of HIV&AIDS; ratse of condom use; reduction in high risk sexual behaviors; and rates of HIV Counselling and Testing (HCT).

Results: The key findings were: Substantial improvements in both HIV knowledge levels and condom uses; consistent declines in risky sexual behaviors; increases in HCT; decrease in HIV prevalence among the refugees, returnees, and the surrounding host communities, etc. The project promoted equity in HIV&AIDS service provision, fostered solidarity, strengthened collaboration among partners and governments, and strengthened integration of refugees and the host communities.

Conclusions: Integration of HIV&AIDS services targeting refugees, returnees and the surrounding host communities is an example of a success story/best practice in HIV&AIDS service delivery; as it benefitted the surrounding host communities (i.e. cross fertilization innovation).

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EXPERIENCES OF USING MENTOR MOTHERS TO INTEGRATE ECD COMPONENTS INTO A PMTCT PROGRAMME IN A HIGH-BURDEN SETTING IN MALAWI

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Background: Malawi was the first country to conceive and implement Option B+ in 2011. The government of Malawi launched a 2018-23 National Strategic Plan for Integrated Early Childhood Development (ECD), but the emphasis has been on children who are over 3 years old and attending Community Based Child Care Centres. There has been a gap in advocacy to ensure that the 0-3 age group receives the necessary stimulation and proper support for development. Prevention of mother-to-child transmission of HIV (PMTCT) programmes present an opportunity for motivating mothers to stimulate children for healthy milestone development. Yet, there is limited evidence on the impact of ECD interventions in Malawi in relation to PMTCT programming. [111]

Description: In 2018, mothers2mothers (m2m) launched a programme integrating ECD and nurturing care support into its PMTCT programme at facility and community levels. Mentor Mothers are employed in the facility and in the community to ensure linkage of clients (pregnant and lactating women) between facility and community for close follow up and retention in care, at the same time supporting and tracking parents' care for and stimulation of infants through regular interactions and assessment of developmental milestones. Upon testing HIV positive, clients are registered by the facility Mentor Mothers using a customized mHealth application, and then linked to Community Mentor Mothers for regular household visits. [103]

Lessons learned: In the period between September 2018 to August 2019. 2,049 children, both HIV positive and negative, were assessed on their developmental milestones, 441 at 3 months, 419 at 6 months, 377 at 9 months, 433 at 12 months, 233 at 18 months, 121 at 24 months and 15 at 36 months. Children on track for their developmental milestones included 86% of the children at 3 months, 83% at 6 months, 82% at 9 months, 90% at 12 months, 75% at 18 months, 92% at 24 months, and 65% at 36 months. [109]

Conclusions: The findings were encouraging, suggesting that mothers appear to be learning new skills in stimulating HIV-exposed infants which lead to positive attainment of appropriate developmental milestones. [26]

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Reasons why parents are reluctant to disclose their HIV positive status to their children: Lesson Learnt in Botswana

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Introduction: Despite Botswana's provision of universal free antiretroviral treatment (ART) to all people living with HIV (Treat All Strategy), it is one of the countries which are highly affected by HIV. However, some of the socioeconomic, sociodemographic and sociocultural factors concerning HIV and AIDS are not taken into consideration but are vital to the health care system. With this background, the study wanted to explore reasons why parents are reluctant to disclose their HIV positive status to their children.

Methods: A quantitative cross-sectional analytic survey was used to collect data from a sample of 50 HIV positive parents from Infectious Disease Control Centre (IDCC) in two clinics in Botswana (25 participants from the Oodi clinic and 25 from Shoshong clinic). The data was collected from 12 males and 28 females HIV positive parents selected randomly. The information about participants' demographics, knowledge, attitudes, and challenges experienced on parental HIV disclosure was collected. A data collection tool consisting of close-ended questionnaires was used to collect data from HIV positive participants visiting the clinic during an allocated time frame from August 2016 to December 2016.

Results: Study results indicated that 80% of participants believed that parental HIV disclosure has to be done when the child is an adolescent and 32% of participants feel that if parents disclose their HIV positive status to their children, this can make children reject them. The greater percentage, (62%) of participants believe that it is important to disclose their HIV positive status considering the child's maturity. Therefore, 88% of parents feel it is vital for the government to introduce policies and guidelines on parental disclosure.

Conclusion: Since the main findings show that fear of rejection was the main factor for postponing disclosure and that disclosing at a young age was not considered viable, the government should establish parental HIV disclosure policies and guidelines to help health care providers to support parents on HIV disclosure in health care settings. This will be fruitful for the country because there is no prior study performed in Botswana which provides information on how parents living with HIV can be supported to prepare them and their children for parental HIV positive status disclosure.

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#IYKWIM… What AGYW really think about PrEP, HIV services and how we talk to them
(#IYKWIM = If you know what I mean)

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Background: Adolescent girls and young women (AGYW) are a priority group for oral pre-exposure prophylaxis (PrEP) in South Africa (SA). Llimited insights exist regarding their decision-making to use PrEP, and what role information, education and communication (IEC) materials play in this process.

Description: Between August 2018-August 2019, the Wits RHI OPTIONS team conducted six youth dialogues facilitated by a communications expert. Participants were selected through peer educators, age 18 or older, and categorized as PrEP current, past or never users. Dialogues, conducted in a semi-structured discussion, explored PrEP knowledge, barriers to testing, intent to access services, social mobilization and the National Department of Health IEC materials.

Lessons learned: Sixty-one youth participated, 50 AGYW, 10 young men and one transgender woman. Youth showed excellent knowledge on PrEP and HIV but did not endorse good health as a primary motivator for uptake, "It's so difficult because I don't like taking pills, [even] knowing well that this is something that will keep me negative." However, feeling part of a movement, like We Are The Generation That Will End HIV (which features on all SA IEC materials), encouraged feelings of ownership and stimulated interest in PrEP. Materials were reported as an asset for navigating issues like PrEP side-effects, continuation, stigma and misinformation. Peer-led social mobilization was highly ranked but should include a digital approach: "Capitalise on Twitter, Instagram, Facebook and YouTube! On all these things that we're forever on." Youth showed resilience using innovative strategies to facilitate continuation and manage side-effects. HIV testing is a barrier to accessing PrEP due to fear and stigma associated with a positive result. The benefit of self-screening was noted but youth had concerns about receiving a positive result in the absence of support. Convenient services were a consistent theme, highlighting desire for mobile and youth-friendly clinics, and PrEP courier delivery.

Conclusions/Next steps: The biomedical benefit of PrEP isn't a motivator for uptake, rather positive emotional communication paired with convenient/supportive services and the reward of "being part of something bigger than myself" resonates with youth. Communication across digital platforms is valued; in response, these platforms have been established: www.myprep.co.za and @myPrEP_SouthAfrica on social media.

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Creating health-enabling communities: the role of HIV prevention ambassador training

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Background: Enabling social environments are central to HIV prevention programs. For adolescent girls and young women (AGYW) to be agents of change for HIV prevention in their communities, they need adequate knowledge and skills to help peers learn about PrEP. The OPTIONS HIV Prevention Ambassador Training package was developed to help AGYW play a meaningful role in PrEP rollout in their communities.

Material and Methods: A supplemental PrEP-focused training package for peers provided within a sexual and reproductive health and rights framework was developed. It covers human rights, HIV basics, gender inequality and violence, and combination prevention. In South Africa, two-day training sessions were conducted using this package with approximately 100 young people aged 20+ in three provinces: Gauteng, Cape Town and KwaZulu-Natal. Pre-/post-tests were administered to assess changes in ambassadors' knowledge and confidence. Post-training, OPTIONS continues to engage and support ambassadors through social media.

Results: Many ambassadors reported in the post-test that the training increased their confidence to conduct different aspects of peer support regarding PrEP, including action planning to raise awareness (84%), identify barriers and enablers to use (73%), manage stress related to ambassador work (73%), and helping AGYW decide whether to use PrEP (92%), disclose to partners (71%), and overcome struggles with daily use (86%), During an interactive session on myths, participants revealed community myths and perceptions around HIV testing, with the most common myth being "if you keep testing you will get what you are looking for." However, fear of testing was not associated with HIV stigma but with stigma associated with being sexually active or "promiscuous." The potential origins and how to debunk these myths were discussed. The ambassadors aim to address these myths through community engagement, daily interaction with clients at facilities/mobiles, social media, events and by setting up their own ambassador groups.

Conclusions: This training is a sought-after tool to illustrate how HIV works in the body, debunk myths about HIV, HIV testing and PrEP. It has equipped ambassadors with correct information and skills to communicate key messages to their communities and prepared them to advocate for HIV prevention for the creation of communities that are optimist about PrEP.

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Engaging Community Based Health Services Providers in Optimizing HIV Positive Case Identification through Index Testing in Morogoro Region-Southern Tanzania.

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Background: Despite significant efforts done to achieve UNAIDS 90:90:90 goal by 2020, 39% of people living with HIV (PLHIV) in Tanzania remain undiagnosed (The Tanzania HIV Impact Survey (THIS) conducted in 2016-17). Index testing has been found to be an effective approach of reaching out to undiagnosed HIV infected individuals, however the elicitation of index contacts continues to be challenging. In response to this, USAID Boresha Afya Southern Zone deployed index testing initiative using Community Based Health Services Providers (CBHSP's) to improve index testing uptake. This study seeks to assess the role of CBHSP's in index contacts elicitation, testing and linkage to care and treatment (CTC).

Method: This is a retrospective analysis of program routine data on the role of CBHSPs in index testing, reported between 1st October 2017 to 30th September 2019. Data were extracted from electronic CTC databases of 77 sites in Morogoro region. The CSO reporting template was used to distinguish positive clients from CBHSP Index testing support initiative among total positives. Trend on proportion of index contribution was assessed before and after the introduction of CBHSP. Testing for trend analysis of proportion was done using Stata 15. Two hundred and thirty-three CBHSP involved in elicitation, setting appointment for HIV testing and linking all HIV infected clients to care and treatment were involved in this analysis. The main focus for index testing was given to new enrolee, clients with high viral load and clients who returned to CTC after being lost to Follow Up. Client's details were given to CBHSP for follow up and elicitation. CBHSP were deployed in 1st January 2019. All HIV testing and ART initiation was done by Health care workers.

Result: A total of 22,170 new clients were enrolled from sites running Electronic datasets. The proportion of Index contribution before introduction of CBHSP from 1st October 2017 to 31st December 2018 was ranging from 0.1% to 5.8%. The mean age was 37.6 ±13.5 years. Female clients accounted for 64% of new clients. This progressive increased contribution was observed over   periods of January - March 2019, April – June 2019 and July – September 2019 with proportions of 15.8%, 26.1% and 58.5% respectively

Conclusion: Engagement of CBHSP is vital towards optimizing index testing uptake and ultimately attaining the first 90 goal. The project will continue to scale up and sustain community index testing using CBHSP.

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Improving access to optimal treatment: the role of the community as a catalyst for Dolutegravir scale-up in Senegal

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Context: Accelerating the availability of new and optimal treatment for HIV is a priority for people living with HIV(PLHIV).In low-and-middle income countries, patients need access to new products with less side effects to ensurea better adherence. Prior to 2019, there was no optimal HIV medication in Senegal.

Description: The community advisory board (CAB)is led by Bokk Yakaar, an association based in Fatick. The CAB operates with the objective of raising awareness for the improved access of optimal HIV treatments such as the Dolutegravir (DTG) and the pediatricLopinavor/ritonavir (LPV/r). The CAB trainsPLHIV on the importance of adherence to these new treatments and the necessity of understanding the differences between the treatment protocols.The CAB interacts with key stakeholders in the fight against HIV, and are key actors in the transition towards the DTG. The CABhas strongly advocated to the CNLS, the MOH and civil society organizations in order to positively impact the availability of optimal ARVs.
Advocacy missions are organized throughout the country to raise awareness among health providers on the transition to DTG. Workshops are organized to educate providers on how to use DTG.

Lessons learned: In the context of the transition,few patients have been put on TLD.We have successfully switched 14% of PLHIV on Nevirapine to TLD.Children over 20 kilograms have started to be switched to DTG with the Abacavir/Lamivudine. While waiting for adapted pediatric formulas of DTG, children under 20kilograms must take the LPV/r in the granulated form.
The meetings and trainings helped determine the importance of talking and sharing about the use of contraceptive methods with women living with HIV. It is equally important to interact with young people to help them link HIV with healthy sexual and reproductive health practices.

Conclusion/Next Steps: DTG, chosen as the preferential treatment method by the WHO, will transform the lives of PLHIV in low-and-middle income countries and the community plays a crucial role linking the international community and PLHIV. In the following months, the CAB will focus on pediatric formulations in order to improve treatment outcomes and reduce resistance.

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Community System Strengthening: Building partnerships with health and Community Actors in Improving HIV and TB health Care delivery by the PLHIV Network

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Background to Ghana's Community System: Ghana operates an integrated decentralized health service especially at the district, sub-district and community levels. Community-based services are provided through the Community-Based Health Planning & Services (CHPS) system where Community Health Officers (CHOs) work with Models of Hope, community volunteers, traditional community leaders and other community-based organizations and structures to increase access to integrated package of health services, including those for TB and HIV (and Malaria and MNCH services).

Documented evidence of weak community systems in Ghana; NSP (2016–2020): Inadequate Capacity to address the constraints that limit the extent and scope of community based service provision Sub-optimal Collaboration and Coordination.
Weak linkages between community systems and health systems to ensure logical continuum through the cascade of care. Limited Advocacy and Social Accountability of service providers for high quality and accessible services. Community System Strengthening (CSS).

In 2014 HIV and TB Concept Note, NAP+ GHANA with Technical support from Ghana AIDS Commission has been support by the CCM Ghana and Global Fund to work within the four High volume sites including the CHPS system in distinct and complementing roles for the VDCs and the CSOs with the overall goal of ensuring improved health outcomes for the members of the community they serve, the PLHIV for NAP+ Ghana to identify the health and social needs and plan for them; supervise the implementation of developed work plans, mobilize the community for health actions, identify local human and material resources to meet these needs to achieving the 90:90:90 targets. Also to liaise with government and other voluntary agencies in finding solutions to health, social and other related problems in the communities.

Results: The networks through Models of Hope (MOH) and support group leaders were able to achieve the following result;

First "90"
Total number of N=16,911 people in hard to reach communities were reached by the PLIV network team and MOH on HIV Testing services. Out of the total 77% were tested and 2% tested HIV positive in which MOH led them to care.

Second "90"
N=81,255 of PLHIV reached by MOH; 4% were on PMTCT services, 78% on ARV adherence, 56% on psychosocial support, 68% on nutritional support, 60% on ABC's, 56% on STI's, 52% on HIV/TB, 3% received ARV delivery to bedridden clients and 3% were visited at home.
And N= 10,492 PLHIV clients who were lost to follow-up and ART defaulter s; 53% were ART defaulters, 12% were lost to follow-up and MOH were able to reach 34% of both the ART defaulters and PLHIV Lost to follow up were reached and all the 34% reported back to care.
MOH enrolled N=1,065 bedridden PLHIV clients on Home-Based Care and also were able to discharge 87% back to care whiles 13% death were recorded.

10 Social Accountability Monitoring Committees were formed in 10 regions of Ghana and 90 Models of Hope engaged on the CSS Project in 54 Health Facilities in four (4) regions of Ghana (Greater Accra, Eastern, Western and Ashanti) Regions.

Lessons Learnt: The CSS project has built a good partnership framework for NAP+ Ghana and partners (Community Actors) in demanding for quality of HIV and TB services and also have ignite the social accountability movement in the health sector as result of forming social accountability monitoring committees (SAMC) in 10 Regions of Ghana.

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Peer involvement in oral Pre-exposure Prophylaxis roll out amongst young female sex workers at a youth-friendly centre in Tudor Hospital , Mombasa

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Background: An estimated 37.9 [32.7–44.0] million people globally are living with HIV (WHO, GHO data, 2018). Estimates by the Joint United Nations Program on HIV/AIDS (UNAIDS) suggest that 40-50% of all new HIV infections worldwide among adults, occur among key populations (Delany-Moretlwe et al., 2015). Key populations continue to experience significant HIV burden, and greatly influence the dynamics of HIV epidemics (Rao et al., 2018). In Asia, Central Asia and Eastern Europe, key populations account for more than half of new infections – from 53% to 62% (WHO, 2017). Even in sub-Saharan African countries with generalized epidemics that have carried out modes of transmission (MOT) analysis, the proportion of new infections amongst key populations remains substantially high, though varies greatly. A good example is Burkina Faso, Kenya, Nigeria, Ghana and Benin, with an estimated proportion of 30%, 34%, 37%, 43% and 45% respectively (Shubber, Mishra, Vesga, & Boily, 2014).
While a number of HIV prevention methods like condom, lubricants, eMTCT, male circumcision etc., are readily available, little is known about PrEP awareness and interest in this population (Tomko et al., 2019). This is despite Kenya's The National AIDS and STI's Control Programme (NASCOP) adopting the WHO recommendation on oral PrEP containing Tenofovir Disproxil Fumerate, Emitricitabine (TDF/FTC) to be offered as an additional prevention tool of choice for key populations at a substantial risk of HIV infection (Republic of Kenya, 2010).

Objective: To describe the role of a youth friendly Centre (YFC) in - rollout to key population through community empowerment strategy using peer mentors.

Method: National AIDS & STIs Control Program (NASCOP) through Coast Hostess Empowering Community CHEC Kenya conducted a Key population size estimate survey in Mombasa County. CHEC being in the youth friendly center, readily offered a conducive environment, thus privileged to be the host site for the survey. CHEC peer educators provided health talks and one-on-one dialogues to invited study participants, on PrEP. Peers passed information and invited interested peers to learn more about PrEP services. The quality improvement approach was embraced towards a priority health intervention with representatives from different key population offering inputs at the beginning of the project. Challenges from defaulters and those willing to embrace prep were keenly documented and analyzed. Root cause analysis gave a blue print in understanding the challenges. Later counter measures were agreed upon to develop, implement, monitor and evaluate HIV prevention using PrEP for the FSWs.

Results: Program data showed an increasing number in PrEP uptake and a distinctive feel on the same with 14 FSWs initiated and 6 were traced back .doubling the number to 42. Moreover, for the first time 2 MSMs started as well. 95 clients in total have been enrolled since the roll out of PREP,3 years ago.

Conclusions: As a government health facility operating with limited resources, leveraging on existing programs helped. Moreover the bottom up approach and having a set of harmonized goals right from the start, involving the peer educators and FSWs themselves smoothened the way to targeted acceptance of PrEP. Therefore, early acceptable and favorable outcome in PrEP initiation can, to an extent, be attributed to an all-round planning and assessment process involving a government entity, non-governmental organization (NGOs), FSW communities and service providers. And the same can be applied to the other key population.

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The Namibian Experience of Using Consumer Involvement Training to Strengthen Meaningful Consumer Engagement in HIV Quality Improvement Activities

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Introduction: There is consensus globally that patient/consumer engagement plays a significant role in ensuring improved quality and safety of health care services. Engaged consumers not only make informed decisions about their care options but also contribute significantly in quality improvement (QI) efforts by working together with healthcare workers to ensure gaps in health care are addressed comprehensively and in a sustainable manner. Consumer involvement also leads to improved trust, satisfaction and confidence in health care. Whereas globally, countries recognise the importance of consumer involvement; very few have implemented structured and meaningful consumer involvement initiatives. In Namibia, since 2018, 88 high volume healthcare facilities are actively involved in HIV QI initiatives through QI collaboratives; however, by February 2019, no consumers were actively involved in QI.
Objective: To strengthen meaningful consumer involvement in HIV healthcare QI activities by building their capacity in QI.

Methods: In 2017, the Ministry of Health and Social Services (MoHSS) developed a consumer involvement training curriculum in consultation with consumer organisations for people living with HIV (PLHIV) and other relevant stakeholders. The curriculum was revised in January 2019. The terms of reference for consumer involvement at the facility level were also drafted, highlighting the roles and responsibilities of consumers in QI efforts. The MoHSS then conducted a four-day consumer involvement training in February 2019 targeting participation of both consumers and health workers. Consumers were selected using the following criteria; being nominated by the facility staff and consumers and being able to read and speak English. Once trained they would represent the PLHIV in facility QI activities on a voluntary basis. Activities included participation in QI meetings and provision of feedback between consumers and healthcare worker. The healthcare workers were to provide the necessary support to the consumer representatives to ensure they are well integrated into facilities QI initiatives. Trained Consumer representatives were tracked by the HIV QI program for 10 months to evaluate their involvement in QI efforts at the facilities.

Results: Fifty participants were expected for the training and 48 attended of which 23 (48%) were consumers and 25 were health workers. Among the consumers, 21/23 (91.3%) consented to voluntarily participate in their respective facility QI efforts. Follow up with the health care facilities in January 2020 (10 months) after the training revealed that 17/21 (81.0%) of consumer representatives were still active at the healthcare facilities and are involved in the monthly QI committee meetings. Two consumers transferred to other facilities for ART services and two remained but were no longer participating in QI activities.

Conclusion: Meaningful involvement of consumers in healthcare services requires a well-structured approach that ensures the consumers attain the necessary knowledge and skills to be able to contribute to QI efforts. A system of monitoring the participation of consumers is essential to ensure their continuous engagement in supporting QI efforts.

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Community mobilization and demand creation for the uptake of HIV services by key populations.

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Background: Key populations (KPs) in Uganda have a higher prevalence of HIV than the national prevalence (sex workers have up to 12 times prevalence than the national prevalence). HIV testing positive outcomes for KPs is highly dependent on the use of effective community mobilization and demand creation models in response to identified barriers. Demand creation for HIV Testing Services (HTS) comprises outreach and communication activities spreading information on the benefits of HTS and availability of HTS services to the KPs.
Prior to 2018 KPs in the catchment area accessed HTS from AIDS Information Centre (AIC) Kampala facility. With funding received in April 2018 HIV services for KPs mainly Female Sex workers (FSWs), Men Having Sex with Men (MSM) and People who Inject Drugs (PWIDs) were scaled up specifically in Kampala Central Division. As a result of this, the total number of KPs who accessed HIV services between April 2018 to December 2019 was 1,300 (1167FSW, 121 PWID, 12 MSM). This significant increase was not only due to the funding but the various community mobilization and demand creation strategies put in place as stated below

Materials & Methods:
•   Use of peers both in the community and facility: AIC identified, trained and supported peer KPs to take lead in the mobilization of their fellow KPs for the community uptake of HTS services. Each KP category had peers of its own.
•   Extending HTS services to KP areas of operation: peers mobilized their communities and HTS were taken to these populations in areas such as Brothels, Bars, streets, and dancing halls.
•   Integrated HIV Testing Services: Provision of services other than HIV including Tuberculosis screening, sample collection and return of results; STI screening and treatment, provision of PEP and PrEP services, condom distribution and demonstration, Gender Based Violence (GBV) screening and referrals
•   Community dialogues: were used as a platform for Social Behavioural Change Communication (SBCC), as well as provision of HIV services
•   Networking with KP Organisations: and piggy banking on their structures for mobilization for services

Results:
•   Out of 1300 tested, 133 tested HIV positive but only 77 were successfully linked to care. Only 56% FSW were linked to care compared to 100% linkage for MSM and PWIDs.
•   Peers were key in mobilizing KPs for Integrated HTS services but the lack of medication for infections particularly sexually transmitted infections contributes to reduced uptake of services.
•   Peers were also key in providing SBCC for HIV prevention and acted as role models for those desiring to leave sex work or injecting drug use. Out of 3 PWID peers 2 had stopped injecting drugs and of 10 FSW peers, 3 had left sex trade.
•   Integrated services resulted in detecting 12 active TB cases (7 FSWs, 5 PWIDs); 4 of these tested HIV positive and all were linked for TB and HIV services.
•   KPs were sensitized on GBV through dialogues but rarely report GBV because they are criminalized.
•   Networking with KP Organisations boosted mobilization for uptake of services and demand creation.

Conclusion:
Community mobilization and demand creation for the uptake of HTS services among KPs cannot be fully met without engagement of KP peers and KP organisations that have strong community structures. Integrating services in HTS increases uptake and demand creation for HTS.

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Willingness-to-Pay for Sofosbuvir-Based Treatment of Hepatitis C in Africa: Pilot Evidence from the TAC trial ANRS 12311 in Senegal, Côte d'Ivoire and Cameroon

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Background: Hepatitis C Virus infection (HCV) has a high burden on national health systems in Sub-saharan Africa where the incidence rate is ranked third worldwide. An increase in access to early diagnosis and highly effective direct-acting antivirals (DAAs) treatment is expected to reduce the HCV burden and to reach HCV elimination in 2030, as targeted by WHO. However, the high cost of diagnosis and DAAs may hinder that revolution in resource-limited countries, which already face financial hardships. This study aimed to explore the willingness-to-pay (WTP) for sofosbuvir-based treatment in patients diagnosed with Chronic Hepatitis C (CHC) within the TAC trial ANRS-12311 in West and Central Africa.

Methods: The TAC trial included 120 participants in Senegal (n=22), Côte d'Ivoire (n=45) and Cameroon (n=53). Participants were offered free treatment (sofosbuvir-based regimen) and care during the whole follow-up (36 weeks). Socio-economic questionnaires were administrated at enrolment (Week (W) 0), during treatment (at W 2, 4, 8 and 12) and after treatment end (W24 and W36). Questionnaires included an assessment of patients' socio-economic characteristics, perceived health and willingness-to-pay for HCV diagnosis, treatment and care if they were not freely provided. Participants who were willing-to-pay for one option (HCV diagnosis, treatment or care) were asked how much they were willing-to-pay.
We described the proportions of people willing-to-pay for each option and analysed the factors that determine their decision. We run a tobit model to highlight factors associated with patients' WTP.

Results: Participants were mainly men (54%) with a median age [Interquartile range] of 58 [48-63] years. 48% of them were unemployed and 49% were living below the poverty line. The proportions of those willing-to-pay was 85% for diagnosis, 87% for treatment and 83% for care. The average WTP was €308 (from €185-410 across countries). Only 7% were unwilling-to-pay for anything (neither diagnosis, treatment, nor care). They were mainly from Cameroon (75%) and from households with a monthly income <150,000 FCFA (€228.7). A slightly higher percentage (23%) were unwilling-to-pay for at least one option. They were also mainly from Cameroon (68%), and from households with an average monthly income <150,000 FCFA (€228.7).
Among those willing-to-pay for all options, 47% were women aged on average 57 years, mainly from Côte d'Ivoire with an average income of 225,000 FCFA (€343). When estimating the amount of WTP before treatment, having an individual income or living in a household with a monthly income higher than 150,000 FCFA (€228.7) were positively associated with the WTP for all the options. Compared to individuals from Cameroon, participants from Senegal were more willing to pay-for-care (€55) while participants from Côte d'Ivoire were less willing to pay for either diagnosis (€54), treatment (€116) or all the options (€149).

Conclusion: Our results suggest that WTP is strongly associated with household incomes and depends on country which is likely to be influenced by the country's GDP per capita and the national health system. While patients with higher income seem to be ready to contribute to the funding of HCV treatment, attention should be paid to not generate catastrophic expenditures, considering the high costs of HCV treatment.

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Economic cost analysis of segmented demand creation and offer of HIVST on VMMC uptake in five Zimbabwe districts

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Background: Uptake of Voluntary Medical Male Circumcision (VMMC) continues to be undermined by supply-side factors such as reductions in external and domestic funding, health-care worker shortages and demand-side factors such as poor health care seeking behaviour among men. In Zimbabwe, a four-armed trial was conducted to determine effectiveness of human-centered-design (HCD) informed approaches +/- HIV self-testing (HIVST) compared with standard mobilization on men's VMMC uptake. We conducted an economic evaluation to assess the relative costs of the HCD approach alongside the trial.

Methods: Full annual economic costs (in 2018 US$) from the provider perspective were collated between May and October 2018 for a programme in which PSI trained and incentivised lay community interpersonal communications (IPC) agents to generate VMMC demand across 5 Zimbabwe districts (Buhera, Gokwe North, Mangwe, Mutasa, Zvimba) using 4 mobilization modalities. Financial expenditure analysis were combined with intensive public sector facility activity-based-costing to account for both overheads and donated inputs representing full value of resources used for demand creation and VMMC service provision. Time-and-motion analysis was conducted across 15 purposively selected clinics (3 days at each site) representing 3 models of VMMC service-delivery, outreach, static and integrated. Costs for development, start-up, mobilization and VMMC service delivery were supplemented by site characteristics data including type, location, ownership, and throughput. Initial training and start-up costs incurred prior to launch of trial and all other capital costs were annualized using a 3% discount rate.

Results: Arm 1 (Standard mobilisation) reached the highest number of clients (n=4,937, 38%) whilst arm 4 (HCD+HIVST) reached the lowest clients (n=2,327, 18%). Arms 2 (HIVST) and 3 (HCD) reached 2,603 (20%) and 3,062 (24%) clients respectively. Across the four approaches total program cost was $729,723 and average cost per client reached $38. The cost per circumcision conducted was $115. Despite narrow differences in mean VMMCs/IPC agent, (average 34 for standard of care and 35 for HCD), there was wide variation in unit costs. Highest costs per client reached and circumcised were in the HCD+HIVST arm – $45 and $166 respectively and lowest costs in standard mobilisation ($33) and HCD arms ($102) respectively. Service delivery specific unit cost was lowest in static model ($54) and highest in integrated model ($63). VMMC unit cost ranged from $49 in rural high-volume public sector clinics to $184 in rural low-volume private clinics. Unit cost and scale had a negative relationship consistent with economies of scale.

Conclusions: Unit costs exhibited high variability across arms and sites and HCD+HIVST highest costs within an integrated service-delivery setting suggesting potentially huge efficiency gains are possible across various VMMC service delivery platforms. Intensified demand creation activities may ensure recruitment of larger numbers of clients and therefore optimal utilization of inputs as evident in lower cost rural high-volume public sector clinics compared to rural low-volume private clinics. Economies of scale are also evident in the negative relationship between unit cost and numbers circumcised. Mobilization programs therefore need to intensify targeting of higher conversion rates in-order to reduce costs.

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Can task shifting improve efficiency of HIV self-testing kits distribution? A case study in Mali

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Background: The ATLAS project introduced HIV self-testing (HIVST) in consultations of people living with HIV (PLHIV) at public health facilities in Côte d'Ivoire, Mali and Senegal for secondary distribution to their partners. Preliminary data from a qualitative study (observations of consultations, interviews with distributing agents) carried out in two clinics in Mali highlight implementation challenges associated with the counselling on self-testing and kit distribution currently done by the medical staff (doctor/nurse) and reported time-consuming. While implementation teams are considering the possibility of delegating certain tasks, it is important to consider the cost of alternative delivery models.

Materials & Methods: We analysed preliminary economic costs data for the provision of rapid HIV testing services (HTS) (analysis period: October 2018 – September 2019) and HIVST services (August 2019 – October 2019) in these same two Malian clinics. Above service level costs are excluded. We then modelled the costs of provision using alternative cadres of medical and non-medical staff (psychosocial counsellors/peer educators) and the consumables used to simulate task shifting scenarios for the provision of HTS and HIVST services. The three scenarios correspond to 1. partial delegation: individual counselling done by non-medical staff and HIVST distribution by the medical staff ; 2. total delegation: individual counselling and distribution done by non-medical staff only; and 3. total delegation with group counselling: where group counselling and distribution are done by non-medical staff only.

Results: Findings show that the unit costs per HIVST provided for the observed model are 58% higher than those of a conventional rapid test: $7,50 and $4.75, respectively. The costs are less high in scenarios of partial ($5.45, +15%) or total ($5.29, +11%) delegation but always higher than those of a rapid test due to the greater costs of consumables (HIVST kit). Finally, in the case where counselling on self-testing were carried out in a group, the costs per kit provided ($4.44, -6%) would become slightly lower than those of a rapid test, where counselling is always done individually.

Conclusion: Task delegation from medical to non-medical staff can generate substantial cost savings. These preliminary results can guide the implementation strategy of HIVST in care consultations, to ensure sustainability from early introduction through scale-up.

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Money will end the HIV epidemic. A decade of investing in Ghana's HIV and AIDS response

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Background: Financing the HIV and AIDS response is a major issue in Ghana since data available shows that majority of the funds expended on direct HIV and AIDS programme activities are from external sources. In the face of the global recession in the past years and limited sources of funding for HIV and AIDS related programmes, it has become expedient to prioritize cost effective HIV interventions by making optimum use of available funds for HIV programmes. We addressed this critical knowledge gap by quantifying HIV and AIDS spending, identifying the source of these funds, and measuring the impact of these expenditure on HIV and AIDS incidence and mortality.

Materials & Methods: Total HIV expenditure data were extracted from existing published National AIDS Spending Assessment reports (NASA) for the period 2005-2016. Data on HIV mortality and incidence were obtained from the AIDSinfo online database. Expenditure summaries and trends were obtained through aggregation of the data. Spearman Correlation Analysis was used to determine the relationship between HIV prevalence, mortality and their impact on HIV expenditure over the twelve-year period.

Results: Over the twelve-year period, total expenditure on HIV and AIDS programmes from domestic public sources amounted to US$712,805,214, with funding from international organizations (70.7%) being the largest contributors. The twelve year period also saw a systematic increase in funding with expenditure on HIV growing by 7.64% annually. Expenditure over this period shows an upward trend alternating between inclines and declines with 2012 (15.3%) and 2005 (4.0%) having the highest and lowest expenditure respectively of total expenditures on HIV. Treatment and Care, Prevention Programmes and Programme Management were the three largest spending categories accounting for 36.1%, 25.3% and 23% respectively. The Spearman's correlation to assess the relationship between HIV expenditure and HIV prevalence revealed a strong negative correlation which was statistically significant (r_s = -0.67, p = .016) likewise the relationship between HIV expenditure and AIDS deaths (r_s = -0.76, p = .001). Additionally, investigating the relationship between the HIV prevalence and the spending categories showed that expenditure on Treatment and Care activities is the most correlated to HIV prevalence (r_s = -0.90, p < .001) among the eight spending categories. This was also the case for the relationship between AIDS deaths and Treatment and Care (r_s = -0.89, p < .001)

Conclusions: Ghana's national HIV and AIDS response over the twelve-year period was largely dependent on donor support with Treatment and Care, Prevention Programmes and Programme Management being the key spending categories. The results presented, clearly supports the need for continuous and sustainable investments in HIV as increase in HIV spending is highly likely to reduce the HIV burden in Ghana. Also there is the need to sustain and increase spending on treatment and care as the study reveals investments in this category yields impact.

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Determinants of Willingness to participate in community-based health insurance among People Living with HIV in a large tertiary hospital in South-east Nigeria.

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Background: Despite free antiretroviral treatment at designated facilities, many People Living with HIV (PLHIV) in Nigeria continue to face catastrophic health expenditures (CHE) due to direct non-medical and indirect costs of illness. Waning donor funding and poor country ownership of HIV care programs are challenges to the sustainability of care for PLHIV. Community-Based Health Insurance (CBHI) presents a viable alternative for funding of HIV care services. The aim of this study was to assess the determinants of Willingness To Participate (WTP) in CBHI among PLHIV in a large tertiary hospital in South-east Nigeria.

Materials and Methods: A cross-sectional survey was conducted among 371 PLHIV on treatment at Federal Teaching Hospital Abakaliki Nigeria using an interviewer-administered questionnaire. Descriptive, bivariate and multivariate logistic regression analyses were conducted using SPSS version 20. Statistical tests were conducted at 5% level of significance.

Results: Respondents were mostly males (51.8%) with mean age of 45.4±10.3. The mean monthly income of respondents was N26, 665.77±15,171.50 ($74,070±42.14). Majority were willing to participate (825%) and to finance their participation in CBHI (65.2%). Major reasons given for unwillingness to participate in CBHI were poor understanding on how the system works, lack of regular source of income, health insurance not needed and fear of poor management of resources. On bivariate analysis, WTP in CBHI was associated with gender (P<0.001), marital status (P<0.001), employment type (P=0.006), family size (P=0.001), educational level (P<0.001), monthly and monthly income (P<0.001). Predictors of WTP were female gender (AOR= 2.9; 95% CI: 1.6–5.7), being currently unmarried (AOR= 4.3; 95% CI: 2.3–7.8), self-employed (AOR= 2.2; 95% CI: 1.2–3.9), family size greater than 5 (AOR=3.1; 95% CI: 1.7–5.9) and having less than a secondary school education (AOR=4.3; 95% CI: 2.3–7.8).

Conclusion: Majority of the respondents were willing to participate and finance their participation in CBHI. The vulnerable subgroups (females, unmarried, self-employed, poorly educated and those with large family size) had higher odds of WTP. To reduce CHE, there is need to harness this high WTP among PLHIV in the design of subsidized and sustainable CBHI programs with special focus on the socially disadvantaged.

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A rate-limiting factor: HIV prevention spending in Nigeria over four years

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Background: Prevention is recognised as critical to Nigeria's HIV response but has been poorly financed. In 2015, UNAIDS advocated for investing 25% of the fully funded AIDS budget on HIV prevention. In the same year, Nigeria's President's Comprehensive Response Plan allocated 26% of the AIDS budget for prevention. Since the formation of the Global HIV Prevention Coalition (GPC) in 2017, Nigeria has renewed efforts to revitalise and strengthen its prevention response. Despite this, Nigeria is the only member of the GPC with rising numbers of new HIV infection. To accelerate the prevention response, it is important to understand and address the financing gaps. This analysis investigates the trends in HIV Prevention spending in Nigeria between 2015 and 2018.

Methods: Data on HIV expenditure was extracted from Nigeria's National AIDS Spending Assessment (NASA) for the period 2015-2018. Prevention Spending as a proportion of the total AIDS spending was compared over four years.

Results: Over the four years, total AIDS spending increased at an annual rate of 2.0% from $501.7 million to $532.3 million. Spending on prevention decreased at an annual rate of 10.3% from $94.0 million to $67.8 million. Spending on treatment and care also decreased at a rate of 8.2% from $308.6 million to $238.4 million. Except for 2016, spending on prevention consistently fell below the 25% benchmark. By 2018, prevention spending had fallen to 12.7%- about half of the benchmark.

Conclusions: Prevention financing gaps need to be expressly addressed otherwise; the fast-track targets for Nigeria and WCA region will experience a setback. Increased investment is needed to ensure the availability of high coverage, good quality prevention services at scale where they are most needed. Intense advocacy to government and private sector is required for greater and sustained investments in HIV prevention. Accountability for prevention needs to be strengthened.

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Surveillance of recent HIV infections among newly diagnosed HIV Positive Clients: A Case Study in 3 Districts in Zimbabwe.

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Background: The past two decades have witnessed an intensified fight against HIV in Southern Africa that has led to several countries including Zimbabwe progressing towards epidemic control in recent years. Surveillance of newly diagnosed persons is essential for HIV control as it ensures that interventions are targeted to communities and persons at highest risk of acquiring and transmitting the infection.

In a bid to intensify its HIV surveillance interventions, in Q4 of 2019, the Zimbabwe Ministry of Health & Child Care introduced HIV recency testing in 3 districts. Clients newly diagnosed HIV positive were offered recency testing using the Rapid Test for Recent Infection (RITI). The objective in identifying recent HIV infections (acquired within approximately the last one year) is to learn lessons to better inform targeting of HIV prevention & treatment interventions among those at highest risk. This paper presents the descriptive findings from the analysis of the surveillance data.

Materials & Methods: A descriptive analysis was done using secondary data collected between October and December 2019 from 61 rural and urban health facilities that are implementing the programme in the 3 districts of Umzingwane, Mutare and Chitungwiza. The data of newly diagnosed HIV clients was collected by HIV testing modality; Provider Initiated Testing & Counselling (PITC), Index Case Testing, Antenatal Care Clinic (ANC), Post ANC (Labour & Delivery and Postnatal), TB Clinic and Inpatients.

Results: A total of 699 clients were newly diagnosed HIV positive, 62.2% (435) were females, 22.3% (156) were adolescents and young people and 64.7% (452) clients were identified through PITC in Outpatient Department. The results from the RITI showed that the majority (83.4%, 586) had long-term HIV infection of at least more than a year. More than half (55.3%, 324) of these were between the age of 25 and 39 years. Among the 113 clients that had a recent HIV infection, the majority (69.9%) were females. Adolescent Girls and Young Women (AGYW) accounted for 45.6% (36) of the 79 HIV positive women who had a recent infection. The majority (80.7%, 88) HIV positive women newly diagnosed in ANC had long-term infection.

Conclusions: The results from this analysis show that most of the clients who were newly diagnosed HIV positive had long-term infection. This is critical for both HIV prevention and treatment efforts because it shows that in the communities where these health facilities are, there is still a risk of undiagnosed people with long-term infection and are not on ART. This group is a potential for high HIV transmission risk. Further, the results show that ANC is an important conduit for identifying HIV positive women with long-term HIV infection.

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Factors Associated with High HIV Prevalence among Fisherfolk on Lake Victoria, Uganda

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Background: In Uganda, fisherfolk are considered a priority population due to a higher prevalence of HIV infection compared to the general population. Identification of factors associated with HIV infection in this population is key to ensuring optimal HIV care and treatment services. As part of a PEPFAR-funded multi-phase study exploring optimized ways to deliver HIV services on Koome and Buvuma Islands, we estimated the prevalence of HIV and determined factors associated with infection.

Materials and Methods: Through a prospective cohort study, we enrolled consenting adult residents at 3008 randomly selected households on Koome and Buvuma islands to monitor new HIV infections and sexual behavior. The first round of data collection took place between April 2017 and January 2018. Participants were interviewed using a structured questionnaire that collected sociodemographic, economic, and behavioral data, and provided blood for HIV testing. Testing for HIV followed national testing algorithms. We estimated HIV prevalence and independent variable frequencies and means by basic descriptive statistics and explored unadjusted and adjusted associations with HIV prevalence. Variables were chosen based on a priori knowledge and significant bivariate associations (p<0.05). Starting with the full multivariate model, we used stepwise backward selection (threshold at p <0.05) to explore associations with HIV prevalence. The study was approved by the Makerere University School of Public Health and WRAIR institutional review boards and the Uganda National Council for Science and Technology.

Results: Of 3863 participants (1968 on Buvuma and 1895 on Koome), 1899 (49.16%) were male. Overall HIV prevalence was 16.08%, or 20.05% on Koome and 12.25% on Buvuma islands, respectively. Factors significantly associated with HIV infection were : living on Koome island [aOR: 1.80; CI: 1.51, 2.14], female gender [aOR: 1.53; CI: 1.19, 1.97], >24 years old [aOR: 2.05; CI:1.52, 2.76], married [aOR: 3.10; CI:1.47, 6.53], divorced/widowed [aOR: 4.33 CI:2.02, 9.29], having low to moderate sexual risk taking behavior(s) (score =1-2) [aOR: 1.61 CI: 1.17, 2.20] or high sexual risk taking behaviors (score >=3) [aOR: 2.16 CI: 1.51, 3.09], last HIV test > 12 months ago [aOR: 2.48 CI:2.01, 3.06] and syphilis positive [aOR:1.60 CI:1.22, 2.10]. Farmers had lower odds of being HIV positive compared to fishermen [aOR: 0.71 CI:0.51, 0.99]. Travel, with at least one night spent away from home, was associated with HIV prevalence in bivariate analysis, but not in the multivariate model.

Conclusion: This is the first integrated serological and behavioral survey conducted on Koome and Buvuma islands. Although HIV prevalence was high on both islands, being a resident of Koome was associated with increased likelihood of HIV infection compared to Buvuma island. A comprehensive package of HIV preventive services to include risk reduction with immediate focus on Koome island is needed. Females, persons over 24 years, and individuals in occupations other than farming were more likely to be infected, calling for a targeted approach for testing and transmission prevention in these sub populations and their immediate sexual networks. The association with syphilis infection suggests that syphilis screening should continue and people with STI symptoms should be tested for HIV.

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Changing proportions of deaths due to HIV, opportunistic infections, non-communicable diseases and injuries among adults in the rural Rakai region of Uganda

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Background: Studies in the region have documented a reduction in adult mortality from 132.6 per 1000 person years in 1990s to 7.5 per 1000 person years in 2015. It is important to understand the causes of death so as to continue the fight in mortality reduction. Further, in this HIV endemic area Antiretroviral therapy (ART) was introduced in 2004 and studies have documented high coverage of 69% by 2015. ART eligibility criteria increased from a CD4 cell count of 200, to CD4 count of 500 by 2015. Here we describe trends and risk factors for causes of death, including HIV, in the Rakai Community Cohort Study (RCCS).

Methods: The RCCS is an open population-based HIV surveillance cohort, consisting of census and surveys: conducted at ~18-month intervals in southcentral Uganda. This analysis included 30 RCCS communities consistently followed over 12 surveys, between 1999 and 2015. Deaths of all community residents aged 15 years and above were identified through the RCCS census. Cause of death was ascertained using the WHO verbal autopsy questionnaire. Verbal autopsies were reviewed by a physician who assigned the final cause of death using WHO ICD-10 codes. We computed cause- specific mortality distributions stratified by gender and used exponentiated parametric survival models to explore risk factors associated with cause specific mortality. We also report adjusted Hazard ratios (aHR) and 95% confidence Intervals (CI) for each cause specific mortality.

Results: 2260 deaths occurred among participants resident in RCCS communities. 1173 (52% - 6.2 per 1000 person years) occurred among females and 1087(48% - 6.7 per 1000 person years) occurred among males. The proportion of HIV-related deaths declined from 20% (1999) to 12% (2015), and the proportion of deaths due to other communicable disease declined from 37% (1999) to 10% (2015). The proportion of deaths due to non-communicable diseases (NCDs) increased from 22% (1999) to 42% (2015) and injuries (traffic and other accidents, homicide, suicide) increased from 3% (1999) to 12% (2015). Injuries were highest in young men aged 15-24, contributing 30% of male deaths (n = 22/72). Of all injury deaths, the largest contributors were traffic accidents (n = 148/333, 44.4%) followed by homicide (n=44/333, 13.2%). Compared to men, women had lower hazards of mortality due to non-communicable diseases (aHR 0.69,95% CI=0.517-0.925) and lower hazards of deaths due to injuries (aHR 0.24,95% CI=0.158-0.383). Hazards of mortality due to communicable diseases were higher in the HIV-positive (aHR 2.77,95% CI=1.700-4.529) and in those who died with unknown HIV status (aHR 1.71,95% CI=1.24-2.369) compared to HIV-negative persons.

Conclusion: The proportion of deaths due to HIV decreased as ART coverage expanded. The proportion of deaths due to NCDs and injuries increased. Population health will require consistent HIV treatment and prevention, as well as increased attention to NCDs and injury

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HIV Drug Resistance in Chókwè District, Mozambique, 2014-2016

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Background: In Mozambique, limited information is available on the prevalence of drug resistant mutations (DRM) among the approximately 2.2 million people living with HIV, including 1.2 million receiving antiretroviral therapy (ART). To help inform ART programs, we evaluated the prevalence of DRM using data from the Chókwè Health Demographic Surveillance System (CHDSS) in Chókwè District, Mozambique.

Materials and Methods: We analyzed data from CHDSS residents aged 15–59 years who participated in annual cross-sectional household surveys during 2014–2016. Dried blood spot specimens of participants with ≥839 HIV-1 RNA copies/mL (the limit of detection) were amplified and sequenced (Thermo Fisher HIV-1 Genotyping Kit). Pol sequences were interpreted using the Stanford HIV Drug Resistance Database. Recent HIV infection was determined using a limiting antigen avidity assay. We estimated DRM prevalence overall and by regimen type, recency of infection, and history of ART. All estimates accounted for survey design and were weighted to match the CHDSS census age, sex, and urban residence distributions.

Results: Of 679 survey participants with viral loads ≥839 copies/mL, 663 (97.6%) were genotyped and matched with survey data. Overall, 42.0% (95% confidence interval [CI]: 37.7–46.3) of participants had at least 1 DRM, 40.6% (95% CI: 36.3–44.9) had at least 1 non-nucleoside reverse transcriptase inhibitor (NNRTI) DRM, 22.1% (95% CI: 18.6–25.7) had at least 1 nucleoside reverse transcriptase inhibitor (NRTI) DRM, 1.8% (95% CI: 0.7–3.0) had at least 1 protease inhibitor DRM, and 21.5% (95% CI: 18.0–25.1) had both NNRTI and NRTI DRM. Of 23 samples from recently infected participants that were genotyped and matched with survey data, 6 (29.1%) had at least 1 DRM, and all 6 had a NNRTI DRM. Participants with long-term infections who reported a history of ART (either currently on ART or participants who had discontinued ART) had significantly higher (p<0.001) prevalence of any DRM (79.1% vs. 30.9%), NNRTI DRM (79.1% vs. 28.9%), NRTI DRM (54.9% vs. 13.0%), and both NNRTI and NRTI DRM (54.9% vs. 12.1%) compared with participants reporting no history of ART.

Conclusions: Findings from the CHDSS suggest high prevalence of HIV drug resistance among HIV-positive residents of Chókwè District with unsuppressed viral loads. Close clinical monitoring, adherence to drug regimens, and retention in care of patients initiated on ART are needed to ensure effective HIV treatment in Mozambique.

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Using the National Eligibility Screening Tool to Trace People Living with HIV and AIDS in the Southern Highland Zone of Tanzania

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Chronic HIV over testing has been a major challenge in Tanzania. To avoid this, HJFMRI, an implementing partner of the U.S. Military HIV Research Program, aims to increase targeted HIV testing and to reduce repeat testing of low-risk individuals. The program adopted the standardized national screening tool to identify individuals at high risk of HIV infection among outpatient department (OPD) attendees in the Southern Highlands Zone. The goal of the HIV screening tool is to decrease the number of people needed to test to identify one positive individual, thereby improving testing efficiency and yield.

Description: Group pre-test counseling was offered to all OPD patients in waiting areas. All patients were referred for screening on HIV testing eligibility, and screening outcomes were documented in a register. All OPD patients were given a testing slip and routed to a provider-initiated testing and counselling (PITC) room for opt-out testing. Those eligible were tested for HIV while maintaining their place in the clinic queue. Testing was conducted by clinicians, nurses and counselors. Screening and testing data were monitored weekly, and regular supportive supervision visits ensured the quality of the services provided in the facilities.

Lessons Learned: Between April 1 to September 30, 2019, 535,616 patients attended the OPDs for various services in 132 health facilities. Of these, 448,317 (83%) were screened for eligibility of HTS and 113,392 (25%) of those screened were eligible. HIV testing was successfully provided to 108,288 (95.5%) of the eligible clients and 5,721 (5.3%) were diagnosed HIV positive. This is a 1.9-fold increase in testing yield compared to the previous 6 months, when PITC yielded 2.8% positivity rate.

Conclusions/next steps: Eligibility screening is a successful strategy for targeted HIV testing in medical entry points and has substantially improved testing yield amongst adults and children visiting health facilities for treatment. Remaining challenges to be addressed include: a shortage of human resources in facilities, inadequate knowledge and accountability of the testers, and lack of space for screening and OPD testing. In tandem with these improvements, the eligibility screening strategy should be extended beyond PEPFAR-supported facilities in Tanzania for maximal impact.
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Assessment of clinical outcomes and risk of LTFU among patients receiving differentiated HIV care: Results from a prospective cohort study in northern Tanzania.

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Background: Provision of HIV services in Tanzania is centred at the facility level. With an increasing number of patients due to Universal Test and Treat policy and longer survival, facilities become increasingly overwhelmed. Differentiated Care Models (DCM) provide various time-saving care packages to HIV clients, based on their needs as an alternative. It is important to tailor such models to local settings. This study assessed effectiveness of an ongoing community DCM intervention in Shinyanga, Tanzania, in comparison to the standard of care (SoC, facility-based model), in terms of retention in care, treatment adherence, stability over time and loss to follow-up (LTFU).

Methods: This prospective cohort study included stable patients (stability defined as adherence >95%, viral load <200cp/ml, on ART >6 months, no pregnancy or opportunistic infections) attending routine HIV care in Bugisi (rural) and Ngokolo (urban) health facilities between July 2018 and September 2019. Eligible patients were offered to participate in the DCM, nurse-overseen and Community Health Worker (CHW)-led. Retention and adherence were compared using Chi-square; logistic and Cox proportional hazards regression models were used to analyse factors associated with patients' stability over time and the risk of LTFU respectively.

Results: Of 2,521 patients, 24.7% received DCM and 75.3% SoC. DCM patients were slightly older (mean 42.6 versus 37.8 years) and less likely to be male (32% versus 36%). One-year retention in care and treatment adherence were better among DCM patients than SoC: 92% versus 82% and 99.2% versus 95.7%, respectively (p=0.001). SoC patients were more likely to be unstable over time (OR=2.27; 95% CI:1.44-3.55). Urban patients were more likely to become unstable over time than rural (OR= 3.05; 95%CI: 2.05-4.56). There was no difference in LTFU between patients attending SoC and DCM (HR=2.42; 95%CI: 0.71-8.19).

Conclusion: Patients attending DCM demonstrate better retention in care, treatment stability and good treatment adherence. This highlights effectiveness of DCM and the potential of CHW in delivering community-based HIV services that fit local Tanzanian context. The risk of LTFU was not different between patients attending SoC and DCM. Results from this study could be used to extend this DCM to other similar settings.

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Comparison of HIV prevalence in pregnant women and general population in the era of universal test and treat in western Kenya

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Background: Kenya is in the process of transitioning from sentinel antenatal data to using routine HIV program data for HIV surveillance. However, it is unclear how estimates from antenatal care (ANC) clinics compares to the general population in the era of universal test and treat (UTT).

Methods: The study population was drawn from the Siaya Health Demographic Surveillance System (HDSS) area in western Kenya. The ANC population (n=1,772) comprised of pregnant women who visited 13 ANC clinics located within the HDSS in 2018. The general population were women of reproductive age (n=1,789) who participated in the HIV sero-survey conducted in Siaya HDSS in 2018. HIV prevalence estimates for ANC population were compared with the general population.

Results: The overall HIV prevalence for ANC population was 19.0% (95% CI 17.2-20.9%) compared with 20.6% (95% CI 18.8-22.6%) in the general population. The HIV prevalence among ANC women who were matched to their HDSS records was 20.5% (95% CI 18.3-23.0%).

HIV prevalence by age amongst ANC differed from the general population, for instance, ANC women in the 15-24 age group had twice the prevalence compared with the general population. HIV prevalence peaked in 40-49 years (42.3%; 95% CI 24.2-62.8%) in ANC and 35-39 age-group in the general population (33.4%; 95% CI 28.3-39.0%). Prevalence of HIV infection was similar by marital status among ANC and the general population. Among the uneducated, HIV prevalence in ANC (21.4%; 95% CI 14.4-30.5%) was similar to the general population (22.8%; 95% CI 17.0-29.8%), and lower than the general population for those who had ever gone to school (ANC: 17.1%; 95% CI 15.4-18.9% vs. general population: 20.4%; 95% CI 18.5-22.4%).

Conclusion: In the era of UTT, overall HIV prevalence among ANC women and the general population were comparable. Similarly, there were no differences in overall HIV prevalence among all women and ANC population living in the same community as reported in a study that was conducted countrywide during the pre-ART era. Even though the age-specific prevalence patterns are quite different in the ANC and general population, this study shows that prevalence of HIV infection for women living in this region can be obtained from routine antenatal HIV testing data.

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Prevalence of HIV infection and bacteriologically confirmed tuberculosis among individuals found at bars in Kampala slums, Uganda

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Background: Bars pose a high risk for HIV and tuberculosis (TB) transmission. The prevalence of HIV and TB among slum dwellers is higher than national averages in sub-Saharan Africa. Customers and individuals who work or reside at bars in slums have a clustering of risk factors for both HIV and tuberculosis yet the prevalence of HIV and TB is unknown in this population. The aim of this study was to determine the prevalence of HIV and bacteriologically confirmed TB and predictors of HIV infection among individuals found at bars in slums of Kampala in Uganda.

Materials and methods: We used a cross-sectional study design to enrol participants across 5 slum settlements in the 5 divisions of Kampala, the capital city of Uganda. A slum settlement was randomly selected from each division of Kampala city. Bars in a given settlement were sampled by snowballing due to lack of organised housing and registration status. We included all adult participants (>18 years) that were found at a bar in a slum who provided written informed consent and excluded participants with alcohol intoxication (Hack's impairment index ≥0.7). Participants were consecutively enrolled from a given bar until a sample size for each slum was obtained. We performed HIV testing on whole blood samples using a rapid immunochromatographic antibody test (Alere Determine™ HIV-1/2) and sequentially confirmed positive samples with another test (Chembio HIV 1/2 STAT-PAK™). Participants provided single spot sputum samples that were tested using the Xpert® MTB/RIF Ultra assay for bacteriological confirmation of TB. We performed logistic regression analysis to determine independent predictors of HIV infection and statistical significance was set at p < 0.05.

Results: We enrolled 272 participants from 42 bars in December of 2019. The median (interquartile rage) age of participants was 32 (27 - 38) years and 196 (72.1%) of them were male. There were 170 (62.5%) customers, 30 (11.0%) bar owners and 30 (11.0%) bar staff. The prevalence of HIV infection was 11.4% (31/272) (95% confidence interval (CI): 8.1 – 15.8) and 16 (51.6%) individuals were newly diagnosed. Four participants had newly diagnosed bacteriologically confirmed TB, corresponding to a prevalence of 15 (95%CI: 6 – 39) per 1,000 population. Of these, 3 reported history of contact with a known TB case while 1 participant had TB/HIV co-infection. HIV infection was associated with female sex (adjusted odds ratio (aOR): 5.12, 95% CI (1.85 – 14.19), p = 0.002), current cigarette smoking (aOR: 4.16, 95%CI (1.35 – 12.83), p = 0.013) and history of TB treatment (aOR: 9.62, 95%CI (3.05 – 30.36), p < 0.001).

Conclusion: The prevalence of HIV among individuals found at bars in Kampala slums was twice the national average and female sex, current cigarette smoking and history of TB treatment were independently associated with HIV infection. The prevalence of bacteriologically confirmed TB was 4 times the national estimate. These study findings highlight the need for programmatic screening for HIV and TB among high risk populations in slums to identify the missed infections that drive the two epidemics.

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HIV, SMOKING AND RISK OF HEAD AND NECK CARCINOMA IN BOTSWANA: A CASE-CONTROL STUDY

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Objective: Incidence of squamous cell carcinoma of the head and neck (HNSCC) in Botswana has more than doubled over the past decade. We sought to assess association between HIV and other established HNSCC risk factors and the risk of developing HNSCC in Botswana.

Methods: As part of the Thabatse Cancer Cohort (TCC), we included patients presenting with HNSCC from 2010-2019 at four principal oncology treatments centers. Age (in 5-year categories) and sex matched controls (matched 4:1) were drawn from a 30-community random population sample including 12,600 rural and peri-urban residents. Conditional multivariable logistic regression was used to assess impact of HIV, smoking, and use of indoor solid fuels on HNSCC risk. Models adjusted for income and age (as continuous) to reduce risk of residual confounding.

Results: A total of 191 HNSCC cases were enrolled, including 166 (87%) males and 25 (13%) females. The median age was 59 years (IQR 49-67). The majority of cases (147, 79%) reported having ever smoked, and 67 (37%) of cases were HIV-infected at time of cancer diagnosis. In adjusted analysis, smoking was strongly associated with HNSCC risk, aOR 8.64 (95% CI 5.0 to 14.9 p<0.001). HIV infection was also significantly associated with risk of HNSCC, aOR 2.06 (95% CI 1.2 to 3.6). Current use of solid fuels was associated with increased HNSCC risk, aOR 1.74 (95% CI 0.99 to 3.1), but this finding did not reach statistical significance (p=0.055). Smoking is attributable for 71% of HNSCCs in Botswana.

Conclusions: Smoking and HIV are important risk factors for HNSCC in Botswana, and the increasing use of tobacco, particularly among persons living with HIV, may account for the rise in HNSCC incidence. Exposure to indoor solid fuel use may also increase HNSCC risk, but the limited number of cases prevents firm conclusion.

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Geographical Information Systems to improve HIV/AIDS care among Orphans and Vulnerable Children

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Background: In Uganda, adhering to HIV treatment is difficult for certain groups of people. In particular, young people aged 15–19 are more likely to drop out of HIV care. Reach Out Mbuya (ROM) offers care to over 1000 orphans and vulnerable children (OVC) due to HIV/AIDS and its effects. With increasing numbers of orphans, the traditional social safety net is unraveling, the capacity and resource distribution   within communities is inadequate. These children face severe physical, psychosocial, and legal challenges, rendering them disadvantaged, under-educated, and in turn more vulnerable to HIV infection. The distribution of HIV and other diseases in this population within the community is affected by geographical spatial clustering. Furthermore, there is an association between HIV/AIDS health related factors, resources and location in respect to health outcomes

Methods: We used epidemiological Spatial Data analysis techniques to explore the distribution of HIV/AIDS health related factors in relation to geographical location. Kobo Geographic Information System (GIS) was used to collect data. The Area polygon with its accuracy was recorded and displayed with the tool interface using Choropleth mapping to draw patterns within the data and to visualize socio-economic patterns, disease and various other human geographic variables to establish casual relations. All GIS information was captured in KML format. Data was exported to and analyzed using QGIS 3.10.

Results: OVC outside the HIV/AIDS care program are 2.1 times more likely to be critically vulnerable compared to the ones in care. [OR 2.1(1.44 - 2.91)] P value < 0.0001. There is a high vulnerability concentration in urban resettlement areas. These areas have struggled with social determinates that are endemic to urban slums. These informal settlements are problematic as they further   perpetuate poverty, thus encouraging a vicious cycle difficult to break. Access to resettlement land has enabled relatively cheaper accommodation and accelerated congestion and constrain for resources.

Lessons learnt: With analysis of GIS data, it was possible to identify both vulnerability and HIV hotspots that enabled us to design specific community interventions unique to this target population. It was possible to illustrate locations in relation to resources and infrastructure that affect HIV/AIDS program implementation; antiretroviral therapy, prevention and testing services. Sub-county HIV health outcomes were identified using the GIS. This has enabled the organization to coordinate resources and develop more effective interventions in areas with high prevalence and limited services.

Conclusions: Despite the continuing successes attributed to antiretroviral therapy towards HIV/AIDS care and management, Stigma and discrimination are still major barriers to the continuum of HIV care. client-centred approaches that simplify HIV services across the cascade are needed to better serve individual needs to reduce stigma and discrimination. Countries are revising their HIV service delivery models and have recognized that there is need to deliver differently as a one-size-fits-all model of HIV services does not work for all the 37 million people living with HIV today. People living with HIV/AIDS (PLHIV) face not only Stigma and discrimination but also social problems associated with the dual for example, adherence, disclosure challenges and injustices which make life more difficult because of limited emotional, spiritual, psychological, social, physical and clinical support.

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Temporal Trends of HIV Prevalence in Kenya

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Background: National population-wide Human Immunodeficiency Virus (HIV) prevalence in Kenya are estimated utilizing historical data from different sources including information from pregnant women visiting Antenatal Clinics, Kenya Demographic and Health Surveys and Kenya Aids Indicator Surveys. By combining these sources of data, we are able to uncover the temporal trends that exist and disaggregated these by age, sex and province.

Method: We determined HIV prevalence trends among men and women aged 15 to 49 years for surveys carried from during the years of 2003, 2008 and 2012. A log-binomial regression model was employed in testing for a discrepancy in prevalence trend between two groups respectively.

Results: Merging data for all provinces, a decrease in prevalence among women from 9.0 [95% confidence interval (CI) 8.0–10.0%] to 8.0 (95% CI 7.0–9.0%) and 7.0 (95% CI 6.0–8.0%) between 2003, 2008-09 and 2012 respectively. It declined similarly among all men from 5.0 (95% CI 4.0–6.0%) to 4.0 (95% CI 3.0–5.0%) between 2003 and 2012, whereas this remained unchanged among all men between 2008-09 and 2012. Prevalence declined by 1.4% more in women than men. There was a significant reduction among men and women aged 15 to 24 years in all provinces, those aged 25 to 34 years in Coast, Nairobi and Rift Valley, while rising significantly among women 35 to 49 years in all the provinces besides western province.

Conclusions: HIV prevalence was found to vary significantly by age, sex and province and these differences in trends may impact on the of the prevalence trends summarized nationally for the entire population.

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Incorporating Risk Based Testing as an effective tool for identifying known positives during Index testing.

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Background: Index Testing (IT) is known to be an effective strategy in improving HIV case findings globally. However in resource-limited settings there is need to design and modify testing outcomes. Risk based testing was introduced as a strategy for efficient testing of partners of HIV positive index clients. This study aimed to assess the outcome of risk-based testing as part of IT in identifying already known partners of index clients in a CDC funded HIV program in Nigeria.

Materials and Methods: HIV Testing service providers were trained on risk-based testing with the deployment of a HIV risk assessment tool (RAT) to all sexual partners of index clients to determine HIV risk exposure. Only partners at risk of HIV were tested. A retrospective comparative analysis of before and after the deployment of RAT was conducted using data from health records in 165 health facilities across seven states in Nigeria to determine the effectiveness of the RAT in identifying already known cases

Results: Prior to the application of RAT between the period of October 2018 to March 2019, 15,663(8,793 Males, 6,870 Females) partners of index clients were tested out of which 2,517 (914 Males, 1,603 Females) new cases were identified with an average positive yield of 16%. 914(528 Males and 386 Females) known positives were identified before testing.
On application of RAT between April to September 2019, a total of 20,874(11,262 Males, 9,612 Females) partners of index clients were tested out of which 4373(1,598 Males, 2,775 Females) new cases identified with an average positive yield of 21%. 2,603(1,576 Males and 1,027 Females) known positives were identified before testing.
The HIV positive yield before the application of the RAT was 16% (2,517/15,663) and 21% (4,373/20,874) after. The number of known positives identified following RAT also increased.

Conclusion: The study revealed that the use of risk based testing in index testing is an efficient and effective strategy to identifying people living with HIV compared to the regular index testing. It is recommended that risk based testing be integrated into all HIV testing services. This is an effective strategy to ensure cost efficient index testing in resource limited settings and prevent re-testing of known positives

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HIV PREVALENCE, RISK FACTORS, KNOWLEDGE AND SEX STIGMATIZATION AMONG FEMALE UNIVERSITY STUDENTS

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Introduction: Human immunodeficiency virus (HIV) remains a leading cause of global morbidity with the highest burden in Sub-Saharan Africa (SSA) and most of these infections are acquired by young women; especially, adolescents and young adults. Majority of HIV studies among females centre on sex workers. However, female university students who are youth (15-24years) are vulnerable or at risk of acquisition of HIV due to their sexual consciousness, attractiveness and active lifestyle at this stage. This study was therefore conducted among female students to determine their HIV status, awareness and associated risk factors, in order to strengthen efforts towards reducing transmission of HIV among youth.

Materials and methods: A total of 428 consenting female students, age range 15-40 years from a tertiary institution in Nigeria were enrolled for the study after obtaining relevant permission to carry out the study. About 5ml of blood was collected from each donor by venepuncture using sterile needle and syringe into labelled sterile container, free of anticoagulants or preservative. Each blood specimen was separated by centrifugation at 3000 rpm for 10 minutes and the serum was transferred aseptically into labelled cryovial. Socio-demographic data and risk factors associated with HIV transmission, including sexual life style, number of sex partners, blood transfusion, history of HIV in the family, protection during sex, etc were obtained using structured questionnaire. Presence of HIV antibodies and P24 antigen were detected using BIO-RAD Genscreen® ELISA Kit (Marnes-la-Coquette, France) and data was analysed.

Results: HIV prevalence among the female students was 1.6% with 7 of the students having HIV antibodies/antigens. All the HIV positive female students fall within age group 15-24 years. There is a statistical correlation (P< 0.05) between HIV prevalence and Age. Due to the stigma associated with sex among unmarried young females in Africa, many of the female students were not willing to discuss their sexual lifestyle. However, 16 (3.9%) admitted to having multiple sex partners, while 15(3.5%) had sex without protection. Of the 428 female students, only 152 had been previously screened for HIV, 4 of which are positive and the remaining 3 HIV positive students had never been screened for HIV. Two of the HIV positives (28.6%) had history of HIV diagnosed family members. Interestingly, 413 (96.5%) had at least a little knowledge about HIV including the 7 (100%) HIV positive female students. There is a statistical correlation (P< 0.05) between HIV prevalence and sharing of sharp objects with 5 (71.4%) of the HIV positives having history of sharing sharp objects with people of unknown HIV status.

Conclusion: This study shows that female youth are sexually active and practice unprotected sex despite unwillingness to discuss their sexual lifestyle and knowledge about HIV. There is the need for HIV and AIDS awareness campaigns specifically tailored towards educating young adults on the risk of unprotected sex and sharing sharps. In addition, education on important health knowledge and skills including sexual and reproductive healthy lifestyles should be included.

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Importance of continuous quality improvement in HIV recency testing in five districts in Namibia

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Background: In June 2019, the Namibian Ministry of Health and Social Services (MOHSS), with support from PEPFAR, rolled out the country's first HIV recent infection surveillance system in five districts. To ensure quality of testing, site level rapid testing was combined with laboratory confirmation and viral load testing to confirm all recent cases.

Methods: Persons attending HIV testing services aged ≥16 years and newly diagnosed with HIV infection were offered a rapid test (Asanté™ HIV-1 Rapid Recency® Assay) for recent infection (RTRI) at antiretroviral (ART) facilities after confirming their HIV status. All RTRI recent, as well as 10% of long-term (LT) samples, were sent to the laboratory for repeat RTRI. A RTRI recent result in the laboratory with a VL≥1,000 copies/mL was defined as recent infection. Extensive continuous quality improvement (CQI) actions were initiated after rollout at the site-level to address quality issues including discrepancies between RTRI recent results at testing sites compared to the laboratory.

Results: Among 1,103 persons tested with RTRI at the site level, 153, including 89 recent and 64 long-term, were sent to the laboratory for repeat testing. Of the 153, 62/64 (97%) long-term and 57/89 (64%) recent were found to test the same by RTRI at laboratory level. Forty-one of the 57 (72%) found to be recent in the laboratory via RTRI were confirmed recent using VL and 16 (28%) were corrected to long term. Discordant recent RTRI results between site and laboratory decreased from a high of 46% in August, just after CQI visits were initiated, to a low of 8% in October, indicating effectiveness of CQI site level visits.

Conclusions: Continuous quality improvement activities, which commence with rollout, are essential to ensure accurate recency data. Specifically, it is important to address testing issues at sites to reduce the discrepancies between site level and laboratory-based testing. VL testing is also important to discriminate between newly diagnosed infections and patients who are already on ART. Recency testing could become a vital tool to reduce transmission and thus reach epidemic control if scale-up is conducted as a joint effort between program and laboratory with a strong mind to quality assurance.

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Impact of strategic deployment of point-of-care early infant diagnosis on the performance of conventional reference laboratories in Mozambique - An early assessment

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Background: Mozambique has been experiencing high turn around time (TAT) for Early Infant Diagnosis (EID) averaging 34 days to 3 months using 5 reference laboratories that process EID and HIV Viral Load samples in the country. Point-of care (POC) EID testing using Alere q was introduced in Sofala and Maputo provinces in October 2015. National scale-up of POC EID testing began in January 2017 with the deployment of POC devices in these two provinces. We measured the changes in results TAT of referral EID samples processed at the reference laboratories following deployment of POC EID.

Methods: Using a score-based selection matrix to identify eligible sites for POC EID deployment, 26 health facilities were selected across the two provinces. The percentage of referred samples tested at reference laboratories with TAT of ≤28 days was analysed using a multiple logistic regression model for data between January 2015 to March 2017 to determine changes in performance following POC EID deployment, while also adjusting for within-province variability and the volume of samples tested at conventional laboratories.

Results: The average percentage of referred samples with TAT ≤28 days was 25.6% (95% C.I:7.8 – 43.5%) before and 38.9% (95% C.I: 30.7 – 47.0%) after POC deployment, respectively, with the overall average of 34.9% (95% C.I:27.4 – 42.6%). After POC scale-up, the odds of TAT ≤28 days increased by 46% every month, p-value=0.031.

Conclusions: Deployment of POC EID testing to high EID volume sites identified using the selection matrix, resulted in the improvement in the performance of the conventional laboratories in Sofala and Maputo provinces. Strategic hybridization of POC and conventional EID systems could be fundamental to the overall improvement in EID results TAT in Mozambique as high EID volume sites use POC testing.

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"Missing men" or missed opportunity? Men's frequent use of health services in Malawi

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Introduction: Men are underrepresented in HIV testing services across sub-Saharan Africa. Optimal strategies to reach men are unclear and have mainly focused on costly community and hotspot testing. Yet little is known about how often men attend facilities for non-HIV related services, and if men are subsequently offered HIV testing by providers.

Methods: We conducted a cross-sectional, community representative survey with men (15-64 years) from 36 villages in rural Malawi. We used staged sampling to randomly select villages and individuals. Individuals were randomly selected using census data and were stratified by village and age. Primary outcomes were facility attendance within 24 months (either as a client or guardian supporting service utilization for others), and HIV testing within the past 24 months. Descriptive statistics were conducted to examine frequency of facility visits among men in need of HIV testing (tested >24 months ago or never tested).

Results: 1,187/1,254 of men completed a survey (95% response rate), of whom 884 (74%) were adults (25+ years). 67/1,187 (6%) were known positive prior to enrollment in the study and excluded from analyses. A total of 1,120 men were included in the analysis. 87% of young (≤24years) and 91%of adult (25+years) men attended a facility visit within the past 24 months, with most facility visits made to outpatient departments (81%). Median number of facility visits within 24 months was 2 (IQR:1-4) and 4 (IQR:2-6) visits for young and adult men, respectively. 58% of young and 38% of adult men were in need of HIV testing (i.e., tested >24 months ago or never tested). Among those in need of testing, 85% of young and 84% of adult men visited a facility within the past 24 months. The majority of facility visits were made as a guardian, with 38% of men accompanying children and 26% accompanying spouses. Only 8% of men who attended a facility and were in need of testing were offered HIV testing services their most recent facility visit. Self-reported reasons for not testing during men's most recent facility visit were: not offered testing (32%); not at risk of HIV (19%); not ready to test (14%), and other (35%).

Conclusion: Most men regularly attended health facilities especially outpatient department. Men in need of testing were especially likely to attend facilities as a guardian, but surprisingly few were offered HIV testing. HIV case finding interventions should capitalize on men's routine facility visits in order to reach the general male population.

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Assessment of Early Infant Diagnosis (EID) Services in Blantyre District Malawi, to inform a strategy to Improve uptake of EID services

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Background: Malawi aims to provide HIV testing to at least 85% of all HIV exposed infants (HEIs). HIV testing for HEIs allows the provision of appropriate treatment, care, and support services to reduce morbidity and mortality. Routine data collection reports for Blantyre, Malawi District from 2016 to 2018, indicate low uptake of Early Infant Diagnosis (EID) of HIV, ranging from 43 to 63%. There has been no formal assessment to identify implementation gaps and to understand in detail the processes of EID services in the Blantyre District. This study explored the performance of EID of HIV services in order to identify a strategy that would improve the uptake of EID.

Methods: We conducted a mixed-methods study using convergent design in the Blantyre district, which has the highest HIV prevalence in Malawi and low EID testing rates. Two primary health facilities were purposively selected based on EID performance and location, targeting all HEIs with their guardians and Health Care Workers (HCWs) who provide EID services. We extracted and retrospectively analysed routinely collected data of EID for the period between January to December 2018. Observations were conducted using a checklist on four HCWs providing EID care for full clinic sessions for a period of four weeks. We mapped processes of EID care of 9 women with HEIs at birth and at six weeks of postnatal care. Additionally, 16 HCWs were engaged in semi-structured interviews in teams of four to analyse the observed maps. The semi-structured interviews were digitally recorded and transcribed. Data were analyzed using NVIVO 12 and Stata version14.

Results: A total of 178 women had HIV exposed infants during the study period, although there were five months of missing data. Only 47% of the HEIs were enrolled in the HIV care clinic (HCC) by the recommended 6 weeks of age. Of all HEIs only 45% of the infants were tested for HIV at 6 weeks. The process journey for the nine women ranged from 1 hour 45 mins to 8 hours 8 minutes. The flow of care for women was not uniform and not organized. Women spent a lot of time waiting and missing directions when they were linked to HIV services. Both pre and post-test counseling for HIV testing of HIV exposed infants was not provided. Inadequate collaboration among health workers in providing health services led to the missing of testing some HEIs and scheduling frequent hospital visits of women with HEIs despite facilities implementing mother-infant pair clinics.

Conclusions: Enrollment of HEIs in HCC at 6 weeks' age of infants is a challenge in Malawi. HIV testing for HEIs infants remains low. Inadequate collaboration, commitment and organization of work among health workers contributes to the low testing, long patient waiting hours, frequent hospital visits, missing the enrollment in HCC and testing of HEIs at 6 weeks within the health care system. There is a lack of comprehensive counseling of guardians with HIV exposed infants before and after the testing.
 Recommendations: Health workers need to organize the flow of EID services and enhance collaboration to increase uptake of EID services in Malawi. Health managers should enforce supervision and quality improvement techniques to sustain enhanced organized health systems in the provision of EID services.

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Improving post-operative follow-up of voluntary medical male circumcision clients using a toll-free line: lessons from Rwenzori Region-Uganda.

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Background: Voluntary Medical Male Circumcision (VMMC) is one of the effective biomedical HIV prevention interventions implemented in Uganda. Mobile outreaches have been used to increase uptake of VMMC. However, there are challenges managing post-operative complications for clients circumcised during the outreaches since the VMMC teams are mobile, and client's homes may be far from health facilities, which may lead to inadequate post-operative follow-up and management of the adverse events. Baylor-Uganda implemented a VMMC call center to offer post-operative follow-up and link clients to care in Rwenzori Region, Uganda. We describe the implementation and impact of the toll-free on follow-up of client's post-surgery from July 2018 to June 2019.

Method: A VMMC toll-free line was set-up in July 2018, marketing of the line was done through radio talk shows, posters and engraved wristbands given to males after circumcision. The line is manned by a trained doctor, communication experts and counsel, who on receiving a call, give advice and depending on the query, link the client to the VMMC officers responsible for follow-up in specific VMMC camps. The project provided a standby vehicle to pick clients who required urgent medical attention then a follow-up call is made 24-hours after the initial call to monitor progress. Data from calls was recorded, descriptive statistics generated and shared monthly. We used proportions to analyse adverse events reported by the callers.

Results: Between July 2018 to June 2019, we received 2001 VMMC calls, 87% of the callers were males and the median age 16years (IQR:12,22). Of the 2001, 1181(59%) were given advise online especially on wound care and did not need linking to VMMC provider while 820(41%) had adverse events and were linked. Of the clients connected to the VMMC provider, 96% were successfully linked and received care within 24hrs. Mild adverse events (AEs) reported were pain(10%) and swelling of the penis (15%) whereas moderate AEs included; wound disruption (40%),Abscess formation (11%),wound infection (10%),inability to urinate (9%), excessive bleeding (3%) and sexual dysfunction(2%).

Conclusion: The toll-free line service is effective in follow-up of VMMC clients post-operatively. Other VMMC partners and the ministry of health should consider adopting this approach nationally.

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Analysis of integration of HIV, SRHR and PSS services for adolescents and young people living with HIV LESSONS LEARNT in East and Southern Africa.

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Background: As the world is currently in pursuit of the 90-90-90 targets, the integration of HIV care and sexual, reproductive health and rights (SRHR) services has been accepted within the health service delivery system as a key strategy to provide holistic care. There is however, limited access to psychosocial support (PSS) such as mental health services , adherence support and disclosure support which are strongly related to negative and poor HIV treatment and SRHR outcomes for adolescents and young people living with HIV (A&YPLHIV). The growing number of A&YPLHIV in both East and Southern Africa warrants a deeper on focus towards integrating PSS with SRHR and HIV care. This approach is expected to yield empowered and resilient A&YPLHIV for enhanced prevention, care and treatment outcomes. The READY+ project is run by a consortium of HIV service organizations aiming to advance provision of comprehensive PSS services to A&YPLHIV in east and southern Africa within health facility settings.

Description: The consortium supports the implementation of integrated services for A&YPLHIV focusing on three packages of HIV care, SRHR and PSS services. Each beneficiary is expected to receive at least one service from each of the three packages within one year from CATS (Community Adolescent Treatment Supporters) or healthcare providers or both. A retrospective descriptive analysis was conducted on the services that were provided to A&YPLHIV under the project between April and December 2019. The implementation consisted of training and mentoring CATS who work closely with healthcare providers within a heath facility to provide comprehensive services to A&YPLHIV.

Results: the program is targeting 30 000 adolescents and young people living with HIV. Currently the programme has reached about 20000 adolescents living with HIV. Among them are adolescent mothers, young people selling sex and adolescent and gays & lesbians living with HIV. The programme is also reaching out to parents and caregivers of the adolescents and young people with HIV through community dialogues. The programme is indicating towards resilient empowered adolescent who is making some healthier choices.

Lessons Learned: The combination of peer counsellors and healthcare providers is key in addressing some of the complex challenges faced by A&YPLHIV in their realisation of psychosocial wellbeing and SRHR. Using HIV care as the entry point, it has been demonstrated that A&YPLHIV can benefit from a wide range of services on SRHR and PSS within the health facility settings. Beyond the provision of integrated services, consideration in ensuring that sub-groups of A&YPLHIV such as adolescent mothers, the transgendered and those with disabilities have access to integrated services, will be critical.

Conclusion/Next Steps: Integration of services championed by peer counsellors and healthcare providers is expected to provide quality services to A&YPLHIV and in turn improving their health outcomes. As the project enters into its second year, there is need for sustained provision of services to A&YPLHIV so that they are all retained within care and therefore, continue to receive comprehensive support to address challenges they face growing up with HIV.

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"You cannot catch fish near the shore nor can you sell fish where there are no customers": Rethinking approaches for reaching men with HIV testing services in Blantyre Malawi

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Introduction: HIV testing is the entry to the cascade of services within HIV care. Although positive strides have been registered with HIV testing, men are lagging behind with fewer men than women tested. Although 60% of new infections among adults occurs in men, only 30% of men in SSA have had an HIV test compared with over 42% of women. Similarly in Malawi, 66% of men have had an HIV test compared to 82% of women. Delayed HIV testing leads to suboptimal access to successive HIV services a man may need. Realization of the 90 90 90 goals will require deliberate efforts to reach the less frequently reached populations with HIV testing to trigger initiation of care. This study explored the preferences of men on the avenues for HIV testing in Blantyre, Malawi.

Methods: As a formative phase to optimize access to HIV services for heterosexual men, a descriptive qualitative study was conducted in 7 public Health facilities in Blantyre, Malawi. We conducted 20 in depth interviews with men of varying HIV statuses, 16 key informant interviews with various cadres of health care workers that serve men and coordinate HIV services in Malawi. We held 14 Focus group discussions among men with various HIV statuses. We digitally recorded the data and employed a thematic approach to the analysis.

Results: The key to test men for HIV is finding them where they are. Areas that can be leveraged in reaching men are outside the routine health system and include areas like formal and informal work places like markets and casually employed men; social places like football pitches, bars, churches and "bawo" spaces; outreach services in the form of weekend door to door, mobile clinics, men to men groups. Services ought to target older men too and privacy can be maintained by having non-familiar and non-resident health workers work in a specific community.

Conclusion: Scaling up of HIV testing among men will require targeting structural components and operations outside of the routine health system and leverage on them to reach more men with services. Informal work places are a neglected avenue for reaching men with HIV services. The health system needs to be robust and adaptive to achieve the desired goals.

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Mortality Reviews And Verbal Autopsies – Love To Have Or Need To Have For Better Patient Outcomes?

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Background: Mortality reviews ideally should be conducted routinely by Anti-Retroviral Therapy (ART) clinicians in a Service Delivery Facility (SDF) that offers HIV Care & Treatment services to examine the quality of service received by clients who eventually died, with the sole purpose of identifying missed opportunities in the continuum of care. Learning from these missed opportunities will enable caregivers develop and implement strategies that will improve the treatment outcomes of patients on ART and the overall quality of the care at the SDFS. Conducting mortality reviews is easier where the patients died in-facility but becomes a challenge where the patient died at home. Caritas Nigeria currently supports 90 Comprehensive Care & Treatment (CCT) and 35 PMTCT/ART Stand-alone facilities in Delta, Ebonyi, Enugu and Imo States to provide HIV Care & Treatment services for 58,698 PLHIVs and considers this process of service improvement through self-learning a critical component of its Global Action Towards HIV Epidemic Control in Subnational Units in Nigeria (4GATES) program.

Materials & methods: A retrospective desk review was carried out across 93 SDFs to assess the number of mortalities and mortality reviews conducted from October 2017 to September 2018. As at the time of the desk review (September 2018) there were 53,514 PLHIVs on ART. Mortalities were assessed based on gender and age disaggregation, HIV-related and non-HIV-related. The ART doctors and facility Quality Improvement (QI) focal persons conducted the review. The study used verbal autopsy as means of gathering information on mortalities outside the health facilities.

Results: A total of 621 mortalities (1.16%) were reported - 294 Males (47.3%) and 327 Females (52.6%). 29 (4.6%) were 0-14Yrs (M-19; F-10); 26 (4.1%) were 15-19Yrs (M-11; F-15); 469 (75.5%) were 20-49Yrs (M-215; F-254); 97 (15.6%) were 50+ (M-49; F-48). PLHIVs who died of HIV-related causes were 117 (18.8%); 25 (4.02%) died of non HIV-related causes while cause of death was undetermined for 479 (77.1%). 57 (9.1%) of the mortality reviews were conducted by ART doctors; 63 (10.1%) were conducted by QI focal persons while mortality reviews were not conducted for the remaining 502 (80.8%).

Conclusion: 77.1% of the mortalities that occurred were not reviewed, as such, it is difficult to ascertain cause of death and to determine whether the mortalities were preventable. This also denied the clinicians the opportunity to learn from the deceased patients with a view to preventing future mortalities due to the same cause(s). Mortality reviews and verbal autopsies should become a major component of routine program deliverable

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Engaging Students To Enhance Service Delivery In High HIV/TB Burden communities: The Community Cluster Head Approach in Kisenyi Slum- Kampala City

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Background: AIDS Information Centre (AIC) is one of the implementing partners of the USAID Defeat TB Project. The AIC community TB control register identified Kisenyi slum as having the most TB/HIV hotspots in Central division. AIC TB registers indicated that between January and April 2019, out of 60 notified TB cases with 45% TB/HIV Coinfection identified from central division through contact investigation and outreaches, 30 cases came from Kisenyi slum, with Kakajjo, Kasaato and Muzaana zones contributing 12 cases (40%). This prompted a community approach to intensively reach TB hotspots hence an initiative codenamed 'Community Rise against TB/HIV'

Materials and Method: AIC established partnership with Integrated Community Health Initiative Organization (ICHIO) - a Makerere University School of Public Health students' founded initiative. 39 students (volunteers) were engaged and trained in the basics of TB/HIV control at community level.
Kakajjo zone was purposively selected to be the first zone and the Local Council Authority engaged. Clusters of 10 to 15 households were established and Cluster heads for TB/HIV neighbourhood watch nominated by cluster members. Volunteers and VHTs screened and educated cluster members about TB/HIV. Sputum samples collected from those with productive cough were sent for geneXpert test and HIV testing done by AIC staff. Presumptive TB cases were recorded in National TB registers at AIC

Results: 23 clusters were formed in one month and 1,125 people sensitised and screened for TB. 83 sputum samples collected and sent for geneXpert testing and all the 83 presumptive TB patients were tested for HIV as per the national TB/HIV policy.Sputum Sample laboratory analysis yielded 10 new TB and HIV testing yielded 5 HIV positive clients and all linked to care and treatment at AIC and Kisenyi HCIV.

Conclusions: Students (Volunteers) expressed great zeal in providing quality community service while at simultaneously acquiring work experience. The 10 new TB patients and the 5 HIV positive clients identified by this approach demonstrated that communities have greatest and most sustainable human capital which needs to be harnessed and utilised. In addition, the approach used demonstrates that Community clustering can potentially improve community TB /HIV finding and awareness.

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TLD associated with weight gain and metabolic syndrome in the African Cohort Study

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Background: Tenofovir disoproxil fumarate/lamivudine/dolutegravir (TLD) is becoming the preferred first line antiretroviral therapy (ART) globally, but early data have raised concern for adverse effects such as weight gain and hyperglycemia. We examined the impact of the TLD transition on weight gain and metabolic syndrome.

Methods: The African Cohort Study enrolled people living with HIV (PLWH) and HIV uninfected participants at 12 PEPFAR-supported clinics in Uganda, Kenya, Tanzania and Nigeria. Blood pressure, body mass index (BMI), cholesterol and glucose were measured longitudinally. Metabolic syndrome was diagnosed by ATP III criteria of three or more metabolic conditions (obesity, hyperglycemia, dyslipidemia, or hypertension). Among PLWH transitioning to TLD, we described weight changes between BMI categories as new diagnoses of metabolic syndrome, dyslipidemia or hyperglycemia. We used linear regression to estimate average weight change and 95% confidence intervals (CI) comparing different ART regimens and adjusting for age, gender, site and depression (by CESD scale).

Results: From January 2013-November 2019, 3,514 participants were enrolled including 2,043 (58%) females and 2,927 (83%) PLWH with median age 38 (interquartile range [IQR] 31-46) years. Of 2,480 PLWH with weight documented at most recent visit and one year prior, 873 had started TLD with median time on TLD 121 days (IQR 76-187). Median weight change in the TLD group was +1 kg (IQR -1 to +3), 53 (6%) PLWH became overweight or obese (BMI>25 kg/m2), 27 (3%) had BMI fall below 25 kg/m2, and 65 (12%) developed new metabolic syndrome. Cholesterol levels and rates of hyperglycemia were stable to decreased following TLD switch. Multivariate linear regression estimated the highest average weight change (+0.77 kg; CI 0.31-1.24) for those on TLD vs. ART naïve participants and those taking NNRTI or PI based regimens. Higher adjusted weight gain was seen in Nigeria (+1.40 kg; CI 0.67-2.14) and among women (+0.42 kg; CI 0.02-0.81).

Conclusions: TLD use was associated with moderate weight gain and higher rates of metabolic syndrome were observed after TLD transition in the care and treatment setting. Sex and regional differences in weight gain were demonstrated. Country-level strategies for transitioning PLWH to TLD may need to consider more intensive monitoring of women for adverse effects and proactive interventions to decrease risk of metabolic complication.

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Age, Absolute CD4 Count and CD4 Percentage in Relation to HPV infection and the Stage of Cervical Disease in HIV-1-positive Women.

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Background: A subgroup of women who are co-infected with human immunodeficiency virus type 1 (HIV-1) and human papillomavirus (HPV), progress rapidly to cervical disease. We characterised HPV genotypes within cervical tumour biopsies, assessed the relationships of cervical disease stage with age, HIV-1 status, absolute CD4 count, and CD4 percentage, and identified the predictive power of these variables for cervical disease stage in a cohort of South African women.

Methods: We recruited 181 women who were histologically diagnosed with cervical disease; 87 were HIV-1-positive and 94 were HIV-1-seronegative. Colposcopy-directed tumour biopsies were confirmed by histology and used for genomic DNA extraction. The Roche Linear Array® HPV genotyping test was used for HPV genotyping. Peripheral whole blood was used for HIV-1 rapid testing. Fully automated FC500 MPL/CellMek® with PanLeucogate (PLG) was used to determine absolute CD4 count, CD4 percentage and CD45 count. A logistic regression model, parametric Pearson's correlation and ROC curves were used for statistical analyses. We used the Benjamini-Horchberg test to control for false discovery rate (FDR, q-value). All tests were significant when both p and q were <0.05.

Results: Age was a significant predictor for invasive cervical cancer (ICC) in both HIV-1-seronegative (p<0.0001, q<0.0001) and HIV-1-positive women (p=0.0003, q=0.0003). Sixty eight percent (59/87) of HIV-1-positive women with different stages of cervical disease presented with a CD4 percentage equal or less than 28%, and a median absolute CD4 count of 400 cells/µl (IQR 300-500 cells/µl). Of the HIV-1-positive women, 75% (30/40) with ICC, possessed ≤28% CD4 cells versus 25% (10/40) who possessed >28% CD4 cells (both p<0.001, q<0.001). Furthermore, 70% (28/40) of women with ICC possessed CD4 count >350 compared to 30% (12/40) who possessed CD4 count ≤ 350 (both p<0.001, q<0.001).

Conclusions: Age is an independent predictor for ICC. In turn, development of ICC in HIV-1-positive women is independent of the host CD4 cells and associates with low CD4 percentage regardless of high absolute CD4 count. Thus, using CD4 percentage may add a better prognostic indicator of cervical disease stage than absolute CD4 count alone.

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Place of ischemic cerebrovascular accidents in pathologies encountered in PLWHIV in hospital in the Infectious and Tropical Diseases Service of the University Hospital Center Point G

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Background: With HAART, HIV infection becomes a chronical disease, more and more co-morbidities appear. HIV infection can cause a stroke through several mechanisms, including opportunistic infection, vasculopathy, cardioembolism, and coagulopathy. Combined antiretroviral therapy (CART) is clearly beneficial, but can be atherogenic and may increase the risk of stroke. The objective of our study was to study ischemic stroke in PLWHIV to have an insight to those mechanism in Mali.

Materials & Methods: We conducted a descriptive and prospective study over the period from January 1, 2018 to December 31, 2019, in patients infected with HIV hospitalized in the Department of Infectious and Tropical Diseases of the CHU du Point G. The diagnosis of ischemic stroke was made on the basis of clinical arguments and a cerebral computed tomography. Medical history was collected, biological factors such as blood cholesterol and triglyceride were assessed, anatomical factor such as neck vessel atheroma were studied trough Doppler ultrasound, HAART Treatment was recorded. We compared factor using Fischer exact test with a significant threshold at 0.05.

Results: We enrolled 22 patients according to our inclusion criteria out of the 842 hospitalized patients, a frequency of 2.61%. The male sex was the most represented with 68.2%. The mean age was 46.5 ± 11.05 years. Beside HIV, High blood pressure (40.1 %); Age ≥ 55 y/o (36,4%); Tobacco (31.8%); Alchool (31.8%); Diabetes (9.1%) and Obesity (4.5%) were the personal risk factor we found for stroke. The clinical description of stroke in HIV-infected patients is the same as non-immunocompromized. Regarding anatomy the obstructed vessel was mainly the medium brain artery (50% of cases) followed by the posterior brain artery (18.2% of cases). Cardiac exploration found impairment in 9 cases out of the 22. Doppler ultrasound found Carotid atheroma in 53.3% of cases. Total cholesterol was normal in 77.8% and triglyceride in 57.1% of our 22 patients. The average CD4 count was 172± 192.8 cells / mm3. Only one case was taking protease inhibitor at the moment of the stroke, 90.4% were under TDF+3TC+EFV regimen. The mean hospital stay was 27.2 ± 14.8 days. Three (3) patients out of the 22 deceased during hospital stay, giving a lethality of 13.6%.

Conclusions: Stroke is frequent in HIV patients, HIV seems to be additional to the other factors classically found in patients with stroke. Neck vessel atheroma was found in more than the half of patients, but protease inhibitor was not commonly use prior to the stroke

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Prevalence and correlates of depression among treatment-experienced persons living with HIV on second-line regimens at a tertiary teaching and referral hospital in Kenya

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Background: Depression is the most common mental health disorder in persons living with the human immunodeficiency virus (HIV). In resource-limited settings, effects of depression are underestimated and unappreciated by both healthcare workers and caregivers. Our objectives were to determine the prevalence and correlates of depression in patients on second line anti-retroviral therapy.

Methods: A cross-sectional study was undertaken at a HIV care clinic in Kenyatta National Hospital, Nairobi, Kenya between October and November 2017. Data were collected through interviews and application of the Patient Health Questionnaire 9. Descriptive and inferential data analysis was performed using R statistical software.

Results: We enrolled 110 patients, of whom 46 (41.8%) were male and 64 (58.2%) were female. The mean age was 39.8 years (± 11.8); slightly more than half were married (53.6%, 59) and approximately half had completed high school (50.9%, 56). The median CD4 count and viral load were 219 (IQR=272) and 26840 (IQR=1034000) respectively. Forty percent (n = 95) of the participants had varying severities of depression (mild, minimum and moderate) though none had major depressive disorder. Having gainful employment (aOR 0.18, 95% CI 0.04 – 0.62), being on treatment for long (aOR 0.77, 95% CI 0.60 – 0.98) and being adherent to therapy (aOR 0.23, 95% CI 0.05 – 0.95) lowered the risk of screening positive for depression whereas an ongoing opportunistic infection increased the risk (aOR 6.81, 95% 1.24 – 55.48). No other factors were associated with depression.

Conclusion: There is a high burden of possible depression among patients on second line antiretroviral regimens that is associated with occupation, duration of antiretroviral therapy, adherence and current opportunistic infections.

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Viral Load Suppression among Adolescents on Anti-Retroviral Therapy, Harare City-Zimbabwe 2017

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Background: Zimbabwe is on track towards achieving viral suppression among adults (87%). However, adolescents have only achieved 44% by 2016. In Harare city, 57% of adolescents had attained viral suppression after 12 months on ART compared to 88% among adults. We determined factors associated with viral suppression among adolescents (age 10-19 years) on antiretroviral therapy (ART) in Harare city.

Methods: We conducted a one to one unmatched case control study among 102 randomly recruited case: control pairs at the two main infectious disease hospitals in Harare. A case was any adolescent who presented with VL > 1000c/ml after at least 12 months on ART. Interviewer administered questionnaires were used to collect data. Epi Info 7 was used to generate frequencies, means, proportions, ORs and p-values at 95% CI.

Results: We interviewed 102 case-control pairs. Poor adherence to ART [aOR=8.15, 95% CI (2.80-11.70)], taking alcohol [aOR=8.46, 95% CI (3.22-22.22)] and non- disclosure of HIV status [aOR=4.56, 95% CI (2.20-9.46)] were independent risk factors for virological failure. Always using a condom [aOR=0.04, 95% CI (0.01-0.35)], being on second line treatment [aOR=0.04, 95% CI (0.23-0.81)] and belonging to a support group [aOR=0.41, 95% CI (0.21-0.80)] were protective.

Conclusion: Poor adherence, alcohol consumption and non-disclosure increased the odds of virological failure. Based on these findings support should focus on behaviour change and strengthening of peer to peer projects to help address issues related to disclosure and adherence. Further operational research should aim to define other components of effective adherence support for adolescents with virological failure.

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Non-dipping blood pressure is associated with salt-sensitivity, 24-hour sodium excretion and hypertension in HIV

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Background: Dipping is a normal physiological drop in blood pressure at night and is defined as the difference between mean systolic pressure in the day and night > 10%. Non-dipping is associated with adverse cardiovascular outcomes and target organ damage among individuals with essential hypertension. Excretion of sodium in some individuals is modulated by non-dipping status, however, there is paucity of studies in HIV-infected individuals investigating this, especially where hypertension risk is highest compared to the general population. Therefore, the aim of our study was to determine the relationship between non-dipping blood pressure and hypertension, salt-sensitivity and sodium excretion among people living with HIV (PLWH).

Materials and Methods: We conducted an intervention study at Livingstone Central Hospital in Zambia among PLWH where participants followed one week of low (4g) salt diet followed by one week of high (9g) salt. Mean arterial pressure (MAP) difference between low- and high-salt diet was used to define salt-sensitivity (MAP≥8mmHg) and salt-resistance (MAP≤5mmHg). Individuals with MAP difference of 6-7 were excluded. We used an ambulatory blood pressure monitor ABPM50 for 24-hour blood pressure measurements and Ion selective electrode technology for potassium, sodium and chloride analysis. Flow cytometry and BioLegend's LEGENDplex™ bead-based immunoassay were used for cell markers and cytokine analysis. Chi-square test for trend using GraphPad prism version 8.3 and logistic regression were used to make inferences.

Results: The study was comprised of 43 participants, 23 were female and 22 were hypertensive. On low salt diet, 56% (n, 24) and 44% (n,19) were dippers and non-dippers respectively. Prevalence of non-dipping blood pressure in normotensive and hypertensive was 24% (n, 5) and 64% (n,14) respectively. After high salt diet, prevalence of non-dipping in the normotensive remained constant while in hypertensive increased to 86% (n,19). Using univariate logistic regression, non-dipping blood pressure on low and high salt was associated with hypertension, monocyte count, and IL-6 levels (p<0.05). In contrast to low salt diet, high salt diet was associated with increased D11 (Isolevuglandin) expression on monocytes (CD14+), nocturnal sodium and chloride excretion, 24-hour sodium excretion, and IL-10 levels (p<0.05). However, after controlling for age, sex, and all variables that were significant in univariate analysis there was no association between non-dipping and any of the variables on a low-salt diet, whereas on a high-salt diet non-dipping was associated (OR 1.06, 95%CI 1.00, 1.13, p=0.039) with 24-hour sodium excretion regardless of age and sex.
Non-dipping blood pressure was associated with salt-sensitivity in both low- and high salt diet regardless of age and sex (p<0.01). Prevalence of salt-sensitivity among hypertensive and normotensive was 96% (n, 21) and 10% (n, 2). Salt-sensitivity was associated with hypertension (p=0.001).

Conclusion: Non-dipping blood pressure was associated with salt-sensitivity, increased 24-hour sodium excretion and hypertension in HIV. We believe that improving dipping status in those with or without hypertension has potential to blunt hypertension and prevent adverse outcomes.

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Measuring the burden of additional visits for co-morbidities and family planning among ART patients

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Background: Reducing visit frequency for HIV-positive patients stable on antiretroviral therapy (ART) is intended to reduce the burden on patients and health services, thereby enabling continued ART programme scale-up in South Africa. The aim of this study was to measure the extent to which non-alignment of visits for co-morbidities and family planning diminished the intended gains of less frequent ART visits.

Methods: We conducted a retrospective cross-sectional analysis of routinely collected electronic medical records for non-pregnant adult patients, not on TB treatment, on ART for at least a year with consistent engagement in ART care from January to December 2019 at three large primary healthcare clinics in Khayelitsha, Cape Town, South Africa. We described the frequencies and proportions of aligned and non-aligned visits for ART and scheduled hypertensive, diabetic and family planning services, broken down by service.

Results: Among 19206 adult patients consistently engaged in ART care throughout the year, 13885 (72%) were women. Patients had a median age of 41 years (IQR 35-47) and median duration on ART of 6 years (IQR 3-9). Altogether, 4881 (25%) patients accessed services for at least one of three non-ART reasons during the year: 3098 for hypertension, 1234 for diabetes and 1954 for family planning, with some overlap. Of the 5541 visits for hypertension, 3279 (59%) were combined ART and hypertension visits; of 2059 visits for diabetes, 1058 (51%) were combined ART and diabetes visits; and of 3407 visits for family planning, 716 (21%) were combined ART and family planning visits. Overall, 5114 additional visits for hypertension, diabetes or family planning services were observed that were not aligned with ART visits.

Conclusion: A large number of patients attending ART services in 2019 in Khayelitsha also accessed services for co-morbidities and family planning. Greater alignment of scheduled visits for ART and these other services may present an opportunity to reduce visit burden for patients and the health services.

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Depression among adolescents and young adults living with HIV at an ART clinic in Accra, Ghana

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Background: Mental health disorders among adolescents and young adults often go undiagnosed and untreated especially in those living with HIV. The complexity of the period of adolescence and transitioning to adulthood increases their risk of mental health disorders. Some of the reasons for this include patients rarely volunteering information about their mental state and no integration of HIV and mental health services.

Materials & Methods: A cross-sectional study was conducted among adolescents and young adults living with HIV (AYALHIV) aged 10 to 24 present at an annual meeting of the group at the Korle-Bu Teaching hospital in Accra, Ghana. After education and obtaining informed consent, the questionnaires were distributed. The validated self-administered Patient Health Questionnaire for adolescents (PHQ-A) comprising 13 items (PHQ-9 and additional 4 questions) was used to screen for depression. The PHQ-9 is a 4-point Likert scale with a range from 0 to 3. Zero for "not at all" responses and 3 for "nearly every day" responses. Scores range from 0 to 27 for assessing depression severity. A score less than 5 demonstrated no symptoms; 5 to 9 depicted mild depression; 10 to 14 - moderate depression; and above 15 - severe depression.
A "Yes" response to one additional item "In the past year have you felt depressed or sad most days, even if you felt okay sometimes?" was indicative of dysthymia. All positive responses to question 9 in the PHQ-9 as well as the two additional suicide items in the PHQ-A was suggestive of suicide risk.

Results: A total of 36 AYALHIV (of which 72.2% were adolescents) participated in the study. Their mean age was 17.8±2.8 years and 58.3% were female. A third (33.3% (12/36)) of AYALHIV had educational level up to the Junior High school level and 16.7% having their educational level up to tertiary level.
Fifty-eight percent (21/36) of AYALHIV had symptoms suggestive of depression. Almost 36% of AYALHIV (13/36) had scores suggestive of mild depression, 11.1% (4/36) had scores suggestive of moderate depression whilst another 11.1% (4/36) had scores suggestive of severe depression. Those with moderate and severe depression scores were assigned to clinical psychologists and counselors with 48 hours.
Approximately 28% (10/36) of AYALHIV were found to have suicide risks whilst 63.9% were found to have dysthymia. Those with suicide risk were in addition linked to clinical psychologist the same day by phone.
There was no significant association between socio-demographic characteristics and having symptoms suggestive of depression.

Conclusion: Depression is very common amongst AYALHIV. Dysthymia and suicide risks are also quite common amongst AYALHIV. There is a need for integration of HIV and mental health services to promote regular screening and treatment of AYALHIV.

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HPV DNA Screening for Cervical Cancer in a Resource-limited setting –Experiences From a Cohort of Women Living With HIV in Zimbabwe.

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Background: One third of cancer deaths in women in Zimbabwe are due to cervical cancer (CC). The National Cervical Screening Programme currently recommends visual examination of the cervix after the application of acetic acid (VIAC) as the preferred screening modality. This procedure requires technological and human resources which are lacking in the resource-constrained health sector, resulting in limited access to this service for many women. Women living with HIV (WLHIV) are a high- risk group for human papillomavirus (HPV)-related cervical disease and national policy recommends annual screening for WLHIV. Given the aetiological relationship between HPV infection and cervical carcinogenesis, HPV testing has been proposed by the World Health Organisation (WHO) as an alternative screening modality. We describe the incidence of high grade squamous intraepithelial lesions (HGSIL) or cervical cancer in a longitudinal cohort of WLWHIV who were screened for HPV and with VIAC at baseline and were followed up annually for a median of 2 years.

Materials & Methods: A retrospective database search identified 315 WLHIV who had HPV screen with no clinical evidence of cervical disease (HGSIL and or cervical cancer) at baseline, between 1st October 2017 and 31st July 2018, and for whom at least 1 year of follow up data was available. HPV testing was conducted by taking an endocervical swab and the Cepheid Xpert HPV platform was used. We calculated incidence rates of cervical disease with 95% confidence intervals for the 627 person years of follow-up.

Results: In the cohort of 315 women, 241 (75%) women tested negative for HR-HPV and 80 (25%) were positive. The median age was 44 years (IQR, 39-49); median time on antiretroviral therapy (ART) was 7.8 years (IQR:4.5– 10.8). Median CD4 count was 513 cells/mm3 (IQR 354-677) and 272 (86.3%) had viral suppression (< 20 copies/ml). The incidence rate of HGSIL in HR-HPV positive women was 7.1 per 100 person years (95%CI 3.8- 13.2). In HR-HPV negative women, there was no clinical evidence of cervical disease (rate difference 7.1 per 100 person years,95%CI 2.7-11.5). During the follow up period, there was no incident cervical cancer regardless of HR-HPV infection status.

Conclusion: These findings support the role of HPV testing as a screening tool and provide data to allow for an increase in screening interval for WLHIV who are negative for HR-HPV. This reduction in the screening interval will reduce the cost and numbers of women requiring screening, thereby providing opportunities for more women to access CC screening services. The test is now available as a point of care assay, and, together with self-sampling by women, has the potential to increase the provision and accessibility of CC screening. In addition, these results show that despite optimal HIV disease control, WLHIV who have HR-HPV co-infection may still progress to cervical precancer and therefore close monitoring of these patients is mandatory.

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The relationship between depressive symptoms and adherence to antiretroviral therapy in adolescents living with HIV

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Background: Adolescents living with HIV (ALHIV) are widely reported to have worse adherence to antiretroviral therapy (ART) than all other age groups. Depression is consistently reported to impede antiretroviral therapy adherence. However, the majority of this evidence comes from western countries and adult populations. Further, there is little data on the relationship between specific depressive symptoms and severity on ART adherence amongst ALHIV. This study aims to help close these gaps.

Methodology: We used secondary data from a quantitative cross-sectional depression study amongst ALHIV aged 12 – 18 years. Participants self-reported missed doses using a validated adherence measure. Depression symptoms were measured using Beck's Depression Inventory (BDI) and Children's Depression Rating Scale – revised version (CDRS-R). Logistic regression with Odds Ratio (OR) calculated at 95% confidence interval (CI) was performed to examine the association between depression, types and severity of depressive symptoms and ART adherence.

Results: There were 519 participants (mean age 14.5 years, SD 1.96 and 56% female). Of these, 7% were severely depressed. About 45% (234/519) self-reported missing at least one dose in the past month. CDRS-R global depression (OR=1.86 [CI:1.19, 2.90]; p=0.05) and BDI moderate depression (OR= 2.08 [CI:1.15, 3.77]; p=0.015) were associated with 30-day antiretroviral therapy non-adherence. In multivariable analysis of the symptoms, BDI severe loss of libido (OR=1.74 [CI: 1.18, 2.55]; p=0.005) and CDRS-R minimal excessive guilt (OR=1.80 [CI: 1.17, 2.78]; p=0.008) were associated with 30-day adherence.

Conclusion: Global depression, moderate depression, severe loss of libido and minimal excessive guilt were associated with self-reported non-adherence. Interventions seeking to improve adherence amongst ALHIV may want to screen for depression and include items that assess loss of libido and guilt.

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Noncommunicable Diseases among HIV-infected and uninfected adults attending primary care clinics in Zambia and Zimbabwe: A Pilot Cohort Study

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Background: Globally, HIV-infected adults on long-term antiretroviral therapy (ART) are experiencing improved life expectancy and are confronted with age-related comorbidities. In Sub-Saharan Africa, data capturing the intersection between HIV and non-communicable diseases (NCDs) are limited. The objective of the IeDEA-NCD study is to improve the current knowledge on the epidemiology of NCDs among HIV-infected and HIV-uninfected adults in Southern Africa.

Methods: We are establishing a prospective cohort of 1,050 adults aged ≥30 years presenting at primary care clinics in Lusaka, Zambia and Harare, Zimbabwe. We are including consecutive ART-naive patients as well as HIV-uninfected participants, who are either seronegative partners in a discordant relationship or persons presenting for HIV testing. The following data are collected yearly: sociodemographic and clinical parameters, cardiometabolic risk factors, kidney function tests, and assessments of depression, anxiety, physical activity and diet. We report preliminary data on the ongoing cohort in Harare, Zimbabwe with a focus on the determinants of metabolic syndrome, defined using the International Diabetes Foundation 2006 guidelines (central obesity plus any two of the following; raised blood pressure, impaired fasting blood glucose, reduced HDL cholesterol, raised triglycerides).

Results: Between August 2019 and January 2020, we screened 143 potential candidates in Harare: 120 patients were enrolled, 15 refused to participate and 8 were already on ART. The median cohort age was 42 years, 73 (61%) were female and 45 (48%) HIV-infected, with a median CD4+ count of 258 cells/µl (Interquartile range [IQR] 163-573) and a median viral load of 13, 990 copies/ml (IQR: 712-91,842). The prevalence of metabolic syndrome was 22% (95% CI: 8.2- 40.9%) among HIV-infected and 25% (13.7-38.2%) among HIV-uninfected individuals. Among specific cardiometabolic risk factors, the most frequent were raised blood pressure (34%), obesity (43%) and reduced HDL-cholesterol levels (56%). Impaired fasting blood glucose (4%) as well as elevated LDL-cholesterol (7%) appeared low overall. Behavioural risk factors such as current smoking and self-reported hazardous alcohol consumption defined using the AUDIT-C scale were present in 10% and 13% of the cohort, and depression was only diagnosed in 6% of patients.

Conclusions and outlook: Our preliminary findings demonstrate the feasibility of collecting a range of NCD-related data within HIV clinics. The inclusion of HIV-uninfected control groups is key in understanding the impact of HIV infection on NCDs and has proven successful in Zimbabwe. We plan to incorporate strain echocardiograms for cardiovascular events including diastolic dysfunction and myocardial deformation, as well as transient elastography for liver steatosis and fibrosis. We believe this will provide us with in-depth clinical, biochemical, and imaging data to answer key HIV-NCD questions in Southern Africa. Recruitment of the Zambian cohort will commence early 2020.

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Contribution of Commodity Security to Tuberculosis preventive therapy outcomes in HIV clients in Fort portal region, Uganda.

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Background: Uganda has a high burden of Tuberculosis among HIV clients with 80,413 annually estimated cases, 6064 cases, in Fort portal region. WHO 2018 guidelines on HIV management recommended a 12 week Tuberculosis preventive therapy (TPT) to HIV clients as a way of reducing the incidence of Tuberculosis. TPT commodities have had eminent stock outs at 33% affecting the low TPT uptake with 43.2% (14,448/33,319 clients) initiation rate and 21% completion rate in the Fort portal region. We assessed the contribution of the commodity security to TPT outcomes in HIV clients in 21 health units.

Description: A retrospective client chart reviews of 33,319 clients was conducted for eligibility of TPT initiation in 21 high volume health units. This involved, screening adults and children living with HIV, and under 5 contacts of TB patients, history of adverse drug events, and TPT commodity stock status in the health units. Weekly data collection was conducted to monitor TPT stock availability, health unit stock needs for new eligible clients, TPT coverage and progress of initiation and completion rates. Mentorships and technical assistance was conducted in health units as a follow up strategy to achieve the targets. Health units with low levels of TPT commodities were supported with quantification and picking of stock from the warehouse to ensure uninterrupted treatment. The data used in this analysis was extracted from the surge dashboard between January and September 2019

Findings: 21 health units were 100% stocked with TPT commodity needed to initiate and complete all the eligible clients targeted. 22787 clients were initiated in 3 months achieving 110% (37,235/33,319 clients) initiation rate and 89.7% (6520/7267 clients) completion rate by September 2019. 6 cases of adverse drug reactions were identified all presented with elevated LFTs and RFTs with mean bilirubin (301), ALT (129), AST (125) and BILD (248.9).

Lessons learnt: The commodity security improved the TPT program outcomes and it's recommended for scale up in other health units. Active drug monitoring for any adverse drug events due to TPT and critical monitoring of LFTs and RFTs is recommended.

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Association entre les symptômes dépressifs et l'observance au traitement antirétroviral chez les adolescents vivant avec le VIH en République du Congo

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Introduction: Evaluer la prévalence et des symptômes dépressifs et leur association à l'observance chez les adolescents vivant avec le VIH (AVVIH) sous traitement antirétroviral à Brazzaville et à Pointe Noire, République du Congo (RC).

Méthodes: Les adolescents âgés de 10 à 19 ans sous traitement antirétroviral (ART) suivis dans les deux centres de traitement ambulatoire (CTA) de Brazzaville et de Pointe Noire, en RC, ont été inclus dans cette étude transversale. Du 19 avril au 9 juillet 2018, les participants ont été interviewé en mode face à face à l'aide d'un questionnaire standardisé comprenant les neuf items Patient Health Questionnary (PHQ-9). Les participants qui ont déclaré avoir oublié de prendre leur traitement antirétroviral plus de deux fois au cours des 7 jours précédant l'entrevue ont été classés comme non observants. Des analyses bivariée et multivariées suivant les modèles logarithmiques binomiaux ont été utilisés pour estimer le taux de prévalence (PR) et intervalle de confiance à 95% (IC95%) pour évaluer la force de l'association entre les prédicteurs et présence de symptômes dépressifs (score PHQ-9 ≥ 9).

Résultats: Au total, 135 adolescents représentaient 50% des AVVIHs suivi régulièrement dans les deux CTA ont été interviewés. Parmi eux, 67 (50%) étaient de sexe masculin, 81 (60%) avaient entre 15 et 19 ans, 124 (95%) avaient été infectés pendant la période périnatale et 71 (53%) connaissaient leur statut VIH. Les symptômes dépressifs étaient présents chez 52 (39%) participants et 78 (58%) étaient observants. En analyses univariées, la prévalence des symptômes dépressifs était relativement plus élevée chez les participants qui n'étaient pas observants comparé à ceux qui l'étaient (73% vs 33% ; PR : 2,20 [IC95% : 1,42-3,41]). En analyses multivariées, après ajustement sur les variables telles que : être sexuellement active, consommer de l'alcool, catégories d'âge (10-14 et 15-19), non scolarisés, orphelin total, l'association entre la dépression et l'observance était renforcée (PR : 2,06 [IC95% : 1,23-3,45]).

Conclusion: la prévalence des symptômes dépressifs chez les adolescents vivant avec le VIH est élevée et est fortement associé à une mauvaise observance même après ajustement sur les potentiels facteurs de confusion. Les efforts visant à élargir l'accès au dépistage et à la prise en charge de la dépression chez les personnes vivant avec le VIH / sida en Afrique subsaharienne sont nécessaires pour atteindre une observance optimale au traitement antirétroviral.

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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 occurs primarily among people with advanced HIV disease and is an important cause of morbidity and mortality around the globe. By far the most common presentation of cryptococcal disease is cryptococcal meningitis (CM), which accounts for an estimated 15-20% of all HIV related deaths worldwide, 3/4 of which are in sub-Saharan Africa. However, to the best of our knowledge there is no reviewed data that describe the epidemiology of cryptococcal antigenemia in a large HIV-infected population in resource limited settings, including Ethiopia.

Methods: Articles published in English language irrespective of the time of publication were systematically searched using comprehensive search strings from PubMed/Medline and SCOPUS. In addition, other databases like Google Scholar and the Google databases were searched manually for grey literature. The last search was done on 22th of Dec, 2018. Two reviewers independently assessed study eligibility, extracted data, and assessed risk of bias. The magnitude of cryptococcal antigenemia and its predictors were presented with descriptive statistics and summary measures. The pooled prevalence of cryptococcal antigenemia was also determined with 95%CI.

Results: among 2941 potential citations, we have included 22 studies with a total of 8,338 HIV positive individuals (male gender 25%-76.3% and median age range 30-40 years). The studies were reported in ten different countries during (2007-2018). Except an article, the rest reported the mean CD4 count of the participants <100 cells/μl. The pooled prevalence of cryptococcal antigenemia at different CD4 count and ART status was at 8% (95%CI: 6-10%) (ranged between 1.7% and 33%). Specifically, the pooled prevalence in Ethiopia was at 7% (95%CI: 3-11%) (range: 3.4%-11.7%). 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 an important predictors of cryptococcal antigenemia.

Conclusions: 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. Implementing a targeted screening of those HIV patients with low BMI, CD4 count <100 cells, having headache and males; and treatment for asymptomatic cryptococcal disease should be considered.

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Comorbidity of HIV, Hypertension and Diabetes and Associated Factors among People Receiving Anti-Retroviral Therapy in Bahir Dar City, Ethiopia

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Background: People living with human immunodeficiency virus (HIV) are facing an increased burden of non-communicable disease (NCDs) comorbidity. There is however, paucity of information on magnitude of HIV-NCDs comorbidity, its associated factors and how the health system is responding to the double burden in Ethiopia.

Objective: To determine the magnitude of comorbidity between HIV and hypertension or diabetes, and associated factors among HIV positive adults receiving anti-retroviral therapy (ART) in Bahir Dar City, Ethiopia. Methods: A facility based cross-sectional study was conducted among 560 randomly selected HIV positive adults taking ART. Data were collected using structured questionnaire and analyzed using SPSS version 23. Descriptive statistics were used to describe data. Logistic regression model was fit to identify associated factors with comorbidity of HIV and NCDs.

Results: The magnitude of comorbidity was 19.6% (95%CI: 16.0 – 23.0). Being older (55 and above years) Adjusted Odds Ratio (AOR): 8.5; 95%CI 3.2, 15.1), taking second line ART regimen containing Tenofovir (AOR: 2.7; 95%CI 1.3, 5.6) and increased body mass index (BMI) ≥25 (AOR: 2.7; 95%CI 1.2, 6.5) were the factors associated with comorbidity. Participants reported that they were not managed in an integrated and coordinated manner.

Conclusions: The magnitude of comorbidity among adults was high in the study area. Being older, second line ART regimen, and high BMI ≥25 increased the odds of having NCDs among HIV positive adults. Targeted screening for the incidences of NCDs, addressing modifiable risk factors and providing integrated care would help to improve quality of life comorbid patients.

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High viremia and Poor Immunity are Potential Surrogates of Anti-toxoplasmic Immunoglobulin G Quantification among HIV-Infected Individuals: A Cross-sectional Study in Yaoundé, Cameroon

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Background: Toxoplasmosis remains a neglected common opportunistic infection in immunocompromised individuals, who are mainly people living with HIV (PLWHIV) in whom reactivation of toxoplasmosis may occur with advanced HIV conditions in resource-limited settings (RLS). Our objective was to evaluate the correlation between the anti-toxoplasmic IgG (Tg-IgG) concentration and the immuno-virological status of PLWHIV.

Methods: A prospective and cross-sectional study was conducted among PLWHIV aged>18 years from February to November 2018 at the Chantal BIYA international Reference Centre, Cameroon. Blood samples were collected from eligible consenting PLWHIV; Tg-IgG level was assessed by quantitative ELISA, CD4-T lymphocytes counts were measured by flow cytometry and HIV-1 plasma viral load (PVL) measurement by real-time-PCR. Data were analysed using Excel and Graph Pad software; with $p<0.05$ considered statistically significant.

Results: A total of 100 PLWHIV were enrolled: 56% seropositive for IgG anti-Toxoplasma gondii, 33% seronegative and 11% indeterminate results. According to viremia, 100% (19/19) of those with PVL>1000 copies/mL were seropositive to Tg-IgG versus 52.85% (37/70) of those with PVL<1000 copies/mL (median [IQR] IgG concentration 152.78 [139.24-444.43] versus 34.44 [13.04-36.47] IU/mL, respectively); $p<0.0001$. According to CD4, 100% (11/11) of those with T-CD4<200 cells/µL were seropositive to Tg-IgG versus 57.69% (45/78) of those with T-CD4>200 cells/µL (median IgG [IQR] 432.92 [145.06-450.47] versus 35.01 [15.01-38.01] IU/mL, respectively); $p<0.0001$. Interestingly, there were moderate-positive and strong-negative correlations with HIV-1 PVL ($r = 0.54$; $p<0.0001$) and T-CD4 ($r = -0.70$; $p<0.0001$) respectively as compared to Tg-IgG concentration. After adjusting for age, gender, immune status and PVL in logistic regression, only poor immune status (T-CD4<200 cells/µL) was independently associated to Tg-IgG seropositivity ($p=0.0004$).

Conclusion: In a typical RLS like Cameroon, about half of PLWHIV might be seropositive to Tg-IgG. Of relevance, decreasing immunity appears with risk of increasing IgG anti-T gondii concentration, which suggests a relapse of toxoplasmosis. Thus, in the context of immunodeficiency, routine quantification of Tg-IgG would alleviate the programmatic burden of this opportunistic infection in RLS with generalized HIV epidemics.

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Assessing the causes of admission and outcomes of people living with HIV admitted in Internal Medicine Department at the University Teaching Hospital of Kigali

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Background: HIV is one of the major global health problems worldwide, as shown by the large number of people living with HIV (PLWHIV), estimated at 37.8 million, with 770,000 HIV related death. HIV related diseases, mainly opportunistic infections are the leading cause of morbidity and mortality in HIV patients in Middle and Low-income countries. Our objective was to assess if we are shifting from opportunistic to non-communicable diseases through this assessment of the cause of admission and the outcomes of PLWHIV admitted in Internal Medicine Department at the University Teaching Hospital of Kigali (KUTH); one of the largest hospitals in Rwanda. This assessment is covering a period of four years from January 2010 to December 2013 as part of a 10-years retrospective review.

Methods: A retrospective descriptive study was used where data were extracted using a pre-designed data collection tool to capture all causes of admission, state of the patient at arrival and the outcome at discharge. Using the discharge records, all patients with HIV were identified and their files were retrieved from the archive for auditing. The data analysis was done using the Statistical Package for the Social Sciences SPSS 25.

Results: There were 932 patients: 507 males and 425 females. Their age ranged from 18 to 75 years with a mean of 39.3 years. The commonest cause of admission in HIV patients were pulmonary tuberculosis (23.2%), cryptococcal meningitis (10.6%), extrapulmonary tuberculosis (10.0%), bacterial pneumonia (4.6%) and pneumocystic pneumonia (4.3%). HIV related diseases were the most prevalent with 717 (76.9%) admissions while non-HIV related admissions were 215 (23.1%) admissions.
Mortality in PLWHIV admitted to KUTH was 28.9%. The most common diagnoses among the patients who died were pulmonary tuberculosis 18.2%, cryptococcal meningitis 16.3%, extrapulmonary tuberculosis 10.3%, disseminated tuberculosis 8.5%, pneumocystic pneumonia 5.5% and bacteria pneumonia 3.7%.

Conclusion: This study revealed that PLWHIV who were admitted at KUTH were primarily because of opportunistic infections, and they were found with a high mortality rate. This is part of 10-years historical review at the largest public hospital in Rwanda and it is an ongoing project aiming to detect the epidemiologic transition from opportunistic infections to non-communicable disease entities. For this time period, we were still facing a burden of opportunistic infections known to have been controlled in other parts of the world. More efforts are therefore required to increase public awareness about HIV and to improve patient screening, early detection and treatment with a good follow up on their discharge.

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Prevalence of Hepatitis B and C among inmates in Rwanda

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Background: The viral hepatitis is a major public health challenge that requires an urgent global public health response. Understanding the prevalence of hepatitis B (HBV) and hepatitis C (HCV) in most at risk populations is critical for better global and national responses. We conducted this study to determine the prevalence of hepatitis B antigens and hepatitis C antibodies among inmates in Rwanda.

Methods: This study used data from a nationwide HBV and HCV screening campaign organized by the Rwanda Biomedical Centre in collaboration with Rwanda Correction Services in main prisons across the country from June to October 2017. During the campaign, information on socio-demographic and blood samples were collected by trained nurses; HBV and HCV screening was performed with HBsAg and HCVab using enzyme-linked immunosorbent assays (ELISA) testing. Bivariate and multivariate logistic regressions were used through SPSS version 20.0.

Results: Among 51,717 individuals screened for HBV during the campaign, the male were 48018 (91.4%) and the majority was in age category of 25-34 years old (19.7%); overall 2,304 (4.4%) had a positive HBsAg. The highest prevalence (5.4%) was found in the population aged 25–34 [OR] = 1.7, 95% CI (1.4–2.1). The highest HBV prevalence was found in Kigali city (7.3%) Odds Ratio [OR] = 1.9, 95% Confidence Interval [CI] (1.6–2.2) compared to others provinces. About 51,958 individuals were screened for HCVab; among them 3,317 (6.4%) were HCVab positive. Anti-HCV prevalence varied by age with the oldest age group 65+years significantly higher prevalence of 21.2%, OR = 7.9, 95% CI (6.6–9.4) compared to 3.1% OR = 1.2, 95% CI (1.0–1.5) for those under 35 years. Anti-HCV prevalence was higher in female 8.4% vs. 6.2% in male. HCV Prevalence varied geographically where the highest (8.1%) was found in South province OR =1.7, 95% CI (1.4–2.1) and the lowest prevalence in Nord province 3.6% OR=1.1(0.8-1.4).

Conclusion: The results show that HBV and HCV infection is a burden in inmates compared to general population. Variations were observed related to: age, geography, gender. National Hepatitis program should continue to target this group among other high risk groups.

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Increasing uptake of isoniazide prevention therapy among HIV positive children and adolescents. Lessons from Kigaraale HCIII,Kyenjojo District

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Background: Issue: The Uganda ministry of health recommends the use of isoniazide Preventive Therapy (IPT)which reduces the incidence of active tuberculosis (TB)by 60% among children and adolescents living with HIV .IPT uptake at Kigaraale HCIII was at 0% by30th /March/2019,as a result of health system and patient related factors impediments. We set out to improve IPT uptake to 100% in children and adolescents at Kigaraale HCIII using the continuous Quality Improvement approach.

Description: We conducted a review of quality of care indicators which included IPT initiation among eligible HIV+ children and adolescents attending Kigaraale ART Clinic.Our findings showed none of these having taken a course of IPT by March 2019.The QI team implemented a project aimed at achieving 100% enrollment of patients in these age groups on IPT between April and September 2019.The team comprising of staff and expert clients conducted root cause analysis through brainstorm, affinity diagram and fishbone . Inadequate health worker knowledge on IPT,fear of drug resistance, INH stock outs,poor medication adherence and pill burden were identified as the major bottle necks.To overcome these bottle necks,a focal person was identified through voting who oversees IPT and stock management, substitution from single to fixed drugs combination and integration of IPT in health talks at the clinic. Others are display of standard operating procedures (sops)on IPT, continuing medical education (CME)and line listing those eligible for initiation.

Method: We collected data from clients' cards,dispensing log, IPT register analyzed for percentage on INH(Number of children and adolescents on INH among those eligible. Weekly progress was monitored on a graph in a documentation QI journal.

Results: In a period of four months,58%(26/45)of eligible children and adolescents were initiated on INH.Teamwork, data use,process analysis and involvement of expert clients were the major contributory changes.

Conclusion: Teamwork, proper data usage, process analysis and involvement of expert clients resulted into a notification of zero TB active cases among the initiated clients hence limited or no TB/HIV Co-infections.

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Patient age and cervical lesion severity by HIV-status: the first 13 months of VIA and cryotherapy/thermocoagulation implementation in Namibia

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Background: Recommendations for cervical cancer screening initiation in HIV-positive women vary internationally with little published data available on which to base those recommendations. In March 2018, the Namibian Ministry of Health and Social Services finalized cervical cancer prevention guidelines setting first screening for HIV-positive women at age 20 years because of high HIV prevalence (15.7%) and younger sexual debut (mean: 16 years). Analysis of program data compared visual inspection with acetic acid (VIA)-positivity at age of first screening by HIV status to inform screening initiation recommendations.

Materials/Methods: We analyzed program data from the first 13 months (October 2018–October 2019) of VIA and cryotherapy and thermocoagulation implementation in the Khomas region, and from the first three months (July–September 2019) from 6 expansion regions. We compared rates of VIA-positivity by age at self-reported first ever screening, and lesion severity by HIV status. Chi-square tests were used to assess statistical significance.

Results: Of the 3,172 women who completed screening, 499 (16%) had pre-cancer lesions and 31 (1%) had suspected cancer. Among the women screened, 1,374 (43%) were HIV-positive. For all ages, HIV-positive women had VIA-positivity rates significantly higher (19% vs. 15%, p=<0.01) and the proportion with large lesions ineligible for cryotherapy or thermocoagulation was significantly higher compared to HIV-negative women (7% vs. 3%, p=<0.01). Of the 279 women below 24 years of age (15–24) who completed screening, 56 (20%) had pre-cancer lesions, a higher VIA-positivity rate than any other age group. Among women 20–24 years, the VIA-positivity rate was 23% in HIV-positive women compared to 19% in HIV-negative women.

Conclusions: Young HIV-positive women in Namibia had high VIA-positivity. Age-stratified cancer incidence data could distinguish human papillomavirus infections likely to self-clear from true pre-cancer lesions in young women. Additionally, cost-benefit analysis of potential overtreatment and cancer cases averted in young women could guide resource allocation.

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THE OUTCOMES OF MALE ANOGENTIAL CANCERS IN BOTSWANA: A DESCRIPTIVE STUDY

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Purpose: HIV infected men are at a high risk for developing HPV associated cancers such as anal and penile. However, there arelimited data on characteristics and outcomes of these cancers in Botswana. We aimed to describe the characteristics and outcomes of anal and penile cancers in both HIV-infected and uninfected men in Botswana.

Methods: We conducted retrospective review of all male patients with a diagnosis of penile or anal squamous cell carcinomaenrolled in the Botswana Prospective Cancer Cohort (BPCC) between 2010—2017. Per BPCC procedures, patients were enrolled from the four main oncology treatment centres in Botswana with baseline survey of sociodemographic and clinical characteristics, and phonecall follow every three months to determine clinical and vital status.

Results: A total of 83 men with anogenital cancers were included in this analysis— 54 hadpenile cancer and with 29 anal cancer.Median age was 51years. Concurrent HIV infection was common with 48 (92%) of penile cases and 12 (44%) of anal cases were HIV-infected. For both cancers majority of HIV-infected patients, 47(78%), were on antiretroviral therapy (ART) at the time of cancer diagnosis. Median duration of ART prior to cancer diagnosis was 104 months (95%CI 89-138). Among the cases studied, 20 (24%) presented with early stage (Stage I or II) disease and 45 (54%) with advanced disease (stage III or IV). Most patients, 49 (59%), presented for cancer care with good performance status (ECOG 0 or 1). Median time from first clinic visit to the diagnosis of a penile or anal cancer was 10.3 months (95%CI 4 to 20months). Median overall survival was 25 months (95%CI 13 to 47) for penile cancer and 17 months (95%CI 11 to 23) for anal cancer.

Conclusion: While number of cases was limited, nearly all penile cancers and nearly half of male anal cancers arise in HIV-infected men.Survival was poor from these cancers, likely reflecting the advanced stage at the time of engagement with specialized oncology care. Attention should be directed to improve awareness of these deadly cancers, especially in HIV-infected men, and to address substantial diagnostic delays.

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A comparison of mortality in patients with aggressive AIDS-related lymphoma treated with and without rituximab

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Background: In 2018, non-Hodgkin lymphoma (NHL) contributed 2.8% to the total global cancer incidence. In Zimbabwe, NHL is the 5th most commonly diagnosed malignancy. The majority of the NHL cases in Zimbabwe can be attributed to a large ageing HIV infected population. Treatments for NHL include cyclophosphamide + doxorubicin + vincristine + prednisolone (CHOP) +/- immunotherapy with rituximab. Rituximab revolutionised the treatment of B-cell NHLs in immunocompetent patients. Currently, the impact of rituximab in the treatment of AIDS-related lymphomas (ARLs) in resource limited settings is unknown. This study sought to compare clinical outcomes of patients with ARLs treated with CHOP-like chemotherapy with or without rituximab.

Materials and Methods: A retrospective review of records of adult HIV+ patients aged 18-59 years, treated for high-grade large cell NHL with chemotherapy +/- rituximab between 2015-2017 was conducted. Records were obtained from a public hospital, a private voluntary organisation and a private treatment facility. Baseline data were collected on socio-demographic variables and relevant clinical and laboratory characteristics. Mortality and disease progression/relapse at 18 months were determined. Wilcoxon rank-sum tests and Chi-square tests were used to compare baseline characteristics of patients receiving chemotherapy alone with those receiving chemotherapy plus rituximab. Mortality functions were estimated using Kaplan-Meier methodology. Log-rank test was was used to assess equality of mortality functions, hazard ratios were estimated with Cox regression analysis. Summary statistics were presented for all data, and variables with more than 10% missing data were excluded from statistical analysis. Listwise deletion was used for data analysis.

Results: One hundred and twenty-four eligible medical records were identified. This was a cohort of black Africans with a median age of 42 (IQR: 20-56) and a 57% male gender distribution. Twenty-seven patients received rituximab, and 97 patients received CHOP-like chemotherapy. Baseline clinical and laboratory characteristics: Ann Arbor clinical stage, B-symptoms, LDH, time on antiretroviral treatment and CD4+ cell counts for the two groups were similar (p>0.05). The majority of patients presented with stage III/ IV disease (88.2%), 73.4% were on antiretroviral treatment at the time of NHL diagnosis and 25.8% of patients had CD4+ cell counts <100 cells/mm³. Patients receiving rituximab were more likely to have medical insurance, reside in an urban area and receive treatment in a private institution (p<0.01). The median number of treatment cycles for the cohort was 5 (IQR 2-6), there were no differences between the two groups (p>0.05). Rituximab use was not associated with 18-month mortality (HR 1.35, [95% CI 0.68-2.70]), Log-rank analysis of mortality functions showed no differences (χ2=0.02, p=0.88). On multivariate analysis, risk factors for 18-month mortality were male gender (HR 1.35, [95% CI 1.07-3.35]), age≥ 40 years (2.38, [1.29-4.38]), receipt of <3 chemotherapy cycles (HR 2.04, [95% CI 1.04-3.38]), low socioeconomic status (HR 2.06, [95% CI 1.12-3.80]).
Sixty-four (67.4% of evaluable patients, n=95) were diagnosed with disease progression/ relapse.

Conclusions: Rituximab did not reduce mortality in Zimbabwean patients diagnosed with ARL. Male gender, age socioeconomic status were the main predictors of mortality. This indicates that health disparities exist in the population. The absence of a survival benefit for rituximab in this cohort may have due to immune dysregulation.

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Prevalence and correlates of depression in the context of a generalized HIV epidemic in Wakiso and Hoima Districts in Uganda.

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Background: Prevalence of depression in the WHO African region is higher than anywhere else in the world. Prior research from Uganda suggests depression is a risk factor for HIV infection and is associated with other HIV risk factors such as substance use and food insecurity. The literature also suggests that depression is common among persons living with HIV (PLWH) and associated with poor HIV treatment adherence. Despite increasing recognition that mental health must be addressed in HIV programming, there is a dearth of literature on depression in generalized HIV epidemic settings like Uganda. This analysis estimates the prevalence and correlates of depression in four communities across two districts in Uganda.

Methods: We analyzed cross-sectional data from 2,434 men and women (18-80 years) participating in the Population Health Surveillance (PHS) study, an open community-based cohort longitudinal study. Surveys were administered by trained local researchers. The patient health questionnaire (PHQ-9), a 9-item measure, was used to screen for depression. A cut-off of ≥5 was used to indicate mild depression and ≥10 for moderate/severe depression. Bivariate associations were tested with the categorical depression outcome. Multiple linear regression of the continuous PHQ-9 score was performed.

Results: Mean age of participants was 33 years; most (56%) were female; HIV prevalence was 8%. Just over a quarter of participants (27%) had a PHQ-9 score indicating mild depressive symptomology; 4% had a score indicating moderate to severe depression. Being male, older, residing in Hoima, residing in a peri-urban community, food insecurity and drug and alcohol use behaviors were significantly associated with depressive symptomology (Table 1). HIV status was not (p=0.690). Looking at depression as a continuous outcome, after adjusting for HIV status, community type, district and drug and alcohol use, each ten-year increase in age was associated with a 0.19 point increase in PHQ-9 score (p=0.014).

Conclusion: This study provides the first estimates of depression prevalence from a large generalizable sample in Uganda. Non-significant differences in depressive symptomology by HIV status could be due to high ART coverage (96%) in this region. Psychometric scale validation should be performed to ensure all scale items are performing well among PLWH as well as the overall sample.

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diagnostic, etiological and prognostic characteristics of lymphocytic meningo-encephalitis in patients hospitalized at the Infectious and Tropical Diseases Service(SMIT) of the Centre Hospitalier et Universitaire(CHU) in Treichville, Abidjan, from 2011 to 2019.

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Background: Lymphocytic Meningoencephalitis (LME) is associated with significant morbidity and mortality with unknown etiologies in the majority of patients living in sub-Saharan Africa. Despite the global interest of this disease, the availability of low-cost, accessible, and reliable diagnostic assays for them still a pressing need. This hospital-based study aimed to determine the main causes of Lymphocytic meningitis and encephalitis, mortality rates and risk factors of death in HIV-infected patients admitted for LME at HIV/AIDS care referral center in Abidjan, Côte d'Ivoire.

Materials and Methods: We conducted a retrospective study on patients diagnosed with LME in Department of Infectious Diseases, between January 2011 and 2019. The clinical data and conventional testing results were collected and analyzed. Real-time reverse transcription PCR and multiplex PCR were used to detect human herpes viruses in cerebrospinal fluid (CSF) of patients with encephalitis or meningitis. Pathogens associated with ME were identified using molecular diagnostics (GeneXpert), cell culture and serology. The outcomes were analysis of clinical features, isolated germ in the cerebrospinal fluid (CSF), and determination of predictor's mortality using multilogistic regression analysis.

Results: A total of 505 medical records of patients hospitalized with LME were including in the analysis. The median age of patients was 42 years. Overall, 285 patients (56.2%) were female and most patients (n=481, 95.2%) were HIV-infected patients. Etiology was unknown for approximately 63% of cases. Among patients with identified etiology, viral causes were most common (48.6%), followed by Cryptococcus neoformans (41%). The most common infectious agents in viral causes were Epstein-Barr virus (EBV) and Cytomegalovirus (CMV). Prevalence of comorbidity was 31%, dominated by bacterial infections (53%).The median time between admission and diagnosis was 04 days. The median length of stay was 14 days with mortality of 43%.In multivariate logistic analysis, after adjusting for presence of sepsis and hyperleukocytosis, age (adjusted odds ratio [aOR] 1.95, 95% CI 1.29–3.09), diagnostic time delay (aOR 2.08, 95% CI 1.16–3.78), natremia (aOR 7.48, 95% CI 2.34–33.4), glycorrhachia (aOR 2.22, 95% CI 1.49–3.32), were significantly associated with mortality.

Conclusion: Study findings indicate that Herpes viruses (CMV and EBV) and Cryptococus neoformans are the main pathogens isolate in CSF in this patient cohort with high mortality rates. Mortality rate are high. The utility of molecular diagnostics for pathogen identification combined with the knowledge provided by the investigation may improve health outcomes of CNS infection cases among HIV-infected patients.

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Molecular Detection of High Risk HPV in HIV Negative and Positive Women Attending Cervical Cancer Screening in Harare

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Background: In Zimbabwe cervical cancer is screened through cytology and visual inspection with acetic acid and cervicography. The effectiveness of these methods can be increased if complemented by a Human papillomavirus DNA detecting tool, capable of detecting multiple high risk Human papillomavirus genotype (HR-HPV) infections, since most cervical cancer cases are caused by persistent HR-HPV infection. The aim of this study was to detect HR-HPV genotypes (HPV 16, 18, 31, 33, 35, 45, 51, 52, 56 and 58), using multiplex polymerase chain reaction (PCR), in HIV positive and negative women reporting for routine cervical cancer screening.

Methods: Stored cervico-vaginal swabs from sexually active women, who attended VIAC at Parirenyatwa Hospital in Harare, were genotyped for selected 10 HR-HPV genotypes using in-house multiplex PCR. Results from multiplex PCR were compared to those obtained when the same samples were HPV genotyped with next generation sequencing on the MiSeq platform (Illumina, CA).

Results: A total of 136 women were recruited. Quality control failed in 3 swabs. The most common genotypes were HPV 18 (19%), 52 (19%) and 16 (18%). The prevalence of HR-HPV genotypes in the study subjects was 53 % (70/133). HIV-infected women were 1.67 times more likely to be infected with HR-HPV than HIV-negative women (OR=1.67, P = .17). Of the 70 HR-HPV positive cases, 37% (26/70) had multiple HR-HPV infection the majority of which were HIV infected. HIV-infected women were 1.86 times more likely to have multiple HR-HPV infection than HIV-negative women (OR=1.86, P= .20). Multiplex PCR and NGS had an almost perfect concordance rate in HR-HPV detection (kappa=0.960), with three discordant cases, negative with NGS and positive for HPV16 with multiplex PCR.

Conclusions: Multiplex PCR can detect HR-HPV genotypes common in Zimbabwe and can be used to detect HR-HPV genotypes from HIV positive and negative women attending cervical cancer screening at Parirenyatwa VIAC clinic in Harare.

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Prevalence of opportunistic intestinal parasites and associated risk factors among HIV infected patients in Asella and Adama Teaching Hospitals, Ethiopia

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Background: Intestinal coccidian parasitic infections are the major causes of diarrheal disease in low-income countries; mainly in HIV infected patients. The prevalence of intestinal coccidian parasites is underestimated as the routinely practiced stool wet mount is not able to detect those parasites.
Objectives: The objective of this study was to determine the prevalence of intestinal coccidian parasites and associated risk factors among HIV infected patients in Asella and Adama Teaching Hospitals, Ethiopia.

Methodology: An institutional-based cross-sectional study was conducted among HIV patients with diarrhea who attended the ART clinic of Asella and Adama Teaching Hospitals from March 30, 2018, to August 15, 2018. A total of 222 participants were included in the study. Stool samples were collected and examined at Hirsch Institute of Tropical Medicine for parasites using direct smear, parasite concentration technique and Auramine O staining techniques. Collected Data was entered and analyzed using SPSS version 21. P values < 0.05 were taken as statistically significant value.

Results: The overall prevalence of intestinal parasitic infection among HIV infected individuals on ART was 18.92 % (42/222).The prevalence of intestinal coccidian parasites were 22/222 (9.9%) in HIV infected patients on ART. Intestinal coccidian parasitic infection was associated with CD4+ T-cell count <200 cells/µl [AOR, 95% CI: 10.4 (38.88, 2.8), P<0.05]. The most prevalent parasite was E.histolytica 15/222 (6.75%), followed by Cryptosporidium species 11/222 (4.95) and Isospora belli 11/222 (4.95%), G.lamblia 5/222 (2.25%) and Taenia species 1/222 (0.45%).

Conclusions: Intestinal coccidian parasitic infections were detected in 9.9 percent of HIV infected patients. The low CD4 count was significantly associated with opportunistic intestinal parasitic infection. Having latrine facilities and contact with pet animals were not significantly associated with parasitic infection.

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Finding the missing cases along TB-HIV Cascade: The role of Quality Improvement

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Background: A single death is a tragedy, a million death caused by Tuberculosis is a statistics. TB remains a major health problem globally with highest prevalence in Sub Saharan Africa and South East Asia. TB case-finding and diagnosis continues to be a challenge overall most especially among People Living with HIV. Nigeria is the 3rd country contributing to 80% of TB missing cases globally. Despite the wide availability of TB diagnosis and treatment, several TB cases are missed within the diagnostic cascade because of poor quality service. WHO emphasized on the crucial need to embed quality improvement (QI) concepts and methods in national disease control programs to achieve epidemic control targets.

Methods: Ten facilities in South West of Nigeria was selected based on TB-HIV burden. A collaborative implementation Continuous Quality Improvement approach was used to strengthen the weak points along the TB-HIV diagnostic cascade for period of four months. Three workshops were conducted to bring facility staff together to build their capacity on use of data to prioritize gaps, strengthen clinic-lab interface. At each facility, the staff representatives from ART, DOTs, Laboratory and Monitoring & Evaluation units had a tour to understand patients' pathway and document other observations. National TB registers were used at the facilities to abstract baseline and exit data which were captured with a designed data toolkit. The data were analyzed automatically by the toolkit. Checklist was used to get the views of stakeholders and patients on barriers to good quality service delivery. Gaps observed/identified during tour and process mapping were addressed through change ideas and implementation of improvement projects. Impact of the interventions were measured with selected facility-specific metrics as well as double proportion Statistics.

Results: Poor linkage to TB treatment was found to be connected to poor documentation, poor staff attitude to link patients promptly, inadequate resources for patients tracing, weak clinic-lab interface and long TAT of Genexpert result. After providing the interventions, quality of documentation improved from 50% to 100%, Presumptive TB data from 40% to 100%, Genexpert TB testing increased from 20% to 310%, Time of testing to time of result dispatched decreased from 15 days to 4 days, Utilization of Genexpert increased from 30% to 60%, TB screening increased from 35% to 98%, Treatment initiation improved from 70% to 100%.

Conclusion: TB-HIV cascade starts from TB screening of HIV patient to treatment initiation and outcome. Improving the success of any Quality Indicator initiative depends on proper understanding of the gaps in health system that affect quality service delivery along the cascade. We observed that inadequate knowledge of TB-HIV algorithm, weak clinic-lab interface, poor attitude to work and poor documentation contributed majorly to the gaps identified along TB-HIV diagnostic cascade. CQI activities if instituted at TB and TB-HIV facilities in addition to existing EQA and supportive supervision will curb missing TB cases that occur along TB-HIV cascade.

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SERO-PREVALENCE OF HUMAN IMMUNODEFICIENCY VIRUS AND SYPHILIS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINICS IN TANZANIA: RESULTS FROM ANC SENTINEL SURVEILLANCE 2018

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Background: HIV and syphilis infections during pregnancy have continued to occur and pose major health risks to mothers and their unborn babies through mother to child transmission. This may result to serious adverse outcomes including miscarriage, birt defect and death among other severe complications. This study aimed at assessing prevalence of HIV and Syphilis co-infection prevalence among pregnant women attending antenatal clinics in mainland Tanzania to inform clinical practice and public health policy.

Methods: A cross-sectional survey of antenatal clinic (ANC) attendees was conducted in all 26 regions in Mainland Tanzania. In total 158 sites from urban, semi-urban and rural facilities were represented. All eligible and consented pregnant women were tested for HIV 1 using National HIV testing algorithm which utilizes 1) SD Bioline HIV 1/2 and 2) Unigold (Trinity Biotech); ELISA was used to confirm all positive, discordant and some negative results for quality assurance. Syphilis was tested using SD Bioline Syphilis 3.0 test kit. Data were analyzed using STATA v13 software. Logistic regression was used to establish factors associated with HIV/syphilis co-infection.

Results: A total of 31,721 participants were tested for both HIV and Syphilis. HIV and syphilis sero-prevalence were 6.1% [95% CI: 5.9-6.1] and 1.8% [95% CI: 1.7-1.9] respectively. Out of these, 1,756 (5.6%) had HIV mono-infection, 439 (1.4%) syphilis mono-infection and 132 (0.4%) had HIV/Syphilis co-infection. HIV sero-prevalence among pregnant women with syphilis infection was 23.0%. Syphilis sero-prevalence among HIV sero-positive pregnant women was 7.0%. ANC attendees with syphilis infection were five-times more likely to have HIV infection compared to their counterpart (AOR 5.08, 95% CI: 4.17-6.18, p<0.001). Risk of HIV/syphilis co-infection appears to be increasing with increase age and education level. Cohabiting/married pregnant women had less odds of having HIV and syphilis than single pregnant women (AOR 0.26, 95% CI: 0.15-0.44, p<0.001).

Conclusions: High prevalence of HIV/active syphilis co-infection identified. Syphilis has not been eliminated and we should continue with screening among pregnant women. To achieve the goal of eliminating HIV, effective screening, early diagnostics and prompt treatment of syphilis should be emphasized.

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ISONIAZID AND RIFAMPICIN RESISTANCE AND PATIENT TREATMENT RESPONSE IN A TUBERCULOSIS AND HIV-1 CO-ENDEMIC POPULATION IN WESTERN KENYA

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Introduction: Globally in 2017, approximately 558 000 cases of multi-drug resistant (MDR) or Rifampicin (RIF) resistant tuberculosis (TB) were reported. Africa accounted for an estimated 90 000 of these cases. Kenya is among the 30 high burden TB countries in the world. In 2017 approximately 2 800 patients had MDRTB in Kenya. In western Kenya, current data on the distribution of RIF and Isoniazid (INH) mutations is not available. In addition, the association of drug resistant mutations with HIV and the treatment response of HIV infected and uninfected patients with TB are not known.

Aim: The objectives were to determine the proportion of drug resistant Mycobacterium tuberculosis in sputum isolates and investigate the association of RIF and INH gene mutations with HIV status and monitor treatment response in western Kenya.

Methods: The study was longitudinal in which enrollment was done between 2012 and 2014 after the revision of the TB treatment regimen and patients with confirmed drug resistant TB were followed up for one year to establish the TB treatment response. Random sampling of 415 facilities that support routine TB diagnosis in 13 counties in western Kenya was done. Sputum samples were cultured on Mycobacteria growth indicator tubes (MGIT), Drug susceptibility tests (DST) and Line probe assay (LPA) performed to identify drug resistance and specific mutations on the rpo B, kat G and inh A genes. Discordant samples were sequenced. Conversion rate was calculated by finding the percentage of smear negative and positive patients at follow-up and initial visit, respectively.

Results: Proportion of mutations as estimated by LPA and DST was as follows: MDR-TB, 0.95%, 1.53%; RIF mono-resistant TB, 0.88%, 0.66%; INH mono-resistant TB, 1.83%, 1.97%, respectively. Regression analysis showed that RIF resistance was associated with HIV status (P = 0.025). Mann-Whitney tests revealed that the conversion time of HIV infected and uninfected patients with TB drug mutations was comparable (P = 0.180). The results of the study showed that INH mono-resistance was common.

Conclusion: Detection of INH mono-resistance in TB endemic areas should be scaled-up as well as TB contact investigation studies to increase early detection of resistant strains.

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Isoniazid tuberculosis preventive therapy (IPT) toxicity among HIV-infected children, adolescents and adults at an urban HIV clinic in Uganda.

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Background: Amidst the scale-up of Isoniazid Preventive Therapy (IPT) among people living with HIV (PLHIV) in Uganda, little is known about Isoniazid toxicity in antiretoviral treatment (ART) experienced children, adolescents and adults. We describe IPT toxicity among these populations at an urban HIV clinic in Uganda during the national scale up.

Methods: IPT toxicity reports were retrospectively reviewed from 1st January 2019 to 31st July 2019. Variables studied included age, sex, IPT initiation year, IPT duration, side effects symptoms and signs, time to onset of symptoms, symptoms severity, ART duration, ART regimen and co-morbidities. We used the Division of AIDS (DAIDS) toxicity grading version 2.1 July 2017. Data were abstracted, descriptive analysis performed and events reported as proportions.

Results: There were 4, 729 participants who received IPT; of whom, 59% (2,777) were females. Of these, 17% (788) were children (0-9 years); 43% (2,070) adolescents (10-19 years) and 40% (1,871) adults' ≥20+ years. Overall, 0.5% (23) clients developed toxicity. The median age of these patients was 19 years (IQR 14, 34.5 years). Of the 23 patients with toxicities, 91% (21/23) were female. Classified by age group 0.6% (11/1, 871) were adults, 0.4% (9/2, 070) adolescents and 0.4% (3/788) children. The median time on current ART regimen was 8 (IQR 3, 46) months and median duration IPT at time of toxicity development was 1 month (IQR 1, 3). Of the 23 IPT toxicity symptoms/signs; the commonest were vomiting (14%), yellow eyes (12%), abdominal pain (11%), malaise (11%) and fever (6%). Other signs and symptoms that comprised 46% of events included dizziness, headache, skin rash,lower limb pain, inability to walk, itchy skin, Steven Johnson Syndrome, tea colored urine, diarrhea, drowsiness, heavy eyes, lower limb weakness, lower limb paraesthesia, loose stool and oral mucositis. Three quarters of IPT-toxicity events were DAIDS toxicity grades 3 or 4 and none of the patients had pre- existing co-morbidities other than HIV. Of the 23 toxicity reports, one (4%) was an adult death.

Conclusions: Health care providers should have a high index of suspicion for IPT toxicity across all ages of PLHIV on ART who present to them with vomiting, yellow eyes, abdominal pain, malaise and fever but also other ill health complaints.

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TB Contact Investigations as an Active HIV Case Finding Strategy in Mozambique: Lessons for High TB and HIV Syndemic Countries

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Background: Mozambique has a population of 29 million with an estimated HIV prevalence of 13.4% among persons 15-49 years and a total of 2.2 million persons living with HIV (PLHIV) with just over half (55%) on ARVs. In 2018, 94,000 TB cases were registered with approximately 40% co-infected with HIV.

Methods: TB index patient contact investigations (CI) were conducted in five (5) health facilities (HF) in Maputo Province, Mozambique, beginning in early 2017 through Oct 2019. CIs included at least one home visit of the TB case, enumeration of all household (HH) members, screening for TB symptoms per WHO guidelines for those present at the time of the visit, followed by confirmatory TB testing for presumptive patients. All contacts were offered home-based rapid HIV testing, and if positive, were referred to a local HF for treatment. HH member demographic characteristics and CI outcomes were entered into Infomóvel, a mobile-based platform, and downloaded into Excel for analysis.

Results: 2,990 TB index patient HH were visited and 76.4% (4,749/6,217) of all contacts were screened for TB symptoms; 62.4% (2,963/4,749) had at least one symptom; 3.6% (107/2963) were diagnosed as new TB patients. The age-group specific proportions of new TB patients were 12.2% (57/466) among HH members >15 years; 1.5% (12/797) among those 6-14 years, and; 2.2% (38/1,700) among those < 5 years. Only 8.3% (394/4,749) of screened HH members knew their HIV status, and only 53.6% (192/358) of those with previously diagnosed HIV were on ART. Among those who did not know their HIV status and were tested, 8.1% (278/3,442) were newly identified HIV infections. Overall, 13.4% (636/4,749) of HH members were HIV positive.

Conclusions: TB CIs will identify a substantial proportion of unrecognized and untreated HIV and provide an important opportunity to provide TB preventive therapy that will interrupt TB progression and transmission and reduce mortality among PLHIV. TB CIs should play an essential role in achieving epidemic control in countries with high TB and HIV burdens.

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HIV-TB co-infection in Omusati region, Namibia, 2014-2018.

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Introduction: HIV and TB are the most prevalent communicable diseases of a major public health concern in the population of Sub-Saharan African. Namibia is among the top 30 high TB burden countries with HIV positive TB incidence rate of 35% in 2017.omusation region is from the far northern region of Namibia with an HIV-TB incidence rate of 31.6% in 2018/2019. We determined the trend of HIV –TB co-infection and we also determined the characteristics of HIV-TB co-infection in omusati region of Namibia from 2014 to 2018 the age group was associated with an increase of TB/HIV co-infection.

Method: Data were electronically retrieved from electronic TB register and put on an excel spreadsheet for cleaning and verification, then the data were imported into SPSS version 25, for further analysis. We generate the frequency and proportion of variables.

Result: A total of 3489 were diagnosed with TB in the omusati region from 2014 to 2018, of these cases, 42 % (1461) was TB/HIV co-infection patients. Among 1461 TB/HIV patients, 54% were male and 45% were female. The most affected age group was 35-44 years (32.10%) and 65+ years was the least affected group with 5.82% of TB/HIV patients. Three percentage died while on treatment. Eighty-two percentage (1186) of HIV infected patients were initiated on CPT and 73.2% were not initiated on IPT before contracting tuberculosis.

Conclusion: Despite the slight decrease in TB cases in the omusati region. HIV-TB co-infection rate remains high from 2014-2018 in the omusati region. We recommended for public health awareness on HIV-TB co-infection to be strengthened and we also recommended for initiation of IPT to all HIV positive clients that meet the criteria.

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Tuberculosis in HIV-negative and HIV-positive children at a tertiary facility in Ghana: a 4 year retrospective analysis

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Background: Globally, Human immunodeficiency virus (HIV) and Tuberculosis (TB) are included amongst the communicable diseases of major public health importance in sub-Saharan African. TB is the leading cause of death in HIV infected individuals, and the dual infection in children can adversely affect TB treatment outcomes. Data on TB treatment outcomes in HIV-TB co-infected children are limited in Sub-Saharan Africa.

Aim: This study sought to compare the clinical presentation and treatment outcomes of TB/HIV negative and TB/HIV positive patients at the Korle Bu Teaching Hospital (KBTH), Accra, Ghana.

Materials and Methods: A 4-year retrospective study was conducted among children registered for TB treatment from January 1st 2015 to December 31st 2019 at the Department of Child Health, KBTH, Accra. Data extracted from the TB register and patient clinical files include demographic, clinical and treatment outcomes characteristics. Treatment outcomes were recorded as treatment success (completed treatment) and poor outcome (died, default and retreated). Data was entered into excel and exported into SPSS v.23 for statistical analysis.

Results: A total of 138 out of 325 (42.5%) of children diagnosed with TB during the period under review were HIV positive. The mean age of the HIV- positive children was 5.9 ± 4.3 years and it was not significantly different from the mean age of the HIV- negative children which was 5.81 ± 4.0 years. Almost 89% (123/138) of the HIV positive cases were diagnosed with pulmonary TB which was significantly higher than the HIV-negative population whereby only 48.9% (91/186) of them were diagnosed with pulmonary TB (p< 0.001). The most affected site of extra-pulmonary TB was the lymph nodes 73.3% (11/15) for the HIV-positive children and this was not significantly different from the HIV- negative population whereby 47.4% (45/95) of cases had pulmonary TB. The TB treatment success rate was not significantly different for HIV positive patients compared with the HIV negative patients (66.7% v 68.3% p=>0.05) Mortality was significantly higher in HIV- positive compared to HIV- negative TB patients (80.4% v 47.5%; p < 0.001). For the HIV- positive patients, age was the only significant predictor of poor treatment outcome (p=0.001). Compared to the age group > 1yr the age group < 1 year had 7 times odds of having a poor TB treatment outcome. [AOR = 6.57 (95% CI 2.38 − 18.09]. However for the HIV-- negative patients, there was no significant predictor of poor treatment outcome.

Conclusion: The TB treatment success rate among the HIV- positive patients and HIV negative patients was lower than the WHO rate of 85%. The key poor treatment outcome was death. Children < 1 year of age were more likely to die than those above 1 year of age in the HIV- positive children. Strengthening the TB/HIV collaborative efforts is essential to improve TB treatment success rates among HIV-TB co-infected children.

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Systematic review of delaying bacillus Calmette-Guérin (BCG) in HIV-exposed infants

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Background: Although the administration of Bacillus Calmette-Guérin (BCG) has been effective of protecting infant against Tuberculosis (TB) in Africa, the World Health organization (WHO) reports that 233,000 children die every year and the dual epidemic HIV and TB is the main leading cause of morbidity and mortality among children in Sub-Saharan Africa. Due to lack of evidence, this systematic review was conducted to determine the exact time of administering BCG to HIV exposed infant. We analysed the effect of early versus delay administering BCG vaccine at birth in HIV-exposed infants.

Methods: 377 studies were screened to conduct systematic review among which 364 were excluded. Having assessed 13 full text based on the eligibility criteria 5 studies were excluded and 8 randomised control trial (RCT) were retained for Meta-Analysis. Fixed-effect model was chosen when the homogeneity (I^2) statistic value was less than or equal to 50%, in contrast a random-effects when (I2) was more than 50%. We used inverse variance analysis for continuous data such as CD4 cells activation; CD8+ T cells activation and Plasma inflammatory cytokine concentrations (Il-13 & INF- α).

Results: For 3 RCTs included in CD4+ T cell activation after 14 weeks comparing BCG delayed to BCG given at birth in HIV exposed infants , the random-effects meta-analysis of CD4+ T cell activation (14 weeks) yielded a pooled MD estimate of -3.58(95% CI -6.73 to-0.43, P=0.03) with I2=94%. HIV-exposed infants had high MD of CD8+T cells activation at birth than delaying from 6 to 8 weeks (MD 9.80, 95%CI 5.89, 13.72, P<00001). Among three included studies, the results were consistent, with higher point estimates.

Conclusion: The risk of bias assessment is very low that has conferred a strong evidence to the study and proving that the suitable moment of administering BCG vaccine to the exposed HIV infant is between 8 to 14 weeks after delivery where by the p-value is statistically significant (p<0.00001).
The risk of HIV infection has been found to be non-significant for BCG administering vaccine to HIV exposed infants from an HIV positive mother who has the undetectable viral load despite of the CD4 + T-cells and CD8+T-cells count. Mothers who tested positive during labour or on treatment with high viral load, administering BCG will increased the CD4 + T-cells, CD8 + T-cells which will protect the HIV exposed infant from TB, in the other hand, it will activate HIV target cells (INF- α, IL-13) and increase the risk of exposed HIV infant to HIV infection.

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Biological markers predictive of the risk of progression from hepatitis B virus infection to hepatocellular carcinoma in Senegal

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Among the 257 million hepatitis B virus (HBV) carriers worldwide, approximately 70 million live in Africa. The feared complications of the infection are cirrhosis and hepatocellular carcinoma (HCC). In Senegal, the prevalence of HBV is estimated at 11% and HCCs are often diagnosed at an advanced stage. Various factors appear to influence liver carcinogenesis, including viral genotype, expression of micro-RNAs (mi-RNAs) and exposure to aflatoxin B1 (AFB1). This work aims to identify predictive markers of progression from hepatitis B to HCC.

A retrospective collaborative study on samples collected between 2013 and 2016 was conducted. Samples of 340 HBV chronic carriers and HCC patients recruited as part of the Prolifica Project are currently analyzed to identify the genotypes / sub-genotypes of HBV by sequencing (Sanger / Next Generation Sequencing (NGS)), to explore the mi-RNAs by Nanostring's nCounter and to detect the TP53 mutation by NGS.

Among 24 samples sequenced to date, 10 (42%) are genotype A and 14 (58%) genotype E. Among 34 samples with more than 800 mi-RNAs explored, 28 mi-RNAs of interest were identified: 11 overexpressed and 17 under expressed in HCC, including miR-122-5p. Fifteen mi-RNAs shared strong interactions in the regulatory pathways of different genes and 5 mi-RNAs, let-7g-5p, miR-185-5p, miR-26a-5p, miR-503-5p and miR-126-3p, were significantly linked (p < 0.05) in the cancer, hepatitis B, p53 and viral carcinogenesis pathways. The detection of the TP53 R249S mutation is underway to confirm the recent results obtained in Gambian patients.

The preliminary results of this study will allow us to finely define the genetic variability of HBV viral strains in Senegal and to characterize biological markers in order to understand the molecular mechanisms of HBV-related HCC in this country, in which HBV infection is endemic

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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.

Methods: A pilot cervical cancer screening program was conducted between September and December 2019. HPV testing using self-collected vaginal samples was offered to WLHIV aged 25 to 49 attending antiretroviral clinics in 7 high-volume hospitals. Samples were processed using GeneXpert. HPV+ women were referred for Visual Inspection with Acetic acid (VIA) triage, and those having a positive VIA test (precancerous lesions) treated with cryotherapy or thermocoagulation. 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 7 pilot sites, 1021 WLHIV were offered screening and 991 (97%) had a valid result. HPV positivity rate was 35% (349). Of the HPV+ women, 48 (14%) were HPV16 positive, 69 (20%) were HPV 18/45 and 235 (64%) had other hrHPV genotypes as a pooled result including HPV 31, 33, 35, 39, 51, 52, 56, 58, 59, 66 and 68. 35 (10%) of the women had multiple infections with hrHPV genotypes.
175 (50%) HPV+ women were linked to care and triaged with VIA and 54 (30%) were found with precancerous lesions, of whom 35 (64%) were treated with cryotherapy or thermocoagulation. Two women were found to be suspicious of cancer and referred for further management.

Conclusion: HrHPV infections are common among WLHIV, including HPV16 and 18 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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Hepatitis B virus seromarkers among HIV infected adults on ART: An unmet need for HBV screening in eastern Ethiopia

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Progression of chronic HBV to cirrhosis, end-stage liver disease (ESLD), and hepatocellular carcinoma (HCC) is more rapid in HIV positive individuals than those with HBV alone; however, the distribution of HBV seromarkers in HIV infected individuals on antiretroviral therapy (ART) is not well described. To address this problem, we assessed the distribution of hepatitis B surface antigen (HBsAg), hepatitis B core antibody (anti-HBc) and hepatitis B surface antibody (anti-HBs) among HIV infected adults on ART in Eastern Ethiopia. A cross-sectional study was conducted from September 2017 to February 2018. Socio-demographic, behavioral and health related factors, and clinical data were collected using questionnaire and checklist. Plasma samples were tested for HBsAg, anti-HBc and anti-HBs seromarkers using ELISA. Data were double entered into EpiData 3.1, cleaned, exported to and analyzed using STATA 13. Descriptive and logistic regression analysis were conducted and statistical significance was decided at p≤0.05. A total of 901 participants were included and the prevalence of HBsAg was found to be 11.7% [95%CI (10, 14)]. Among the co-infected, 47.6 % were also positive for anti-HBc, of which 58% were on an ART containing tenofovir (TDF). Among those screened for the three seromarkers, 38.1% were negative for all and 21% were positive only for anti-HBc (IAHBc). Being single, history of genital discharge and taking ART with TDF combination were significantly associated with HBV co-infection (p≤0.05). There is high burden HBV co-infection among individuals on ART. The unmet need of HBV screening prior to ART initiation leaves many co-infected individuals without appropriate management including therapy, close monitoring or vaccination when indicated, impacting disease prevention.

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RECENCY OF HIV-INFECTION AMONG SEXUALLY TRANSMITTED INFECTION SERVICE ATTENDEES

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Introduction: Individuals attending sexually transmitted infection (STI) services, maybe represent individuals at risk of acquiring or transmitting HIV to others. We describe recency of infection and viral load (VL) levels among HIV positive STI clinic service attendees. We discuss implications of the findings for HIV prevention, care and treatment.

Methods: Cross sectional design. Adults attending two STI clinics where aetiological sentinel surveillance for STIs was conducted were enrolled. Following informed consent procedures, a nurse-administered questionnaire collecting data on demographic and clinical variables was completed for all. Blood specimens were collected for 4th generation HIV serology, plasma VL levels and Limited Avidity Antigen (LAg) assay testing in the reference laboratory. For HIV positive attendees, ART status was determined as self-reported use of ART. Recency of infection was determined as not on ART, with VL≥1000 copies/ml and tested recent infection by the LAg assay. Univariable binomial regression was used to determine the strength of association between demographic, clinical and behavioural factors with recency of infection. Proportions of HIV positive attendees with VL≥1000 copies/ml determined for those on ART and not on ART respectively. Descriptive statistics in Stata® 14.2 were used to describe enrolled participants and determine outcomes.

Results: Of 451 STI service attendees enrolled from February to December 2019- median age 29 (interquartile range 25- 35 years), 313 (69.4%) male - 93 (20.6 %) were HIV positive. Of the 93 who were HIV positive, 10 (10.8%) met criteria for recent infection – median log VL 5.2 (interquartile [IQR] range 4.7-5.8). Of the remaining 83 (89.2%) not recently infected, only 32 (38.6%) reported taking ART with 62.5% being virally suppressed (VL<=1000 copies/ml). Of those who reported not being on ART, the majority (76.5%) had viral loads > 1000 copies/ml. Compared to attendees who were HIV negative, attendees who were recently infected were more likely to have genital ulcer disease [Relative Risk (RR) 3.16 (95% Confidence Interval 0.85- 11.76), p=0.087] at enrolment.

Conclusions: HIV positive STI service attendees had high prevalence of recent HIV infection, low coverage of ART and high viral loads. Better integration of STI screening, diagnosis and treatment with HIV testing, care and treatment is necessary to identify HIV positives who are i) recently infected ii)chronically infected, not on ART and iii) on ART but not virally suppressed for partner notification and index testing, linkage to ART initiation and adherence support respectively. Planned laboratory measurements of plasma antiretroviral drug levels will reduce misclassification by ART status.

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Prevalence of Hepatitis B Virus Infection among HIV Positive Patients and Blood Donors in Nnewi, South Eastern, Nigeria

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Background: Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) are endemic in Nigeria and the world with different prevalence rates. HIV/HBV co-infection frequently occurs because they share common routes of transmission.

Methods: This was a prospective cohort study of blood donors and the HIV positive patients assessing a six-monthly viral load at Nnamdi Azikiwe University Teaching Hospital, PCR laboratory, Nnewi.
Before blood collection, a questionnaire was used to collect the sociodemographic information of the participants. About 227 HIV-positive patients were screened for HBsAg, while the 3,783 blood donors were screened for both HBsAg and HIV. HBV samples were screened using ELISA kit reagent (DIA.PRO Diagnostic Bioprobes Srl Via G. Carducci n° 27 20099 Sesto San Giovanni (Milano) – Italy).HIV antibodies tests were determined using the national serial HIV testing algorithm. Chi-squared (χ2) test, odds ratio (OR) and 95% confidence interval (CI) were used in the statistical analysis.

Results: Fourteen of the 227 (6.7%) HIV-positive patients tested positive for HBsAg, which was statistically significant than the 63/3783 (1.6%) recorded among the blood donors (χ2=22.926, p < 0.001). Among the 3,783 blood donors screened for HIV antibodies, 79 (2.1%) tested positive.
The study showed a rising prevalence (4.8%, 4.9%, and 9.7%) trend in HBV transmission among the HIV-positive patients for the three years studied. A similar trend was observed among blood donors (0.07%, 1.2%, and 3.7%). More male HIV positive patients (7.2%) were infected with HBV than their female counterparts (5.3%) (χ2 = 0.324, p > 0.5). HIV positive patients aged 30-39 years and blood donors aged 20-29 years were most frequently infected with HBV (8.3% and 1.8% respectively), while those 60 years and above in both cohorts showed 0% prevalence. HIV-positive individuals were four times more likely to be positive to HBsAg than blood donors (OR = 4.148; 95% CI = 2.279 – 7.548).

Conclusion: Our findings reveal that the People Living with HIV (PLHIV) are more susceptible to HBV infection compared to the general population. There is a need to scale up HBV screening and vaccination among the cohorts to reduce morbidity as well as to link HIV and HBV positive individuals to care and treatment programs
Keywords: HBV, HIV, Blood donors, and prevalence

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Molecular Characterization of Mycobacterium tuberculosis Complex in Cattle and Humans in Maiduguri, Borno State, Nigeria

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Background: Bovine and human Tuberculosis (TB) in Nigeria has high impact on animal and human health with adverse effect on the socio-economic status of the nation. Nigeria is among the high TB, TB/HIV and drug resistant-TB countries globally. We determined the spoligotypes of bovine and human TB in Maiduguri.

Methods: Tissue samples from 160 cattle that manifested gross lesions were collected from the abattoir along with 82 sputum samples from butchers/abattoir workers and 147 sputum samples from suspected TB patients obtained from hospitals were used for the study. Ziehl-Neelsen (ZN) test and culture were conducted. Genus typing, deletion analysis and spoligytyping were carried out for genus identification, speciation and identification of the various types of spoligotypes.

Results: Twenty six isolates from cattle were characterized as Mycobacterium tuberculosis complex (MTC) out of which 17/26 (65.4 %) were further characterized as M. bovis using deletion typing. Twelve of the isolates from human samples (hospitals/clinic/abattoir) were characterized belonging to the genus MTC and 7/12 (58.3 %) were further analyzed as M. tuberculosis using deletion typing. Spoligotypes SB0944 and SB1025 were found in cattle while 4 spoligotypes were obtained from the human isolates (838, 61, 1054 and 46). Spoligotypes 838 and 61 both belong to the international family LAM10_CAM, whereas spoligotype 1054 belong to the H3 family and spoligotype 46 belong to the Haarlem (H) family contrary to other studies where it was stated that must of the H family spoligotypes are mainly obtained from Europe. In our study, 3 out of the 5 human isolates spoligotyped belonged to H family indicating the presence of the European American types in Maiduguri.

Conclusion: We advocate a One Health approach, public health education of the abattoir workers, and the general public to address bovine and human TB in Maiduguri. There is need for a more extensive study on the bovine and human spoligotypes that could be obtained from Maiduguri for further understanding of the epidemiology of TB.

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Improving TB preventive therapy uptake among clients on Anti-Retro-viral Therapy at Fort Portal Regional Referral Hospital using Continuous Quality Improvement methods

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Introduction: TB preventive therapy (TPT) with isoniazid (INH) reduces the risk of mortality among people living with HIV(PLHIV). By April-2019, at Fort Portal Regional Referral Hospital (FPRRH), 55% of PLHIV <15 years, and 36% of those 15 years and above had started isoniazid, increasing the risk of active TB, morbidity and mortality. The Uganda MoH recommends that all PLHIV should receive TPT with INH. We set out to improve TPT uptake among all PLHIV at FPRRH between January- 2019 and October-2019.

Description: In April-2019, root cause analysis for the sub-optimal TPT uptake were identified using the five why's and possible solutions were identified. These included incomplete documentation in TPT register, inability to commit 6-months stock to those already on INH due to limited storage in the dispensing room, lack of knowledge on TPT(importance, eligibility criteria, TPT duration), and low client literacy on TPT(Limited knowledge on benefits and side effects). Using the focusing matrix, we prioritized interventions to address the gaps step-wise which included: Update of the TPT register by a volunteer, committing INH stock to clients starting INH within the main pharmacy, health education, line listing and calling back clients that never received TPT to fast track INH initiation. Data was extracted from Uganda EMR for all PLHIV in HIV care, from the TPT registers and analyzed for proportions of clients initiated on INH among those active in HIV care.

Results: Clients less than 15 years who had started TPT increased from 209 (55%) in January-2019 to 343 [91%] in October-2019, and 2802 (36%) to 6923 (89%) in Oct-19 among those above15 years.

Conclusion: TPT uptake among PLHIV increased markedly following; Health worker and client knowledge on benefits of INH,updating TPT register, line listing, all favored uptake of isoniazid.

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Identification of pulmonary non-tuberculous mycobacterial disease in HIV sero-positive Individuals in a Tuberculosis Research Center in Lagos Nigeria

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Introduction: Human immunodeficiency virus (HIV) infection is known to cause profound immune suppression that allow strains of avirulent nontuberculous mycobacteria (NTM) to replicate freely without the selective pressure of the immune system. Nontuberculous mycobacteria are increasingly implicated in cases of pulmonary tuberculosis. Nigeria is a high tuberculosis (TB), high HIV burden country. Therefore, we investigated the role of NTM in pulmonary infections in HIV sero-positive patients.

Material and methods: Mycobacterial isolates were obtained from two hundred and eighteen new pulmonary TB cases infected with HIV. The isolates were identified as NTM based on cultural characteristics, growth on paranitro-benzoic acid and American Thoracic Society criteria for NTM. Molecular characterization of strains to species level was done using line probe assay, a DNA strip technology. This method involved firstly, DNA extraction from the mycobacterial cells. Secondly, multiplex polymerase chain reaction (PCR) targeting the 23SrRNA gene region and finally reverse hybridization on specific oligonucleotide probes immobilized on membrane strips. The final identification was obtained by comparison of line probe patterns with the provided evaluation sheet.

Results: Statistical analysis was done using the R Studio (R Core Team 2017). Of the two hundred and eleven isolates identified to species level by line probe assay, twenty-two (10.43%) were identified as NTM. The species isolated were M. abscessus/M. immunogenicum, M. chelonae/M. immunogenum, M. fortuitum, M. gordonae, M. intracellulare, M. Kansasii and M. scrofulaceum. M. intracellulare accounted for 31.82% of pulmonary NTM cases in this HIV infected individuals.

Conclusions: Recognition of the role of NTM in pulmonary infection will improve treatment and treatment outcomes in HIV sero-positive patients.

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Neisseria gonorrhoeae Infections Among People Living with HIV on Antiretroviral Therapy at an STI Clinic in Kumasi, Ghana.

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Background: HIV infection is a risk factor for the acquisition and transmission of other sexually transmission infections (STIs). Antiretroviral medication (ARV) suppresses viral load and generally improves the lives and activities of people living with HIV (PLHIV) including resumption of sexual activities. This may lead to an increase in STI rates. We determined the prevalence of Neisseria gonorrhoeae among PLHIV on ARV.

Materials & Methods: This cross sectional study conducted among PLHIV attending a specialist STI clinic at Suntreso Government Hospital in Kumasi, Ghana between June and August 2018. PLHIV who had been on antiretroviral therapy (ART) for more than 5 years were eligible for enrolment into the study. The study employed a sensitive multiplex real time Polymerase Chain Reaction (PCR) assay that simultaneously detects the seven most common bacterial pathogens responsible for STI's which included Neisseria gonorrhoeae, Chlamydia trachomatis, Trichomonas vaginalis, Mycoplasma genitalium Informed consent was obtained prior to enrolment.

Results: We enrolled 400 PLHIV consisting of 224 (56.0%) males and 176 (44%) females. Majority 324 (81.1%) of the participants were asymptomatic. Overall, 245 (61.3%) of enrolled patients were positive for at least one of the seven pathogens tested.
Neisseria gonorrhoeae was found in 44 (10.1 %) participants, majority of whom were females 27 (61.4%). Almost a third (63.6%, 28/44) of those with gonorrhoeae infection had been on Antiretroviral therapy for more than 4 years. Only 18.2% (8/44; males 6/8, female 2/8) reported ever experienced any symptoms or ever received treatment for gonorrhoeae.

Conclusions: Neisseria gonorrhoeae remains an important causative pathogen for STI in persons living with HIV. There is the likelihood of most of these infections going undetected since most of them did not have symptoms. PLHIV on ARV should routinely screened for STIs. Improved diagnostic methods like PCR are needed to identify and treat such infections effectively.

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Seroprevalence of Herpes Simplex Virus Type 2 And HIV Co-Infection Among pregnant women in Jigawa state

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Background: Herpes simplex virus type2 (HSV-2) infection is one of the most common sexually transmitted infections Worldwide. It facilitates the acquisition of HIV and is the primary cause of genital herpes which when acquired by women during pregnancy account for half of the morbidity and mortality among neonates. Lifelong latent HSV-2 infection raises concern among women of reproductive age considering the risk of neonatal transmission. There exist a direct relationship between HSV-2 and HIV prevalence. In Nigeria, screening for HSV-2 and co-infection with HIV in antenatal clinics is not routinely done.

Methods: A cross-sectional study to determine the prevalence of Herpes simplex type 2 and HIV among pregnant women attending antenatal clinics in four hospitals in Jigawa state was carried out. A total of 300 pregnant women were enrolled in the study. A structured closed ended questionnaire was used to obtain data on demographic and social information of the participants as well as the risk factors associated with HSV-2 infection. Patient sera were screened for HSV-2 and HIV 1&2 using Enzyme Linked Immunosorbent Assay (ELISA) and HIV specific rapid immunoassay kits respectively. Results were subjected to chi-square test using statistical package for social sciences (SPSS) version 23 where a P-value of ≤ 0.5 was considered statistically significant.

Results: Prevalence rates of 55(18.3%) and 44 (14.7%) for HSV-2 and HIV were recorded respectively. It was observed that the rate of HSV-2 and HIV Co-infection among respondents was 16(5.3%) respectively. The result also shows that about 87.5% of the co-infection occurred in respondents that were in their 2nd Trimester. Additionally, co-infection was found to be higher among respondents between the ages of 15-34yrs with 81.3%.

Conclusion: Level of education, parity, stage of pregnancy, occupation, history of blood transfusion had no statistical association with HSV-2 and HIV co-infection (p> 0.05). The study has demonstrated the existence and risk of neonatal herpes infection in the study area. It is recommended that HSV - 2 testing should be part of routine tests for women and children in the area. Advocacy and public health enlightenment campaign on the potential public health burden of HSV-2 and HIV co-infection should be observed.Provision of state of the art equipment should be provided to aid molecular detection of HSV-2 in our health facilities.

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Unbundling STIs: an integrated SRH-R response to HIV

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"Bridging The Chasm", a SRH-R project implemented by Positive Vibes, through Amplify Change, partners with LGBTIQ and sex-work organisations in five Southern/East African countries to increase quality access to effective, appropriate sexual and reproductive health services for sexual and gender minorities; to promote rights-forward approaches to health; to utilise local evidence to influence practice and improve policy engagement. Monitoring, accountability, public participation, active citizenship, the democratisation of public health and good governance feature prominently as underlying concepts and activities.

In 2019, LGBTIQ and sex work organisations applied "Setting The Levels (STL)" amongst their constituencies in Lusaka, Harare, Francistown, Walvis Bay, Gulu and Mbarara. This participatory methodology for systematic community-led monitoring of health facilities, supported diverse populations, communities and healthcare workers from 18 local facilities to review, reflect and dialogue around their distinct perspectives, perceptions and experiences of healthcare, and plan for measurable, accountable improvement.

STIs featured prominently in discussion in every country. Healthcare workers report the frequency with which LGBTIQ clients and sex workers present to facilities with STIs. Community members confirm that seeking examination, testing and treatment of STIs are a leading cause for visiting a facility. Quality care around STIs is a compelling entry-point into access and uptake of other SRH-related services, including HIV prevention and treatment.

Yet, findings indicate that STI treatment is frequently delayed, deferred or denied. Commonly, clients report that they "went home with [my] STI and never went back", for several reasons:

1. Health facilities offering targeted "KP/HIV" programmes make HIV-testing a mandatory requirement – a condition – for STI treatment; clients who decline HIV-testing are denied other services.

  "I come to have an STI treated. And it's bad. But instead, they want me to have an HIV test and go on PREP or treatment. And they won't treat me for what I came for until I go through those services. It feels like all they want is my HIV and not the STI that I wanted to be treated. This comes to the issues of targets. If I know I am positive, it means that I have been tested somewhere else, but they still want to test me, so my number is counted more than once."

  "It's the silent ones who are usually the ones that are violated. We feel forced. I think we should give the people the option of choice. People shouldn't feel coerced to have an HIV test or tricked to have one so that they can get what they actually came for."

2. Treatment is regularly unavailable through drug stockouts, equipment shortages or unqualified personnel; in one country, for instance, genital warts can only be treated by an itinerant doctor whose rounds in a district bring him to each primary health facility once every month.

3. Healthcare workers are uncomfortable and reluctant to physically examine LGBTIQ clients, frequently diagnosing STIs purely from patient description of symptoms.

4. Unlike HIV, STIs receive comparatively little public or programmatic attention and profile, lowering awareness but increasing stigma. In most countries, STI screening is largely a misnomer; treatment is symptomatic and syndromic.

Timely management of STIs is especially important to already vulnerable sexual and gender minorities; vital to managing HIV. No health programme, however, that cannot offer effective STI-testing and treatment as a stand-alone service, unbundled from HIV, can claim to be "KP-friendly".

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Do People Living with HIV/AIDS know and adhere to isoniazid preventive therapy? :Findings from selected health facilities in South-East Nigeria

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Background: Isoniazid preventive therapy (IPT) is recognized as an important component of collaborative tuberculosis (TB) and human immunodeficiency virus (HIV) activities to reduce the burden of TB in people living with HIV (PLHIV). Adherence can be improved if PLHIV have good knowledge of the needs and benefits of Isoniazid Preventive Therapy (IPT). The objective of this study was to assess the Knowledge and adherence to isoniazid preventive therapy among PLHIV in selected facilities in South-East Nigeria

Materials and Methods: A cross-sectional survey was carried out in 2019 in six of the eight public and private high patient load (>100 HIV patients) health facilities providing comprehensive HIV care in Ebonyi state, South-East Nigeria. Two hundred (200) PLHIV who have been receiving HIV care for at least 6 months were selected by systematic random sampling based on proportionate allocation among the selected facilities. Information was collected using interviewer-administered questionnaires and patient treatment cards. Adherence was assessed by only self-reports as adherence grading was not done for any of the treatment cards assessed. Descriptive, bivariate and multivariate logistic regression analyses were carried out using SPSS version 20. Statistical tests were conducted at 5% level of significance.

Results: The respondents were mostly females (females:147, 73.5%, males: 53,26.5%) with overall mean age of 39.4±10.3 (females: 42.5±9.2, males: 38.4±10.5). About a third of the respondents (71, 35.5%) had primary school education Majority of the respondents had been on ART for >1 year (170, 85.0%). Over half of them had ever received IPT (110, 55%) and been counselled on IPT (124, 62%) . Few of the respondents (15, 17.5%) were currently on IPT during the study. Most respondents had poor knowledge of IPT (120, 60%) and this was higher in females (73.3% vs 26.7%, P=0.949). Only 22 (11%) and 82 (41.0%) knew the name of the drug used for IPT and the duration of IPT respectively The only predictor of IPT knowledge was marital status (AOR=1.96; 95% CI:1.03–3.74; P=0.041). Out of those who were on IPT, the majority (32 .91.4%) reported good adherence in the 30 days preceding the survey. Only one patient (0.5%) had missed taking IPT in the 3 days preceding the survey.

Conclusions: There was poor knowledge of IPT among the respondents however self-reported adherence was high. We recommend intensification of general and personalized education of PLHIV on IPT by health workers. Adherence assessment and documentation should also be strengthened among health workers.

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Prevalence and molecular characterization of hepatitis B virus infection in HIV-infected children in Senegal

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Sub-Saharan Africa (SSA) is the region with the most patients co-infected with the human immunodeficiency virus (HIV) and the hepatitis B virus (HBV) worldwide. However, few studies have focused on SSA children who are at a higher risk of progression to cirrhosis and hepatocellular carcinoma (HCC) than adults. Furthermore, children on first-line antiretroviral therapy (ART) including lamivudine (3TC) may develop HBV resistance mutations. The aim of this work was to document HIV-HBV co-infection and the associated HBV genotypes in children in Senegal. This is a retrospective study of 613 children infected with HIV. Dried blood specimens (DBS) were used to detect hepatitis B surface antigen (HBsAg) with a rapid detection test (RDT). Confirmation of HBsAg status and hepatitis B e antigen (HBeAg) detection was performed on an automated platform using the chemiluminescence assay technology. HBV viral DNA was quantified by real-time polymerase chain reaction (PCR) and the preS1/preS2/HBsAg region was genotyped by nested PCR followed by sequencing using the Sanger technique. The prevalence of HIV-HBV co-infection was 4.1% (25/613). Of these 25 co-infected children, 82% (18/22) were HBeAg-positive, while the median HBV viral load (VL) was 6.20 log IU/mL (24/25 patients). Amplification was successful in 15 out of 16 patients (rate of 94%), and the ensuing phylogenetic analysis revealed that eight strains (53%) belonged to genotype A and seven (47%) to genotype E. Mutations conferring resistance to 3TC were uncovered in 12.5% of these patients (3/24). Our present study shows that pediatric HIV-HBV co-infection remains a major health issue. Innovative strategies are needed to prevent the emergence of resistance mutations, prevent mother-to-child transmission (MTCT) and set-up molecular research to predict the course of infection, to improve patient management in this vulnerable population.

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Hepatitis B or C Virus Co-Infection with HIV and Associated Factors among Patients Visitng ART Clinics in selected public hospitals in the Eastern Ethiopia

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Introduction: Hepatitis B and or C viruses and HIV cause for important global public health problems with enormous economic and social consequences. Hepatitis B/C co-infection with HIV has worsened the disease progress and poor ART treatment outcomes. Therefore, the main aim of this study was to assess the level of hepatitis B and or C virus co-infection with HIV and associated factors among patients visiting ART clinics of the selected public hospitals in the Eastern Ethiopia.

Methods: Facility based cross-sectional study was conducted among patients visiting ART clinics in Hiwot Fana Specialized University hospital and Dil Chora hospital. Data were collected from 992 randomly selected study participats using questionnaire based interview and laboratory screening using ELISA. Descriptive, bivarate and multiple logistic regressions were done to compute summary statstics and identify determinants of HBV/HCV and HIV co-infection by SPSS version 16.0. Statstical association was decleared significant at P value less than 0.05 with 95 % confidence interval of odds ratios

Results: The overall prevalence of hepatitis B or C virus and HIV co-infection was 6.8% Hepatitis B virus and hepatitis C virus co-infection with HIV was 5.4% and 1.6%, respectively. Only one third (34.0%, n=310) had ever heard about hepatitis B and or C virus infection. Six handrud three (66.0 %) of the study participants never heard about hepatitis B/C virus infections. Patients with either HBV or HCV co-infection had 1.8 times lower CD4+ count than those who were not co-infected[OR:1.8, 95% CI; 0.89 – 2.4]. Participants who had intravenously given illicit drugs use were 4.3 times more likely acquire hepatitis infection than who hadd not use intravenously given illicit drugs [OR: 4.3, 95% CI; 1.2, 15.9].

Conclusion: The prevalence of hepatitis virus infection is intermediate endemicity level. However, the co-infection worsen the disease progress in HIV positive patients. Therefore, we recommend the routine test for hepatitis virus and provide care and support to the people living human immunodeficiency virus.

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Clinical characteristics of HIV/AIDS patients on ART with Cryptosporidiosis at Queen Elizabeth Central Hospital in Blantyre, Malawi

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Background: Cryptosporidiosis infection is common in developing countries, mainly affecting people with compromised immune systems, including HIV-infected individuals with low CD4 + T-cell counts. The clinical characteristics of this population has not been well described.
The objective of study was to describe clinical characteristics of HIV-infected patients on antiretroviral therapy (ART) with Cryptosporidiosis infection.

Methods: A sub analysis was performed of all participants screened for eligibility for a phase 2a clinical treatment trial of cryptosporidiosis among HIV-infected patients. Participants meeting criteria with HIV infection, on ART for ≥ 14 days, and with acute or chronic diarrhoea ≥3 days in duration were screened. Those that were positive for cryptosporidium by quantitative Polymerase Chain Reaction test (qPCR) had further investigations conducted to assess eligibility, including chest x-ray, blood tests, urine and sputum for TB testing. Demographic data of study subjects were obtained from patient clinical records. We carried out descriptive analysis with median and interquartile range (IQR).

Results: Of the 64 screened patients who were qPCR positive on stool for Cryptosporidium, 47% were male, with a median age of 38 years (IQR 30, 43) and median weight of 45 kg (IQR 40, 50). Two-thirds of the screened patients presented with diarrhoea duration of up to 14 days and 14% had vomiting and 18% mild abdominal pains as their complaints. The median blood pressure was 101/67 mmHg (IQR 86-110/60-74), pulse rate 95 beats/min (IQR 84,106), respiratory rate 18 breaths/min (IQR 18, 20) and temperature 36 ˚C (IQR 36, 37). A normal electrocardiogram (ECG) result was noted in 92% of patients, and 2% had a clinically significant abnormal result with presence of pathological waves. Median CD4 count was 16 cells (IQR 7, 35) and median viral load was 108,465 copies (IQR 23,586, 190,716). Five patients (8%) had undetectable viral load results. All but one (98%) were on first-line ART (Tenofovir/Lamivudine/Efavirenz). TB urinary lipoarabinomannan (LAM) testing was positive in 43%, and 19% were positive on sputum Gene Expert.

Conclusion: First-line ART was used in the vast majority of HIV-infected individuals in this trial, and almost all failing on ART have high HIV viral loads. This might suggest screening individuals with chronic diarrhoea for HIV viral load and switching from first-line ART if the viral load is elevated. Some HIV-infected patients with cryptosporidiosis had undetectable viral load. In our cohort, cryptosporidiosis is present only in HIV-infected individuals with low CD4 counts and associated high rates of TB co-infection were observed. Efforts are needed to intensify TB screening among HIV infected patients with diarrhoea where cryptosporidiosis is suspected.

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LABORATORY EVALUATION OF CHEMBIOTM DPP SYPHILIS SCREEN & CONFIRM ASSAY

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Syphilis is a sexually transmitted disease (STD) caused by Treponema pallidum. Apart from direct morbidity caused by syphilis, the increased risk of HIV infection can cause lasting effect in children born to mothers who are infected. Accurate diagnosis of syphilis in patients remains a challenge to clinicians. There is need to integrate serological tests to the existing methods for quick and accurate diagnosis. To evaluate the Chembio DPP™ Syphilis Screen & Confirm assay in regard to its performance characteristics, using whole blood, serum and plasma as sample types. A total of 202 specimens (whole blood, plasma and serum) were tested using rapid plasma regain (RPR) and Treponema pallidum Hemagglutination (TPHA) assays. All specimens and controls were further tested by Next Generation DPP Syphilis Screen & Confirm Assay. The sensitivity of Chembio DPP TM Syphilis was found to be 96.1%. The Negative predictive value (NPV) was 96.2% while 100% for the positive predictive value (PPV). Triplicates of the same samples analyzed daily over a period of five days, recorded precision of 100% (kappa = 0.960). Whole blood and plasma of the same donors (n=38), recorded sensitivity, specificity, NPV and PPV of 81.3%, 100%, 88% and 100% respectively (kappa = 0.834) when compared. Of the evaluated sample types, whole blood showing better concordance with the results from the algorithm. In this validation, the sensitivity and specificity of Chembio rapid test for syphilis was high compared to the gold standard (RPR and TPHA). The assay can be adopted for syphilis testing.

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Prevalence of Hepatitis among Select Key Populations in Botswana – Results of the 2nd Biological and Behavioral Surveillance Survey

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Background: Hepatitis B virus (HBV) infection, the most common form of chronic hepatitis worldwide, affects an estimated 360 million people globally. In 2015, WHO estimated that 257 million people were living with chronic HBV, and among the 36.7 million people living with HIV, an estimated 2.7 million also had chronic HBV. Co-infection of HBV and HIV is common, and likely even more amplified in key populations because of the high prevalence of HIV in these populations compared to the general population; however, there are limited data on HBV prevalence among key populations living with HIV in sub-Saharan Africa.

Methodology: A cross-sectional study design was used to establish the prevalence of HIV and other sexually transmitted infections, including HBV, among female sex workers (FSWs) and men who have sex with men (MSM) in five districts in Botswana. Time-location sampling was used for FSWs, who were largely accessible in publicly identifiable venues or hot spots, such as bars and nightclubs, in addition to street locations and shared homes. For MSM, respondent-driven sampling was used since they are often difficult to locate.

Results: Blood samples to test for viral hepatitis were collected from 1,257 FSWs and 757 MSM. The overall prevalence of HBV was 4.2% (2.7–6.5) for FSWs and 4.6% (3.2–6.5) for MSM. HBV was highest in Maun at 10.5% (8.4–12.9) for FSWs and 15.2% (8.8–25) for MSM. The second highest prevalence for FSWs was in Chobe at 5.0% (3.2%–7.6%), followed by Gaborone at 4.4% (2.7–7.7). The second highest prevalence among MSM was in Francistown at 5.1% (2.3–10.9). There were no reported cases of HBV among MSM in Chobe. No cases of hepatitis C were reported in any of the districts.

Conclusion: The prevalence of HBV was highest in the tourist areas of Maun and Chobe, followed by the urban areas of Francistown and Gaborone. Additional research is needed to understand the prevalence of hepatitis B and C in the general population in Botswana. Hepatitis B is easily preventable with safe, available, and effective vaccines, which should be made available to key populations in high-prevalence areas.

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Improving tuberculosis prevention therapy coverage among people living with HIV:The Nkarapamwe and Ndama Journey

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Background: Tuberculosis prevention therapy (TPT) has been shown to reduce TB incidence by 62% in people living with HIV. In July 2018, the Namibian Ministry of Health and Social Services (MoHSS) and key stakeholders designed and implemented a quality improvement collaborative- NamLiVE (Namibia Linkage to care, Viral load suppression and End TB) in selected regions and facilities. One of the objectives of this collaborative was to improve national TPT coverage from 9.3% to 80% by February 2020. Nkarapamwe (NK) and Ndama (ND) are two of six health facilities from Namibia's Kavango East region, Rundu district that took part. In August 2018, the TPT coverage for NK and ND clinics stood at 28% and 25% respectively and averaged 27%.

Materials & Methods: A multi-disciplinary team at each clinic developed and tested change ideas for 1) identifying clients who were ever enrolled into care and still active in care before 31 July 2018 but not documented as initiated or on TPT; 2) identifying those who were initiated on TPT but did not complete the course within 12 months; and sensitizing and educating clients on the importance of TPT initiation and completion individually or during group sessions.
During each visit, the patient's health passport was checked for evidence of having been on TPT and/or not having completed a course within 12 months. If no evidence was found or the patient did not complete the course within 12 months, the patient was initiated on TPT if eligible. Clients who completed a 9-month (as per 5th edition ART guidelines) course of TPT were identified and updates made to the health passport, Patient care booklet (PCB), and Electronic Patient Monitoring System (ePMS). For clients still taking TPT, the patient's health passport, patient's PCB, TPT initiation register, and ePMS were updated accordingly.
Color-coded stickers (blue for initiation, orange for completion) were attached to PCBs of patients who were initiated on or completed TPT. A TPT stamp was also stamped in the health passport and PCBs. All this served as reminders of patients' TPT status.
From August 2018 to August 2019, the team collected data from TPT registers and ePMS and entered it on a Microsoft Excel dashboard. The denominator was the number of active patients who initiated ART prior to 31 July 2018 (Backlog Cohort). The denominator did not exclude those who declined TPT or those that were not eligible.

Results: Follow up of patients initiated on ART treatment prior to 31 July 2018 (Backlog cohort) showed that by August 2019, 94% of active patients were initiated and verified to have ever received TPT, with 98% (of 1094) and 90% (of 1204) in NK and ND respectively. This was an increase from a baseline of 27%.

Conclusion: The use of a multi-disciplinary team approach, quality improvement initiative, proper documentation, and data verifications yielded high impact results.

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Physicians' knowledge of Hepatitis B and C in Côte d'Ivoire

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Background: Viral hepatitis is a major public health problem in Côte d'Ivoire, with a prevalence of 8% to 10% for hepatitis B and 1% for hepatitis C. Research indicates that there is a lack of awareness of hepatitis in the general population; however, there remains little evidence concerning physician's knowledge of the virus. We, thus, investigate physician's knowledge on viral hepatitis B and C, which can be the first condition for screening and treatment.

Materials and methods: In 2018, we conducted a cross-sectional Knowledge, Attitudes and Practices (KAP) telephone survey on a random sample of physicians working in health facilities in Côte d'Ivoire. Data collected included an assessment of knowledge about viral hepatitis B and C and their personal attitudes towards hepatitis screening and vaccination. We created a knowledge score based on 14 variables (screening test variables, HBV viral load variables, treatment indications variables, treatment availability and associated costs variables) and identified the associated factors using a multivariate Poisson model.

Results: Among the 542 physicians contacted, 316 physicians participated in the survey (58%). The vast majority of doctors spontaneously cited cirrhosis (79%) and liver cancer (77%) as the main complications of viral hepatitis. Screening modalities were also well known. Knowledge of modes of transmission and prevention were uneven : blood transmission 88%, sexual 78%, saliva 27%, during pregnancy or childbirth 20%. Physicians' knowledge of the prevalence of hepatitis B and hepatitis C in the population remains very limited (32% indicates between 5% and 15% for HBV while 33% indicates less than 5% for HCV)
In terms of treatment, less than half knew the conditions for initiating hepatitis B treatment (42%) or the existence of curative treatment for hepatitis C (34%). Similarly, few knew the cost of associated treatments or tests (23%), such as HBV viral load (17%).
A higher knowledge score was associated with having a close relative infected by viral hepatitis (RR=1.09 [1.00 – 1.19], p=0.052), receiving training on viral hepatitis (RR=1.16 [1.04 – 1.29], p=0,008) and testing for any viral hepatitis (RR=1.16 [1.04 – 1.29], p=0.008).

Conclusion: The fight against viral hepatitis requires the involvement of physicians. Findings suggest that many physicians are in need of ongoing training on prevention and treatment of viral hepatitis.

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HIV-Malaria Co-infection and its Determinants among Patients Attending Antiretroviral Treatment Clinic, Zaria, Northern Nigeria – April 2018

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Background: Globally, HIV and malaria cause more than two million deaths each year. More than 29 million people are living with HIV/AIDS in sub-Saharan Africa, and about 70% of the population is at risk of malaria infection. Nigeria accounts for about 23% of the global malaria cases and 9% of the global HIV cases. According to the 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS), the prevalence of HIV in Nigeria is 1.5%. Recent theories suggested possibilities of high occurrence of HIV-malaria co-infection where there is geographical overlap of the two diseases. We investigated to determine the prevalence of HIV-malaria co-infection and its associated factors.

Methods: We conducted a cross-sectional study. We enrolled 262 HIV-positive patients at the National Tuberculosis and Leprosy Training Centre Zaria, between February and April 2018 using systematic sampling technique. We administered a questionnaire and collected data on socio-demographic characteristics, respondent's knowledge, perception and practices on malaria infection prevention and control (IPC). We analyzed blood samples for malaria parasite, viral load, CD4, and FBC. Descriptive statistics, chi-square and logistic regression were conducted with 95% confidence intervals (CI).

Results: Mean age of the participants was 34.4 ± 14.7, 52% were females, 65% were married, 65% were employed, 57% lived in urban residence, and 34% had tertiary education. Prevalence of malaria co-infection among participants was 22.9%. Significant risk factors were high HIV viral load (aOR= 3.30, 95% CI= 1.15-9.45), being co-infected with TB (aOR = 5.60, 95% CI= 1.34-23.33), and poor practice of malaria IPC (aOR= 13.30, 95% CI= 4.9-36.2). Furthermore, malaria co-infected HIV patients were more prone to low levels of Hb (OR= 6.93 (3.62-13.25), CD4 (OR = 1.94 (1.08-3.46), and WBC (OR= 2.41, 95% CI= 1.90-5.30). The proportion of subjects that has malaria parasitaemia was significantly higher among those using zidovudine/ lamivudine/efavirenz (AZT/3TC/EFV) drug combination ($X2 = 22.93$, p = 0.0008).

Conclusion: The level of occurrence of malaria among HIV infected patients in this setting calls for attention. We recommended that health education on malaria should be a priority in malaria control programme; the programmes for control of HIV, malaria and TB should collaborate to ensure integrated service delivery, AZT/3TC/EFV drug combination should be discourage in malaria endemic settings and that people living with HIV/AIDS should be given special consideration for malaria prevention.

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HIV AND HBV co-infections among HIV infected Mothers on HAART and their exposed Infants in a tertiary hospital in Nairobi, Kenya.

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Background: Mother-to-child transmission (MTCT) of Hepatitis B virus (HBV) is responsible for more than one third of chronic HBV infections worldwide. Antiretroviral therapy (ART) naïve HBV/HIV co-infected mothers have a high tendency of transmitting the two viruses. This study aimed to determine prevalence & predisposing factors of HIV/ HBV infections among HAART-receiving HIV-infected mothers and their exposed infants.

Methods: This was a cross sectional study among HIV infected HAART receiving mothers and their exposed infants conducted between Jan 2017 to April 2018 at the Kenyatta National Hospital, Kenya. A structured questionnaire was used to capture socio-demographic data and factors associated with HIV/ HBV co- infections. A 4_ml sample of paired whole blood obtained from HIV positive mothers & their exposed infants was analyzed for Hepatitis B surface antigen (HBsAg) and HIV (for infants), using Enzyme-linked immunosorbent assay and HIV I proviral DNA polymerase chain reaction (PCR) respectively for the exposed infants. HBsAg positive samples were further screened for HBV envelope antigen (HBeAg) using ELISA. HBsAg positive samples were subjected to a nested Polymerase chain reaction targeting the preS1 region. Analysis was done using SPSS version 21.0. HIV/ HBV infections were presented as a proportion with 95% confidence interval and the associations tested using chi-square tests.

Results: A total of 534 HIV-infected mothers - infant pairs were recruited. Mean age of mothers was 31.2 years (SD 5.4 years) and infants' median age of 6 months (IQR 3-10 months). Majority (94%) of the mothers were taking TDF/3TC/ NVP and 32(6%) were on AZT/3TC/NVP or EFV. A total of 19 (3.6%) mothers were HBV positive. All the HIV/ HBV exposed infants tested HIV/ HBV negative. History of dental surgery was associated with increased rate of HBV infection (OR 3.3 (95% CI 1.1-9.6).

Conclusion: In this population of HIV-infected PMTCT mothers, our observations suggest that the HAART regimen received by the HIV infected mothers may have prevented vertical transmission of HIV and HBV infections to exposed infants. To achieve the global child health impact of eliminating mother to childhood transmission of infectious viruses, there is need to develop and implement policies for HBV screening among HIV exposed infants, thus 'bridging the know do gap' in the region.

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Health workers' knowledge and adherence to Isoniazid preventive treatment guidelines in health facilities in Ebonyi State, Nigeria: Baseline findings from a quasi-experimental study

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Background: Isoniazid preventive therapy (IPT) reduces the risk of active TB and has been recommended as part of a comprehensive HIV and AIDS care strategy. However, its implementation has been very slow and has been influenced by several factors. This study set out to assess Health workers' knowledge and adherence to IPT treatment guidelines as well as identify the predictors of knowledge and practice of IPT treatment guidelines.

Methods: This is a baseline survey of a quasi-experimental study of six health facilities providing comprehensive care for HIV patients in Ebonyi State in 2019. A semi-structured, self-administered questionnaire was used to collect information from 85 health workers and data was also abstracted from 200 patient treatment cards. Analysis was done using Statistical Package for Social Sciences (SPSS) version 20.0. The chi-square test was used to test for observed associations between variables and the level of significance was set at $p < 0.05$ and confidence interval at 95%. Logistic regression was carried out to determine predictors of knowledge and practice of IPT guideline.

Results: The mean age of respondents in this study was 36.92±8.6. Majority of the respondents were nurses, pharmacists, chews. Slightly more than half of the health workers (58.8%) had good knowledge of the IPT guideline, and majority (75.3%) practiced the IPT guideline. Only 17% of the treatment cards had IPT prescribed and only 11% of these had adherence assessed. Factors influencing implementation of the guideline included unavailability of isoniazid, poor awareness, patient non-adherence, poor resources, high pill burden, and lack of training among others. Being a nurse/CHEW and less than 3 year in the healthcare profession were predictors for good knowledge of IPT guideline.

Conclusions: There was good knowledge and practice of the IPT guidelines from health worker self report, which did not agree with the low uptake of IPT. Uptake of IPT could be improved if health workers are trained on a regular basis and more doctors are employed to avoid brain-drain and adequate time for patient care. In addition, reminders in form of text messages could be introduced to improve implementation of the guideline.

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"Availability of Co-trimoxazole Preventive Therapy (CTXp) at Rural TB Clinics is Associated with Increased Uptake"

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Background: Co-trimoxazole (CTXp) is a simple, well-tolerated and cost-effective intervention which can extend and improve the quality of life for persons co-infected with tuberculosis (TB) and HIV. Despite the proven clinical benefits of CTXp and recommendations by World Health Organization, it is not yet a routine part of care in some TB programs. Until recently in Zambia, CTXp was available only in antiretroviral therapy (ART) clinics which limited its availability. In 2009-2010 the Ministry of Health began dispensing CTXp at TB Clinics.

Objectives: Improve uptake of CTXp by dispensing the drug at TB clinics in four districts of Zambia.

Methods: Four District officers, TB clinic, ART, Pharmacy staff, from 131clinics were trained in CTXp administration. Ongoing mentoring and technical support was provided. Program data was collected in MOH TB registers and summarized in quarterly reports. The proportions of HIV-infected TB patients on CTXp during 12-month periods pre- and post-implementation were compared using a Pearson's chi-squared test.

Results: There proportion of co-infected patients accessing CTXp at TB corners increased significantly from 85% pre-implementation to 98% post-implementation (p<0.0001). Challenges encountered included drug stock outs, work overload and trained staff being transferred to other departments or health centers.

Conclusion: Despite challenges, provision of CTXp in TB clinics increased uptake to almost 100% and should be scaled-up in similar settings

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Factors Associated with Incident HIV and Syphilis among Fishing Communities on Koome and Buvuma Islands, Uganda

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Background: Fishing communities are at high risk of acquiring HIV infection and are believed to be a key driver of the epidemic in Uganda. Previous efforts have found high sexual risk taking and HIV prevalence in fishing communities around Lake Victoria, including an HIV prevalence of 20.0% on Koome island and 12.2% on Buvuma island. As part of a PEPFAR-funded study exploring optimized ways to deliver HIV services on Koome and Buvuma Islands, we estimated the incidence of HIV and syphilis and determined factors associated with infection.

Materials and Methods: A random sample of households from Koome and Buvuma islands were selected and consenting HIV-negative adult residents identified through a baseline household serosurvey were enrolled in a prospective cohort to monitor new infections and sexual behavior. The first round of data collection took place between April 2017 – January 2018, followed by round two between April – November 2018. At both visits, participants were interviewed using a structured questionnaire and donated blood for HIV and syphilis testing. Testing was conducted following national testing algorithms.

Results: Among 3247 individuals initially enrolled, 2262 individuals completed the second round visit. Among these, consistent condom use with any partner was 3.4%, 42% reported always using condoms with a casual partner, and 30% reported ever having STI symptoms. Ten new HIV infections occurred between the two visits, for an incidence of 0.52/100 person-years, while syphilis incidence was 2.21/100 person-years. Koome island residence (OR:1.98; 95% CI:1.32-2.97), age over 49 (OR:3.77; 95% CI:1.87-7.60) and being divorced/widowed (OR:2.22; 95% CI:1.34-3.67) were significantly associated with incident syphilis infection. We were unable to determine factors associated with HIV transmission due to insufficient power, although descriptive analysis indicated that eight of the incident infections occurred on Koome Island, and six new infections were in the 25-34 age group.

Conclusion: Residents of Koome island have a higher risk of syphilis transmission, suggesting need for focused scale up of sexually transmitted infection prevention and testing services, with emphasis on 49 years and older and divorcees/widowers. The relatively low HIV incidence might be explained by availability of HIV prevention services such as PrEP and circumcision.

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HIV Status as Predictors of Tuberculosis Treatment Success – a 3 year retrospective study in South-East Nigeria

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Background: Adherence to tuberculosis (TB) medications and eventual treatment completion is key for the optimization of tuberculosis (TB) control efforts. These efforts are influenced by the co-epidemic of tuberculosis and human immunodeficiency virus (HIV) in Nigeria. Identification of factors associated with TB treatment completion will provide evidence necessary for developing interventions that are relevant for successful control.

Method: A retrospective study of data extracted from treatment records of 239 patients in all directly observed treatment short course (DOTS) clinics and hospitals in Owerri Nigeria from 2015 - 2017. Patients currently accessing TB treatment at any of the facilities and patients with no documented HIV status were excluded. Chi-square test used to explore the differences among TB treatment success and HIV status and Odd ratios calculated to assess the association between the variables.

Results: Two hundred and thirty-nine (239) patients - 95 (39.7%) females and 144 (60.3%) males—met study inclusion criteria. Proportionally, more males received TB treatment than females. HIV positivity rate was 49.8% and the TB success rate was 56.9%. HIV negative patients were found to be more likely to achieve TB treatment success OR: 1.203; RR: 1.083, though this was not statistically significant P-value: 0.487; 95% confidence interval 0.868 – 1.351

Conclusion: This study confirms that the prevalence of TB among HIV positive individuals is still very high in Nigeria. There is thus a need to strengthen TBHIV collaborative activities to prevent TB in HIV positive individuals and also mobilize efforts on activities aimed at early identification and treatment of TB in HIV positive individuals.

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Seroprevalence of Toxoplasma gondii infection among urban pregnant women attending public antenatal care in Windhoek, Namibia, 2016

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Background: Reactivation of latent Toxoplasma gondii (T. gondii) infection may lead to comorbidities in HIV-positive individuals, especially when CD4-counts are below 200 cells/μl. Although Namibia is reaching the three 95% targets set by CDC, it would be informative to the health sector to investigate the prevalence of T. gondii. This study aimed to determine the seroprevalence of T. gondii among pregnant women attending public antenatal care in Windhoek, Namibia, 2016.

Methods: Three hundred and forty-four urban pregnant women aged 17 to 47 years attending public antenatal care were voluntarily enrolled in the study. Seroprevalence of anti-T. gondii IgG was determined with an automated chemiluminescence assay. Samples with a positive T. gondii IgG result were tested for T. gondii IgM and specific IgG avidity (ELISA). A questionnaire captured demographic data, obstetric history and exposure to risk factors. Data were analysed using SPSS and R. Univariate and multivariate models were used to determine associations between variables.

Results: Anti-T. gondii IgG was found in 9 (2.61%) pregnant women. There was no association of anti-T. gondii IgG with demographic characteristics or exposure to risk factors, although a bigger sample size is needed to find possible associations. Anti-T. gondii IgM was positive in 1 (0.3 %) woman while 3 (0.9 %) women had borderline anti-T. gondii IgM results. Specific IgG avidity was low, equivocal and high in 0%, 33% and 67% of seropositive pregnant women.

Conclusions: Seroprevalence of anti-T. gondii IgG is much lower in Central Namibia than in other developing countries. Possible explanations are the arid climate and high altitude of the capital, Windhoek. Further investigation into specific IgM seropositivity and IgG avidity showed that pregnant women in the central region of Namibia are at low risk of vertical transmission and development of congenital toxoplasmosis. Further studies are needed in rural areas where seroprevalence of T. gondii may be higher.

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Use of Delamanid in MDR TB infected children in Malawi.

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Background: Tuberculosis is one of the world's top ten causes of death and the leading cause from a single infectious agent.
Malawi has a low prevalence of multi-drug resistant Tuberculosis (MDR TB), WHO estimates a prevalence of 0.65% among new patients as well as 6.75% among re-treatment patients.
Paediatric tuberculosis is difficult to ascertain due to the atypical presentation of the disease as well as the need for good clinical skils a huge gap as at least 10% of all TB cases are from the paediatric cohort. Even with the challenge of low diagnostic effort and yield, this abstract proves that with chest x-ray and clinical history, paediatric MDR TB can be diagnosed at community level.

Aims: To inform on the paediatric MDR TB burden and management in Malawi.

Methods: The National PMDT team made roving visits to all 28 districts in Malawi and conducted patient reviews at both Community(household) as well as district hospital.

Results: There 11 paediatric MDR TB patients from quarter one 2018 to quarter two 2019.

Patient characteristics
AGE
The mean age of all patients was 58.3 months with a range of 132 months-7 months.

SEX
54% of all patients were male.

HIV.
27% of all patients were HIV reactive and on ART at time of DR TB diagnosis. Among them, one child had HIV disease diagnosed via DNA PCR at 2 months.
45% of the patients were HIV negative.
For breast feeding patients, 9 % were HIV exposed and 18% were HIV non-exposed.

ART
2 of the 3 of children on ART were on second line regimen by the time of DR TB diagnosis. Diagnosis of ART failure was made using Viral Load.

MALNUTRITION
45% of all patients had underlying malnutrition of various degrees.

Mode of diagnosis.
POSITIVE CONTACT HISTORY
91% of all patients had an active MDR TB infected household member on treatment. One child(9%) had contact with a household member who had died 5 years previously.
91% of children had the mother as an index case correlating literature that states that maternal TB/HIV is an important risk factor for paediatric TB and mortality.

BACTERIOLOGICAL CONFIRMATION
SPUTUM COLLECTION PROCEDURES

18% of children had Gastric lavage with negative Gene X-pert results.

9% of patients had an FNA with a negative gene x-pert result.

18% of patients had bacteriological confirmation of disease through genotypic DST (Gene x-pert) conducted on sputum samples.

82% of patients were diagnosed through clinical presentation, chest x-ray and positive contact history.

PATIENT GROUP

9% of children had been treated for TB before, 91% were new patients.

TREATMENT

Treatment was made based on the DST of the index case, DST of the child as well as the tolerability of the regimen.

REGIMEN

91% of patients were enrolled onto the Delamanid based all oral regimen with 9% put on conventional treatment regimen.

ACTIVE DRUG SAFETY MONITORING

No child experienced a serious drug event in the reported period.

Conclusion: Paediatric MDR TB can be detected using Chest X-ray and clinical history. There is need for increased efforts on contact tracing in MDR TB affected households, integration with mother-child clinics as well as the need to address TB/HIV.

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SPUTUM CYTOLOGY AMONG HIV PATIENTS ATTENDING SPECIALIST HOSPITAL IN SOKOTO METROPOLIS, SOKOTO STATE OF NIGERIA

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Aim: The aim of the study is to determine the cytopathological pattern of respiratory tract disorders among HIV patients on highly active antiretroviral therapy (HAART) attending Specialist Hospital in Sokoto Metropolis.

Methods: A cross sectional descriptive study was conducted to evaluate sputum cytology of HIV patients attending Specialist Hospital, Sokoto metropolis, Sokoto, North-Western Nigeria. Sputum sample was collected and a questionnaire was self-administered to patient that consented. Four slides were prepared for each patient sample and fixed in 95% alcohol for 30mins and stained with Papanicolaou, haematoxylin and eosin stains, Gomorimethenamine silver (GMS) staining method for fungi, Ziehl-Neelson staining method for acid fast bacilli.

Results: The study showed mean age of the 80 HIV infected patients was 33.7 years with a median age of 30 years and modal age of 40 years. Most of the participants were females making 66.3% of the total participants, while males were 33.8% of the total
participants. Cellular morphology of the sputum studied shows, 91.3% of normal squamous cells, 1.3 % mild dysplastic cells,65% of the sample has mild inflammatory cells, 16.3% with moderate inflammations, 13.8% with severe inflammations, and 5% of
the sputum samples showed pigmented landen microphages. The 80 sputum sample were stained with Gomorimethenamine silver (GMS) staining technique and Ziehl-Neelson (ZN) staining technique. 87.5% showed absence of any form of fungi while 11.4% indicated presence of fungi. 88.8% of the samples showed
absence of Acid Fast Bacilli (AFB), and 11.3% are positive for AFB.

Conclusion: Majority of the patients had inflammatory changes with Mycobacterium,Cryptococcus, Pneomocystic pneumonia and Aspergillus species as the pathogens that were detected. Those with fungi infections tend to have very low CD4+ lymphocyte count.
No correlation was found between CD4+ lymphocyte count and presence or absence of Mycobacterium tuberculosis.

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RATES OF HEPATITIS B INFECTION IN PREGNANT WOMEN ATTENDING ANTENATAL CARE IN KUNENE REGION, NAMIBIA

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Introduction: The Hepatitis B is a viral infection caused by Hepatitis B virus (HBV) which is a double stranded DNA virus, a member of the Hepadnavidae family of viruses. World Health Organization estimates that about 257 million people are living with Hepatitis B virus infection. Namibia has a high prevalence of Hepatitis B infection (9%) among pregnant women and Kunene region prevalence of 8%.

Materials and Methods: The researcher conducted an un-matched 2:1 case-control study to determine the associated risk factors for Hepatitis B infection among pregnant women in Kunene region. Cases were study subjects with reactive results for HBsAg or HBeAg and controls were study subjects with negative for both HBV markers. A total of 115 cases and 230 controls were interviewed. Mean age among the cases was 29 years range 16 − 45 (SD = 6.6), controls the mean was 26 years range 13 − 45 years (SD = 6.8). Bi-variate analysis was conducted to determine the odds ratios at 95% confidence level. Significant risk factors at p-value less than 0.05 were retained in multiple logistic regression models to determine significant associations.

Results: The multivariate analysis found that polygamous marriages (AO: 3.45; CI: 1.25 − 9.57; p= 0.02).Body piercing and scarification (AOR: 4.34; CI: 2.30 − 8.17; p= 0.00),body tattoos (AOR: 2.95; CI: 1.09 - 7.99; p = 0.03), history of abortion (AOR: 2.91; CI: 1.38 − 6.16; p= 0.00), STI's (AOR: 3.34; 95%CI: 1.92 − 5.80; p= 0.00) and previous history tooth extraction or any dental procedures (AOR: 2.03; 95% CI: 1.17 − 3.54; p = 0.01) was significantly associated with Hepatitis B infection. Gravidity, parity, HIV positive status and history of blood transfusion were not associated risk factor in multivariate model (p = >0.05).

Conclusion: The Ministry of Health and Social Services in Kunene region should implement preventative strategies such as Hepatitis B screening, treatment, health education, infection control and hepatitis B vaccination for the general population.

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Multidrug resistance genes in tuberculosis patients attending treatment centres in Akwa Ibom State, Nigeria

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Background: Drug resistance data on Mycobacterium tuberculosis improve understanding of the epidemiology and control of tuberculosis. This study detected drug resistance genes from Mycobacterium tuberculosis strains isolated from TB patients seeking care at TB treatment facilities in the three senatorial districts of Akwa Ibom State, Nigeria.

Materials and Methods: Sputum samples from 1,630 patients who presented with cough lasting more than two weeks were screened by GeneXpertMTB/RIF assay. Three hundred and two confirmed TB cases were further identified using Capilla TB Neo. The HIV status of the 302 cases was determined using Determine® HIV test kit and confirmed by UniGold HIV 1/2 test kit. Rifampicin (RIF) resistance was used as a marker for drug resistance by the Xpert MTB/RIF assay method. The resistance patterns to first line anti-TB drugs as well as the genes mediating them were respectively investigated by the agar proportion method and polymerase chain reaction using the amplification refractory mutation system (Newton et al., 1989) targeting mutations in the KatG, rpoB and inhA genes.

Results: In this study, the prevalence of tuberculosis was 19% while that of multi-drug resistance was 7.6%. TB-HIV co-infection was 46.2%. Of the twenty-three drug resistant isolates, 4(17.4%) were mono-resistant to Rifampicin while 19(82.6%) were multi-drug resistant. The distribution of genes encoding resistance to anti-TB drugs was as follows: rpoB (Rifampicin) - 21/23 (91.3%), katG (high level resistance to Isoniazid) - 16/23 (69.6%) and inhA (low level Isoniazid resistance)12/23 (52.2%). Two isolates were phenotypically resistant, but genotypically sensitive to Isoniazid (INH), usually termed discordant. This may have resulted from the fact that some mutations mediating resistance to INH are yet to be characterized. There were positive correlations between previous tuberculosis diagnosis/treatment and previous contact with TB patients, and multi-drug resistance (p<0.05).The 7.6% resistance rate obtained in this study is higher than the 4.3% National average reported by WHO in 2018. Patients who sought treatment in unorthodox treatment facilities had higher resistant cases compared with those that sought treatment from orthodox treatment facilities.

Conclusion: Government and non-governmental organizations-dedicated TB treatment centres remain the right places to obtain proper TB treatment.

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Comparison of Smear Microscopy and Genexpert MTB/RIF for Tuberculosis Detection in Calabar, Nigeria

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Background: The Ziehl Neelsen (ZN) staining technique is still widely used to detect acid-fast bacilli in sputum of TB suspects despite its low sensitivity, compared to newer protocols such as Fluorescent Microscopy (FM) staining technique and GeneXpert (GE) MTB/RIF assay.
This study compared the rate of detection of tuberculosis in 125 subjects using two staining techniques and the molecular-based GeneXpert MTB/RIF assay.

Methods: One hundred and twenty five subjects (66 males and 59 females) seeking care for prolonged cough at Dr. Lawrence Henshaw Memorial Specialist Hospital were recruited into this study. A total of 375 sputum samples were processed and analyzed using the ZN and FM staining techniques for acid-fast bacilli. The GeneXpert MTB/RIF assay was employed to detect M.tb as well as the rifampicin resistance gene. All subjects were investigated for their HIV status using the Determine HIV-1/HIV-2 test kit.

Results: The mean age of subjects was 35 years. Detection rates for the ZN and FM staining techniques and GeneXpert MTB/RIF assay were 17.6%, 28.8% and 28.0% respectively. Twenty-two (17.6%) samples were positive by all three methods. Fluorescent microscopy and GeneXpert MTB/RIF assay detected 39% and 37% more mycobacteria than the ZN staining technique. Three of the 35 (2.4%) GeneXpert MTB/RIF assay positive samples were positive for rifampicin resistance. There was no statistically significant difference in TB case detection between male and female patients when each of the three methods was used. Using the GeneXpert MTB/RIF assay as "gold standard", the sensitivity of ZN and FM staining techniques were 62.9% and 91.4% respectively; the specificity of ZN and FM techniques were 100% and 95.6% respectively, while the accuracy of the ZN and FM staining techniques were 89.6% and 94.4% respectively. HIV co-infection in TB cases confirmed by all three diagnostic methods was 32.5%.

Conclusion: ZN staining techniques will remain useful for the detection of pulmonary TB in the foreseeable future especially in peripheral laboratories. However, there is need to compliment it with the molecular based GeneXpert MTB/RIF assay to reduce the missed diagnosis caused by its insensitivity.

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Improving TPT Coverage among People Living with HIV at Nankudu ART Clinic

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Background: Tuberculosis preventive therapy (TPT) is highly effective in preventing tuberculosis disease in people living with HIV (PLHIV). Namibian Ministry of Health and Social Services (MOHSS) guidelines provided for one course of TPT (6-9 months of isoniazid) for every PLHIV. Despite this, TPT initiation and completion rates remain low in many health facilities.

In 2018, the MoHSS established a quality improvement (QI) collaborative initiative called Namibia Linkage to Care Viral Load Monitoring & Suppression Ending TB (NamLiVE) to support improvement in TPT initiation and completion in PLHIV among other indicators across 25 selected facilities in Namibia. A monitoring tool (NamLiVE Dashboard) was developed to monitor progress of facilities over time. Baseline TPT coverage (initiation and completion rates) for each facility was generated from the MoHSS national level data. Nankudu ART Clinic, in Namibia's Kavango West Region, stood at 44% (235/535) coverage in August 2018 against the national target of 80%.

Materials & Methods: The facility established a QI Committee to spearhead this initiative. A root cause analysis was conducted to identify gaps and possible causes of low TPT initiation and completion rates. Identified gaps included health care worker reluctant- citing that this is additional work , HCW forgetting to prescribe TPT, the Electronic Patient Monitoring System (ePMS) not updated, missing documentation in many patient files and in the TPT register, and frequent stock outs of Isoniazid. In response to these findings change ideas were developed, tested and either adapted, adopted or abandoned using the plan, do, study, act (PDSA) cycle. The key change ideas that proved successful included:
- Generated a list of all patients whose TPT status was not documented in ePMS and pulled out their files
- Updated the files when the patients came for follow up
- Developed a TPT monitoring register
- Attached colour-coded stickers to files as reminders for HCWs to initiate TPT, document completion of TPT and update ePMS.
- Use of TPT stamp (put on patient files and patient's health passport) to improve documentation and remind HCWs.
- Updated patient data in ePMS as indicated for TPT initiation and completion.
- Generated a list of Lost to Follow Up (LTFU) patients who were either not on TPT or had not completed TPT to determine if they attended other facilities in the district, and updated ePMS accordingly
- Individual and group health education to clients on the importance of TPT
- For Hepatitis B (HBsAg) reactive patients whose previous Alanine AminoTransaminase was high were tested again and if the repeat test was normal, were initiated on TPT
- Monthly QI meetings to track progress and identify challenges

Results: By the end of July 2019, TPT coverage had improved from 44% to 95% (478/504) among active patients who initiated ART treatment before August 2018.

Conclusions: The implementation of change ideas through the NamLiVE methodology and teamwork was highly successful in improving TPT coverage at Nankudu ART clinic. Other facilities could adopt these processes to improve TPT coverage.

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Hepatitis B Virus and HIV Co-Infection among Pregnant Women in Northern Nigeria

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Introduction: Hepatitis B virus (HBV) and HIV co-infection is a global problem especially among pregnant women, yet the local burden in developing countries remains largely unknown. There is a need for immediate initiation of ART for HIV positive pregnant women who are co-infected with HBV because HBV can be transmitted from mother to child very easily during delivery. This study aimed to estimate the prevalence of HIV-HBV co-infection among pregnant women attending ante-natal clinics (ANC) in four north-central states including the Federal Capital Territory (FCT) of Nigeria. These states were chosen because the 2018 statistics revealed that the four states Benue, Nasarawa, FCT, and Plateau had a highest HIV prevalence of 5.5%, 2.0%, 1.6%, and 1.6% respectively in this zone.

Methods: This is a prospective study that used a two-year (2017-2018) data obtained from national data for prevention of mother to child transmission (PMTCT) of HIV. The data obtained include the general information of all pregnant women attending ANC in all government facilities across the four states diagnosed for HIV-hepatitis B surface antigen (HBsAg) co-infection.

Results: A total of 883,365 women attended ANC clinics across the four states from 2017-2018 out of which 712,353 (80.6%) were tested for HIV, 9252 (1.3%) were HIV positive. The prevalence of HIV among pregnant women attending ANC in Benue state was 2.0% (4,765 of 234,034), 0.8% (1493/191833) in FCT, 0.9% (1,728/182769) Nasarawa, and 1.2% (1266 of 103,717) in Plateau state. The overall prevalence of HIV-HBV co-infection among pregnant women in this zone was 5.4% (497 of 9252). Plateau had the highest prevalence of HIV-HBV co-infection of 7.7% (98/1266), followed by Nasarawa 6.6% (114/1728), Benue, 6.0 (285/4765) while FCT recorded none.

Conclusion: The understanding that HIV-HBV con-infection rates were more than HIV prevalence among pregnant women in this zone underscores the need for HBV screening in all pregnant women attending ANC in Nigeria. We also advocate for the implementation of HBV birth does vaccinations across all healthcare facilities in Nigeria in order to reduce the burden of HBV among pregnant women and their children.

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Detection of Cryptococcal Antigen in HIV-1 Positive Individuals in North-Central, Nigeria

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Cryptococcosis is an invasive fungal disease caused by naturally occurring Basidiomycete Cryptococcus species. The potential for the invasion of the central nervous system by Cryptococcus neoformans is underscored by the presence of this organism in the blood of immunocompromised individuals. Early and sensitive methods for diagnosis of Cryptococcus neoformans will reduce the high morbidity and mortality associated with this disease. The aim of this research is to detect cryptococcal antigen among HIV-1 infected individuals in North-Central, Nigeria. This study is a prospective cross-sectional study carried among HIV-1 seropositive patients accessing care at three health facilities in North-Central, Nigeria between November 2014 and March 2017. Blood samples were collected from 300 HIV-1 infected patients in the 3 to 65 years age group. CD4+ T-cell count was determined and samples were analyzed for cryptoccocal antigenamia using the methods of Lateral Flow Assay (LFA) and culture technique. Cryptococcus antigen was detected in 19.67 % (59/300) of the patients, and only 25.4% (15/59) of LFA positive samples produced growth of Cryptococcus spp. on Sabouraud Dextrose Agar after 3 days. Fungal growth was observed in one (1) of the specimens which was LFA negative in this study. Thirty of the 59 LFA positive patients had cryptococcal antigen in their serum had CD4+ T-cell count below 150 cells/mm3. This study reveals that infection by Crytococcus spp. is a problem among HIV infected patients in our locality. Therefore, screening of cryptococcal antigen should be made for all HIV patients accessing care in HAART clinics in Nigeria especially among those with CD4+ T-cell count below 150 cells/mm3 which is an indication of an immunosuppressed status.

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Uptake, yield and linkage to care after home-based HIV counselling and testing among household contacts of tuberculosis patients in Uganda

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Background: In Uganda, 81% of people living with HIV (PLHIV) know their HIV status, and 40% of TB patients are co-infected with HIV. Few studies document yield of HIV testing from integrated community-based HIV-TB activities. With support from PEPFAR, we evaluated uptake, yield of home-based HIV counselling and testing (HBHCT), and linkage to antiretroviral therapy (ART) among household members of TB patients in a rural Ugandan district.

Methods: We prospectively enrolled index TB patients from 1st October-2017 to 30th September-2018 and conducted home visits. Household members were screened for TB and HIV following national guidelines. Those at risk for HIV were offered HBHCT and tested by routine counselling and testing volunteers (RCTs) using rapid HIV tests. HIV-exposed infants (HEI) not enrolled in early infant diagnosis (EID) program were referred for HIV-DNA-PCR testing. Newly diagnosed PLHIV were referred for confirmatory HIV testing and ART initiation. We analysed data to describe the HBHCT cascade (eligibility, uptake and yield, linkage and ART initiation) among household members.

Results: We identified 459 index TB patients of whom 38.5% (165/429 with HIV status available) were co-infected with HIV. We identified 1692 household members (57.8% female, median age 19years) of whom; 33.6% (569/1692) were children of index clients, 21.9% (371/1692) siblings, 9% (153/1692) partners, (102/1692)6% parents, 21.6% (365/1692) other relations and 7.8% (132/1692) unknown relations. Over half (56.0%, 883/1578) self-reported being HIV negative, 5.5% (87/1578) HIV positive and receiving ART, and 39% (608/1578) unknown HIV status. Five hundred thirty five household members with unknown HIV status were eligible for and offered HBHCT, of whom 93.3% (499/535) accepted testing. Of those tested, 2% (10/499) tested HIV positive; 100% (10/10) of identified positives initiated ART. Two members (0.4%) had indeterminate HIV results, one retested negative but one declined retesting. All the identified HEIs (9/9) tested negative by HIV DNA PCR.

Conclusion: Uptake of HBHCT is high among household members of TB patients. Though HIV positivity yield was low, HBHCT should be designed to optimise testing high-risk household members as an opportunity for successful linkage of PLHIV and HEIs into care.

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The efficacy of peer education in sexual behavioural change among school-going adolescents in Northern Malawi: A quasi experiment

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Background: Within the background that HIV incidence among adolescents in Malawi and a majority of sub-Saharan African settings remains relatively high, we conducted a quasi-experiment to test a risk reduction behavioural model (RRBM) we designed for efficacy in selected schools in Northern Malawi. The study is hoped to bridge the current gap existing between adolescent exposure to HIV behavior change interventions (BCI) and their expected risk reduction as well as sexual behaviour change outcomes. Exposure to BCI is incidentally not translating to expected behavioural outcomes among adolescents in Malawi in particular and a majority of sub-Saharan African settings in general.

Methods: Experimental participants (n=158) were exposed to an HIV risk reduction intervention based on the RRBM model. The control participants (n=147) were exposed to a Health Promotion Package modeled on the standard Life skills Comprehensive Sexuality education program (CSE) administered to adolescents in schools. The primary outcome was HIV risk reduction measured as a composite index that in matrix included: sexual behaviour, HIV knowledge, HTC intention or uptake, MMC intention or uptake and self efficacy on abstinence, faithfulness and condom use. Analysis was through the Difference –in-Difference [DID] for effects on overall risk reduction, through multiple logic regression for effects on individual binary measures of sexual behaviour, knowledge, HTC and MMC. We applied multinomial logistic regression for measures on self efficacy.

Results: At 8 months, there were significant improvements in the intervention arm on several outcomes. The experimental group was 96% less likely to have sex than the control (OR = 0.04, 95% CI = 0.01 − 0.20). Intervention participants were also 3.49 times likely to report condom use when they had sex (OR = 3.49, 95% CI = 0.96 − 12.65) and had lower odds of having multiple sexual partners. There were no significant differences on abstinence and the desire to have medical male circumcision (MMC).

Conclusion: The study presents insightful findings that could inform best practices for HIV prevention and programming among adolescents and young people in Malawi and perhaps other resource constrained settings in sub-Saharan Africa and elsewhere. We hope that the RRBM model if extrapolated and replicated in real life settings be able to yield positive outcomes that could reduce HIV incidence among adolescents in Malawi and elsewhere.

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School Holiday campaigns, a key for scale-up of the Voluntary Medical Male Circumcision program in Zambia

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Background: Zambia has a generalized HIV epidemic, with heterosexual intercourse as the primary mode of transmission. The Ministry of Health (MoH), began offering Voluntary Medical Male Circumcision (VMMC) – which reduces chances of contracting HIV in heterosexual men by approximately 60% – as an HIV prevention strategy in 2007. VMMC services have been delivered in two models: routine services and through campaigns. The campaign model takes advantage of school holidays in April, August and December each year, during which VMMC is provided on an intensified outreach basis. We sort to compare the two models in terms of impacting on the program success in reaching the 10 -29 year age-group, which is prioritized by the MoH.

Methodology: Data from the Partner Reporting system (2012-2015) and HMIS (2016-2020) were reviewed. The data was analysed according to months, dichotomizing months as campaign or outside of campaigns. The number of clients receiving services during campaign months were compared with those accessing service during non-campaign months. Additionally, the proportion of clients aged 10-29 years during campaign and non-campaign months was compared.

Results: After the implementation of the operational plan 2012-2015, One million, Eight thousand Four hundred and Fifty Eight (1,008,458) circumcisions were done, of which Five hundred and One thousand, Four hundred and Fifty Six (501,456) were during campaigns. This translates into 50% of circumcisions done during campaigns. In the current operational plan period (2016-2020) which has a target of circumcising One million, Nine hundred and Eighty Five thousand and Eighty Two (1,985,0082) males , One million, two hundred and eighty thousand, three hundred and forty four 1,280,344 males were circumcised by the end of 2018. Of these, Eight hundred and Eighty thousand, Five hundred and Three (880,503) translating to 69% were done during school holiday campaigns. We had over 80% of the clients ranging between the ages of 10 to 29 years circumcised during these campaigns.

Conclusion: School holiday campaigns are key to reaching the VMMC set targets as a large proportion of the target is that of school going men and boys. This strategy offers a learning opportunity for other HIV prevention programs who can build on it and reach their desired targets in the quest to limit and halt the spread of HIV.

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EVALUATION OF THE ACCURACY AND DETERMININATION A NEW CUT-OFF OF THE DHQ MODEL FOR HIV PRE-DONATION SCREENING IN CAMEROON.

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Background: Donor history questionnaires are used worldwide to help provide safe blood supply via the medical selection process. Bearing in mind that, the use of imported questionnaires in settings with different risk-behaviours might not be suitable, an adapted donor history questionnaire (DHQ) was developed. Thus, determining its accuracy will help in developing a standardized national blood donor history questionnaire.

Methods: During a 4-months cross-sectional study, 760 consenting eligible blood donors at the Douala General Hospital blood bank were given a questionnaire to fill in a private hub. Thereafter, they were screened for HIV using a Rapid Diagnostic Test (RDT) and Enzyme- Linked Immunosorbent Assay (ELISA). A potential HIV donor was one with DHQ score < 80 whereas an HIV donor was one with a positive HIV RDT or/and ELISA. Sensitivity, specificity, Positive Predictive Value(PPV) and Negative Predictive Value (NPV) were used to assess the validity. A new scoring scheme was determined using the receiver operating characteristics curve, area under the curve and Cronbach alpha value.

Results: Out of the 760 participants , 22 (2.89%) were HIV positive. The DHQ predicted 4.08% of the donor population to be positive among whom 1.9% were true positives and 2.1% were false positives. The sensitivity, specificity, PPV and NPV of the DHQ were; 68.2%, 97.8%, 48.4% and 99.04% respectively at a cut-off of 80. A new cut-off score of 88.5 obtained gave us a sensitivity of 76.2% and specificity of 72.3% with an area under curve of 0.8.

Conclusion: The DHQ is accurate, reliable and valid in screening potential HIV negative donors which is potentially cost-effective. Our results provide information useful in the development of a standardized blood donor questionnaire in Cameroon.

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Does increased maternal immune activation in HIV+ mothers during pregnancy result in poor health outcomes for their HIV-exposed but not infected babies?

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Introduction: Since the onset of the HIV pandemic, great success has occurred in interrupting transmission of the virus from mother to child with vertical transmission rates now < 2% in study settings. However new evidence has emerged to suggest that these HIV exposed but uninfected (HEU) children have more morbidity and mortality than their HIV unexposed and uninfected (HUU) counterparts. The reasons for this initial observation remain speculative for now. Of the many potential hypotheses, we propose that mothers with HIV have an increased level of immune activation (IA) and resultant pro-inflammatory cytokine production affects the fetus' developing immune system and depletes the fetus' naïve cells, which contributes to poor outcomes

Material and Methods: We are implementing a 1500 pregnant women observational birth cohort study consisting of 750 HIV positive 750 HIV negative pregnant women as a control. Enrollment is restricted to women presenting at less than 25 weeks gestational age (determined by ultrasound). Maternal IA (CD3/CD+/CD38+/HLA-DR+ WBCs) is determined at enrollment and the maternal infant pair are followed through 6 months of age. Outcomes include infant infectious disease hospitalizations and deaths among HEU and HUU children.
In a nested sub-study of 150 HEU and HUU with maternal extreme IA (upper and lower 85th/15th percentile), infant T-cell function will be determined by an ex-vivo antigen challenge assay (TruCulture©) pro inflammatory cytokines and correlated with infant infectious disease outcomes.

Results: The results of the Immune activation in the first 150 mothers from both arms have been collected. Preliminary data shows higher IA among HIV positive than the HIV negatives, 20.1 % versus 13.1% in the fifteenth percentile and 66% versus 43% in the 85th percentile. There is a higher IA amongst ART naïve mothers vs. ART experienced mothers.

Conclusion: Among ART experienced HIV-infected mothers, levels of IA are higher than their ART-naïve counterparts. Increased IA in the neonates is yet to be determined in this study.

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Improving Uptake of HIV Testing Services among Sexual Partners of Index Clients through Assisted Partner Notification: Lessons from Baylor-Uganda COE Clinic

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Background: Assisted Partner Notification (APN) is an effective approach in identification of new HIV positive individuals whose implementation by Baylor-Uganda commenced in May 2018. By August 2018, only 51% of 312 elicited sexual partners to index clients had received HIV Testing Services (HTS). We share lessons from a quality improvement (QI) project to increase the proportion of elicited sexual partners of index clients at the Baylor-Uganda COE clinic who receive HTS from 51% to 90% between September and November 2018.

Methods: A Work Improvement Team (WIT) comprising clinic staff and volunteer expert clients was constituted to address the gap. Root cause analysis using brainstorming, affinity diagram and fish bone techniques revealed reliance on self-notification and counselor workload as hindrances. Changes tested using the Plan-Do-Study-Act cycle included training and mentorship of lay-testers, involvement of all staff in eliciting sexual partners of index clients following a CME on APN, and mostly weekly visits to the community to notify and test partners compared to Facility based. Progress was monitored using a QI journal updated together with the APN register during weekly data review meetings. Any partner who had not received HTS was included in the denominator for the next month.

Results: Between May and August 2018 we elicited 312 sexual partners, 37% being female while between September and November 2018, we elicited 381 of sexual partners, 33% were female and median age was 29 years (IQR: 25-36). All Partner HTS services were 100% in the community. The proportion of sexual partners tested increased from 51% (158/312) between May and August to 90% (381/423) between September and November 2018 (difference=39% (95% CI: 32.8-45.2) p-value <0.001.

Conclusion: Engaging trained lay-testers, active community-based APN with partner HTS and weekly APN data audits dramatically improved partner HTS. Challenges of access were met with partners outside the catchment area of the Clinic. There is need to explore ways of accessing elicited sexual partners outside the clinic catchment area.

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Cold chain management for vaccines in remote fishing communities around Lake Victoria, Uganda in preparation for HIV vaccine efficacy trials

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Introduction: Vaccines are adversely affected by extreme temperatures. In many low income countries, the supply of electricity or gas to power a cold chain is erratic. Therefore, alternative means have to be relied upon to ensure vaccine potency.

Methods: During a simulated vaccine efficacy trial in fishing communities, we shipped and stored Engerix® B and TYPHIM Vi® vaccines in a 2-8°C temperature environment facilitated by reusable Credo Cubes™. The Credo Cubes are made of vacuum insulated panels that form a thermal insulation compartment made of six walls integrated with phase change material. The walls were conditioned by putting them in a refrigerator at the main site for at least 24 hours prior to the required transportation of vaccines. The Cube walls were conditioned along with some cold packs. When they were to be used, these walls were reassembled into the Cube and left to stand until the internal temperature in the cubes came to within 2-8°C. The vaccines were then packed with product and temperature data loggers and sent to the fishing communities where they would remain for up to several days; Nsazi island 2 hours away by boat and Kigungu mainland site 30 minutes away by road from the main hub.

Results: Between January and July 2017, we made 77 shipments; 14 to Nsazi and 63 to Kigungu. The total hours of use were 2797 hours (33.8% to the island and 66.2% to the mainland). On 91% of the shipments the required temperatures were achieved within 20 minutes of setting up the Credo Cubes™ and 99% with in the first hour. The median storage time was 36 hours 24 minutes, with the longest storage at 103 hours 46 minutes. We did recorded a temperature excursion out of the 2-8°C temperature requirement. The mean kinetic temperatures were maintained between 2-8°C with the highest being 7.3°C and lowest 3.0°C.

Conclusion: It is feasible to transport and store vaccines at temperatures between 2 and 8°C in remote fishing communities for more than 100 hours with little reliance on electricity.

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Revitalizing Primary HIV Prevention in Nigeria: A sure path for ending AIDS by 2030

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Background: Delivering prevention at scale is essential to achieving fewer than 500 000 annual new infections by 2020, and ending AIDS by 2030. Global HIV Coalition (GPC) was established to strengthen political commitment for primary prevention. The coalition maintains accountability in member countries through country scorecard and poster for assessing progress in 4 primary prevention pillars (i.e. combination prevention for Adolescent Girls and Young Women (AGYW), Key Population (KP), condoms and PrEP). Nigeria used GPC HIV prevention score card and poster to review progress.

Method: Prevention Technical Working Group updated the scorecard and poster with data on Global AIDS Monitoring (GAM) indicators, surveys (DHS, NAIIS, MICS, IBBSS, population size estimates) and 2019 program data. Next, 2-days validation meeting was held to review score card and poster. 74 participants attended the validation meeting representing KPs, AGYW, CSOs, donors, private sector, policymakers including People Living with HIV (PLHIV). Participants were divided according to four pillars to discuss challenges and recommendations. The groups identified enablers and systems to attain targets for each pillar and reported back in plenary session, inputs were made and next steps agreed on.

Results: Score card and poster showed state of Nigeria HIV prevention in 2019 and key messages. New HIV infections among adults rose by 8% from 2010-2018. Condom use among adolescents is poor (females 38%, males 62%). Also, programmes integrating HIV with Sexual and Reproductive Health among AGYW are insufficient. Sex workers (98%) use condoms with clients while condom use among MSM is low (51%). Condom use in general population with non-regular partner is low, but higher among males (65%) than females (36%). Only 41% PWIDs adopt safe injection practices. PrEP wasn't implemented in 2019, however, PrEP will be provided to KPs in 2020.

Conclusion: In Nigeria, 1 million of 1.9 million PLHIV are on treatment, yet new infections is rising. To end AIDS, Nigeria must strengthen primary prevention (including PMTCT) in high burden and incidence locations and populations. Prevention programmes should be reviewed against prevention targets to measure progress and hold policy makers accountable. Fund allocation for prevention, needs to increase in line with globally recommended 'quarter for prevention.

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Human Leukocyte Antigen-C and Haplotypes and their associations with Resistance and Susceptibility in HIV-1 Infection among Serodiscordant Couples in Nigeria

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Background: Certain risk factors have been incriminated in aiding HIV-1 transmission in serodiscordant couples and this include; age, sex, and inconsistent condom use. The Human Leucocyte Antigen (HLA) class-1 is also known to play significant role in mediating resistance or susceptibility to HIV infection in the clinical course of AIDS. Recent studies have identified HLA-C as a key molecule that affects HIV disease progression. However, the role of HLA class 1 in heterosexual HIV-1 susceptibility or resistance in serodiscordant couples is not known in Nigeria. Therefore, this study evaluated the association between Human Leucocyte Antigen-C susceptibility and resistance in HIV-1 transmission amongst heterosexual serodiscordant couples in Nigeria.

Methods: A total of 271 serodiscordant and concordant HIV positive and negative couples who gave informed consent were enrolled into this study. Extracted genomic DNA was sequenced for both high and low resolutions of HLA-C class 1 genotypes using allele-specific primers (on exons 2 and 3). Demographic information was collected, using interviewer administered questionnaires.

Results: The highest frequency distribution of high-resolution HLA-C alleles observed in the HIV positive subject's HLA-C*040101 72(34.5%) followed by C*0701 57 (24.2%) and the partners were: C*040101 106(39.0%) followed by C*0701 86(31.6%). Allele C*070201(P<0.06) and C*0804 (P<0.004) were found to be independently associated with HIV-1 susceptibility in the cohort. HLA-C*0802 (P<0.005) and C*0304 (P<0.002) were significantly associated with HIV-1 resistance to HIV-1 infection.

Conclusion: This suggest that HLA-C specific CD4+ T-cell responses are an important factor in the resistance and susceptibility to HIV-1 infections in serodiscordant couples which may contribute to the development of effective vaccines in Nigeria.

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Vaccine development & participation in sub Saharan Africa: how willing are young people in Western Nigeria

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Background: An estimated 36.7 million people live with HIV/AIDS in 2015, with more than 3 million people living with the virus in Nigeria, ranking the country among the top three most affected. Because adults are mostly affected by this epidemic, their inclusion in HIV vaccine trials is of utmost importance in obtaining an effective and acceptable vaccine. This study is thus aimed at evaluating the factors determining adults (young persons) willingness-to-participate (WTP) as well as their entire knowledge and perception about HIV vaccine trials.

Materials/methods: Data was obtained from 3500 young persons (18-49 years) recruited by a multi-stage sample technique. The cross-sectional study was carried out using a face-to-face interview. An informed consent was obtained through a pre-tested structured questionnaire, with questions addressing socio-demographics, HIV vaccine studies knowledge and perception, sexual behaviour and possible stigma from HIV vaccine trial participation. Data was analysed using SPSS software, with significance fixed at $P<0.05$.

Results: The mean age ± SD was 27.53 ± 3.46 years. 1094 (31.3%) expressed their willingness to definitely participate in the vaccine studies while 999 (28.5%) reported that they may participate especially if a very tangible incentive will be given. Unwillingness to participate was associated with safety concerns (12.0), side effects (5.0%), fear of HIV infection from vaccine (4.1%), time required for study (1.9%) and partner's sexual intercourse refusal (1.2%). 983 (28.3%) reported people in good health, HIV negative individuals and at low risk of HIV infection, are eligible for HIV vaccine trial. There was a significant association between willingness to participate in HIV vaccine trials and age as well as gender.

Conclusions: Participation in an HIV vaccine trial in a Nigerian context is likely to be influenced by comprehensive education about the vaccine trial concept, addressing issues relating to concerns and possible risks pertaining to participation as well as incentives, as the WTP in the vaccine trial is quite low probably due to the participants' perception and inadequate knowledge as evidenced in this research.

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Differentiation of HIV treatment delivery in sub-Saharan Africa shows limited opportunity for provider cost reduction: evidence from Lesotho, Uganda, and Zambia

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Background: Anticipated benefits of differentiated service delivery (DSD) models for HIV treatment include reduced costs to providers, but little evidence of such savings exists. A recent literature review found only one DSD model cost estimate since 2016 based on actual resource utilization. We report primary data estimates of provider costs from cohorts of patients enrolled in DSD models in three sub-Saharan Africa countries.

Methods: DSD model costs were estimated in Lesotho, Uganda, and Zambia based on patient-level resource usage. Patient data were collected 2014-2019 and cost data in 2018-19. Models varied by patient eligibility criteria and by completeness and quality of data available. For all countries, cost estimates included all ARV medications, laboratory tests, clinic visits, medication delivery, off-site DSD interactions, and infrastructure and other fixed costs. Estimates for Uganda also included some costs of OI treatment and some above-facility level costs for implementing partners. We synthesized estimates of provider costs/patient/year and compared them to conventional or standard care costs.

Results: Costs of DSD models ranged from 3% less to 62% more than conventional care. In Lesotho, community ART groups (CAGs) with 3-month refills and community distribution with 6-month refills both cost roughly the same as conventional care ($107, $108, and $109/patient/year, respectively). In Uganda, fast track delivery at the facility ($185/patient/year), community outreach points ($167), and facility-based groups ($163) all cost somewhat more than facility-based individual management (conventional care, $158); CAGs cost slightly less ($153). In Zambia, all DSD models cost substantially more than conventional care ($100/patient/year): mobile ART outreach ($122), home delivery by community health workers ($162), urban adherence groups ($154), and CAGs ($123).

Cost differences among DSD models and between conventional and differentiated care can be explained by differences in 1) patient populations (e.g. proportion of second-line patients in the model); 2) guideline compliance (e.g. compliance within model with recommended duration of dispensing or proportion who receive annual viral load tests); 3) additional services included in the model (e.g. OI treatment); 4) resources required for the services included (e.g. numbers of interactions with patients required by models, numbers and cadres of staff involved, transportation requirements); and 5) unit costs of resources in each country.

Conclusions: In Lesotho, Uganda, and Zambia, DSD models did not meaningfully reduce costs to service providers, and some models increased costs substantially. More expensive models may be worthwhile if they improve outcomes, extend access to hard-to-reach patients, or reduce patient costs, and they may have other important benefits, but they should not be regarded as a strategy for budget reduction. Research is needed on if and how facilities and programs reallocate existing resources (e.g. clinicians' time) in response to DSD models, to determine if healthcare system quality or capacity is affected by the use of non-conventional models of care.

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POOLING SPUTUM SAMPLES FOR GENEXPERT TB TESTING IN HIV POSITIVE WOMEN IN LILONGWE, MALAWI: A COST-SAVING METHOD

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Background: Although preventable and curable, Tuberculosis (TB) remains the top infectious killer worldwide. Among HIV positive mothers, TB is associated with more than double the risk of vertical HIV transmission to the unborn child. In people living with HIV, the World Health Organisation recommends using GeneXpert, a Nucleic Acid Amplification Technique, for diagnosis and screening. However, in resource-limited countries, GeneXpert use is limited by running costs hence the need to explore cost-saving methods. We explored whether pooling sputum samples could be a cost-saving strategy in HIV positive women being screened for TB in a low income, high-HIV-prevalence setting.

Methods: This was a pre-test post-test quasi-experimental study. Women attending ART clinic in Lilongwe were screened for TB using single cartridge per sample during the first phase and pooling (4 samples per pool) method during the second phase. The pre-pooling phase run from October 2015 to April 2017. A patient submitted a sputum sample and results would be out in two hours. The patient would get the results same-day or on next visit.

The pooling phase run from May 2017 to May 2019. A sputum sample was submitted and the laboratory waited for the samples to reach pool size. Equal sputum volumes were collected from each sample and pooled into a single container for preparation. The pooled sample was transferred into a GeneXpert cartridge for testing. A negative pool result meant all four samples were negative. A positive pool meant at least one of the pooled samples was positive so individual stored samples would be tested individually to find the positive sample. Data was captured in Excel sheet and analysed in Stata14SE. Proportions were calculated. Costs and time savings were calculated on the basis of the number of cartridges that would have been required to test all samples using an individual testing strategy at $9.98 per cartridge, and two hours for each test.

Results: From a total of 1966 sputum samples, 928 samples were tested individually and 1038 using pooling method (258 pools and 6 individual tests). Four (0.43%) of 928 samples were positive. In the pooling phase, only one sample was positive (0.10%). Two of the five positive samples were rifampicin resistant. One (0.39%) of the 258 pools was positive.
The pre-pooling phase used 928 cartridges costing US$9261.44. The 6 individual tests and 258 pools in the pooling phase used 264 cartridges costing US$2634.72. Total savings for using the pooling strategy were US$ 7724.52 (74.57%). The pre-pooling and pooling phases used 1856 and 528 test hours respectively. 1548 (74.45%) hours were saved by pooling method.

Conclusion: The pooling strategy reduced cartridge costs and patient testing time by 74.57%. Pooling strategy reduced costs and time, and has the potential to increase the affordability of GeneXpert in countries with limited resources. The high percentage of the costs saved was hugely due to the significantly low prevalence of TB in the target population, owing to viral suppression.

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Economic evaluation of differentiated service delivery models for ART service delivery in Lesotho: cost to provider and cost to patient

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Introduction: Lesotho, the country with the second highest HIV prevalence (23.6%) in the world, has made considerable progress towards achieving UNAIDS' "95-95-95" targets. Recent success in improving treatment access to all known HIV positive individuals has severely strained existing healthcare infrastructure and financial and human resources. Lesotho has a largely rural population, creating a significant burden to patients in terms of time and financial costs to visit healthcare facilities. With data from a cluster randomised non-inferiority trial of community-based differentiated models of multi-month ART delivery implemented in 2017-2019, we evaluated the impact of differentiated service delivery (DSD) models for ART delivery on costs to the provider and patient in Lesotho.

Materials & Methods: For this analysis, we estimated the total cost per patient retained 12 months after entry into a DSD model. We evaluated the standard of care (SOC) (quarterly facility visits and ART dispensing), community adherence groups with 3-month dispensing (CAGs), and community ART distribution with 6-month dispensing. We calculated the cost per patient treated from provider and patient perspectives and the cost per patient retained from the provider perspective. Provider costs included medications, laboratory tests, clinical visits, and interactions with DSD models. Patient costs included transport time and opportunity costs to clinical visits and interactions with DSD models. Costs are reported in 2018 USD.

Results: The 12-month retention rates and average annual costs of providing HIV care and treatment were comparable across all three study arms: 97.1% retention and $108.58 (SD $21.55) average annual cost per patient in the SOC arm, 96.5% retention and $107.35 (SD $21.52) average annual cost per patient in the 3-month CAG arm, and 94.7% retention and $107.50 (SD $20.29) average annual cost per patient in the 6-month community ART distribution arm. Given the similar retention rates, the annual costs per person retained were also similar among arms: $111.93 (SD $22.22), $110.66 (SD $22.18), and $113.16 (SD $21.36) per person retained in the SOC, 3-month CAG, and 6-month community distribution arms respectively. There was a large reduction in patient costs, however, for both DSD arms, from $44.42 (SD $12.06) per patient per year in the SOC compared to $16.34 (SD $5.11) in the 3-month CAG arm (a 63% reduction in annual patient costs) and $18.77 (SD $8.31) in the 6-month community distribution arm (58% reduction in annual patient costs compared to the SOC).

Conclusions: In Lesotho, community-based DSD models for HIV treatment are not likely to reduce costs for providers. They offer a substantial savings to patients, however, and may thereby support long-term adherence and retention in care.

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Facility-based testing strategies can be effective at substantially increasing number of men tested for HIV in Malawi: results from a data-driven mathematical model

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Introduction: Provider-initiated-testing-and-counseling (PITC), while recommended in Malawi, is not routinely implemented for those in need of testing. Men are especially missed from PITC strategies as they primarily access care at outpatient departments. Using results from a community-representative survey in Malawi, we developed a national model to predict the number of men with unknown HIV status that would be reached by increased PITC coverage.

Materials & Methods: The survey used to parameterize the model (men aged 15-64, across 36 villages in Southern/Central Malawi) included questions on recent facility attendance, HIV testing history, and willingness to use HIV self-testing (HIVST). We estimated the number of men to be tested within a 24-month period if 1) standard of care (SOC) PITC continues (using an extrapolation of number of men tested April-June 2019 at the facility-level); 2) active-PITC: testing offered at ≥50% of all facility visits of never- and not-recently tested men; and 3) facility-based HIVST was offered in addition to SOC (FB-HIVST+SOC). All projections were age- and region-adjusted.

Results: A high percentage of never-HIV-tested or not-recently-HIV-tested men reported visiting a facility in the past 24-months (84.3%), of which just 8.3% were offered HIV testing through PITC. 5.9% refused PITC, and among those, 82% indicated they would test using HIVST. Over a 24-month period, we estimate that 1.71 million men will learn their HIV status through current SOC PITC efforts – implementation of active-PITC would increase number of men tested by 37.3% (to 2.34 million). We expect an increase of 51.5% (to 2.59 million) with the introduction of FB-HIVST+SOC compared to SOC alone. Importantly, these increases are expected to be entirely among men in need of testing (never-testers or not-recently-tested). The model estimates that 172,000 (3.99%) of Malawian men would not be reached with facility-based HIV testing as they have either have not visited a facility in the past 24 months (156,000 men) or actively refused PITC and would not use HIVST (16,000 men).

Conclusions: Facility-based HIV-testing strategies are estimated to be successful in reaching a substantial proportion of men. An assessment of the full cost and human resource requirements of active-PITC and FB-HIVST will be required to assess the feasibility of each testing strategy.

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Reaching the first 90: Early results of implementation of a national voluntary assisted partner notification program to increase HIV case finding in rural Malawi

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Background: Voluntary assisted partner notification (VAPN) involves health care providers (HCP) offering HIV-positive persons (index cases) assistance with recruitment and HIV testing of contacts (sexual partners). VAPN has been shown to be effective in increasing identification of HIV-positive individuals in research settings and is endorsed by the World Health Organization. However, data demonstrating the impact of VAPN on index case testing in routine program settings in rural Africa is limited. In early 2019, Malawi began implementing VAPN as a routine part of national HIV testing services (HTS). We conducted a pre/post evaluation to assess changes in index case testing indicators before and after implementation of VAPN in rural Malawi.

Methods: In July 2019, VAPN implementation began at 36 health facilities in Mangochi, district (HIV prevalence 10.1%) following a two-day lay HCP training. Prior to VAPN, only passive referral (where index clients recruit their contacts for HTS without HCP support) was occurring. The training included didactics on the rationale, benefits and principles of VAPN using three assisted partner notification approaches: 1) contract referral (when the provider calls the contacts directly and follow-up them if they do not report to the clinic during the agreed two weeks); 2) provider referral (provider calls the contacts directly); 3) dual referral (when the index agrees to bring his contact to the clinic for consented disclosure of their HIV status with support from provider). Interactive learning through role plays allowed HCWs to practice offering VAPN as a choice to patients. Routine facility-level data were abstracted from clinical registers pre VAPN implementation (January-June 2019) and post (July-December 2019). We conducted a pre/post evaluation to assess changes in the mean number of index clients screened for index case testing and mean number of contacts elicited (paired t-test) as well as proportion of and yield of contacts tested (Chi-square test).

Results: Post VAPN implementation, mean number of index clients screened increased (pre=12.0, post=38.2, p<0.001), mean number of contacts elicited also increased (pre= 7.4, post=19.4, p<0.001), and proportion of contacts returning for HTS increased (pre=35%, post=46%, p=0.03) per facility per month. The percentage of contacts diagnosed HIV-positive per facility per month remained stable (pre=35%, post=29%, p=0.21). Post-implementation, 68% of index clients with contacts chose VAPN over passive methods. In the post period 71% (972/1361) of all HTS for sexual partners was through VAPN.

Conclusion: VAPN implementation using lay HCP in a rural setting improved various outcomes along the index case testing cascade. However, not all contacts reported for testing and no improvements were observed in the HIV testing yield. Therefore, other strategies are required to increase the proportion of contacts returning for HTS.

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Leveraging on Index Client Testing to optimize HIV case identification in Uganda. A country progress

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Background: Index client testing using the Assisted Partner Notification (APN) approach was introduced in Uganda in 2018 through feasibility pilot studies. By September 2019, 1,225 out of the 2,800 targeted health facilities were implementing APN. We present an updated 12 months (July 18-June 2019) APN implementation cascade, successes, challenges and next steps.

Materials and Methods: The country adopted WHO APN guidelines in 2017. Data capture and reporting tools (HMIS) were developed together with the APN training curriculum. Capacity building through national and regional trainings was conducted in Mid-July 2017 and implementation started same month, using a scale up approach. We conducted 3 days' facility based training of health workers in APN and implementation at trained facilities started same week. APN data was analysed quarterly at Ministry of health level, dis-aggregated by gender.

Results: A total of 152,512 index clients (58% females, 42% males) were eligible for APN, of these, 65% (n=99,155, 59% females, 41% males) were interviewed, enlisting 146,961 (48% females, 52% males) sexual contacts in the last 12 months. Of the enlisted sexual contacts, 82% (n=124,391, 42% females, 58% males) were notified about their potential exposure to HIV and of these 75% (n=92,624, 50% females, 50% males) were tested for HIV with 22,970 (55% females,45% males) clients testing HIV positive hence a yield of 25% (28% in females, 22% in males. Of the newly identified HIV positive, 94% (n=21,224, 91% females and 95% males) were linked to care. A total of 15,338 (54% females, n=11,461, and 47% males, n=7,282) representing 12% of all those that had been contacted were found to be already in care.

Conclusions: Index client testing using the APN approach is a very good at identifying un-diagnosed people living with HIV including me. Up to 40% of new HIV diagnoses in Uganda have been planned to be identified through APN. Success factors to APN scale up include a national pool of trainers for APN who support regions and districts quarterly, decentralizing HTS from facility to community testing as well, a supportive policy environment under which index testing is implemented and regular mentor-ships to front line health workers. APN however is labor intensive and requires human resource, financial and materials resources investment. Client loss along the cascade was observed. Next steps shall focus on curbing losses along the cascade, a study about APN investment case and scaling up to more health facilities.

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Utilization of surge strategy to accelerate HIV case finding through index partner testing: Lessons learnt from Iringa and Morogoro regions in Tanzania

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Background: Reaching the first 90 in Tanzania is still a challenge, according to Tanzania HIV impact survey in 2016/2017, only 61% of People Living with HIV(PLHIV) were aware of their HIV status. USAID Boresha Afya Southern Zone Program implemented surge approach in its two supported regions with high HIV burden. Surge was conducted for a period of six weeks and index testing among sexual contacts was one of the main strategies used for HIV case finding.

Materials and Methods: Surge was implemented in Iringa and Morogoro regions in 83 priority high volume facilities but was scaled in facilities with hotspots as catchment areas. Implementation index testing through surge involved listing PLHIV enrolled in care and treatment between April and August 2019 and initiating elicitation campaigns. Index contacts with missed opportunity for testing were actively tracked through assisted partner notification methods. Program technical staff were assigned as facility backstops and sensitization of the regional, district, and facility-level management teams was done. PLHIV peers volunteering at HIV clinics were actively engaged in tracking index contacts. In facilities with limited human resources, additional testers were deployed to overcome the deficit. Index elicitation and testing was extended beyond working hours and during weekends.

Results: A total of 20,363 sexual contacts were tested during the surge implementation period which was more than three times increase compared to pre-surge period (6,073). Positive cases identified among sexual contacts tested were 6,381, males were 2,969 (47%) and females were 3,412 (53%). Positive sexual contacts identified during surge period were 2.5 times higher compared to pre-surge period (2,592) and contributed to 76% of the total positive cases identified (8,319) in the two regions. A decrease in yield from 43% in pre-surge period to 31% during surge period was due to increased testing coverage. The yield for females during surge was significantly high 33% (p=.00001, 95%CI 32% -34%) compared to male positive yield of 30%.

Conclusions: The results showed effectiveness of surge approach in accelerating HIV case finding through index sexual partners testing. Further, close site monitoring, involvement of regional and district health management teams and daily data monitoring for continuous improvement were key to the success of surge implementation.

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Improving access to HIV Testing Services through using a peer led HIV screening model.

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Background: Testing for HIV is the entry point to HIV prevention and treatment services. This is essential to ending AIDS by 2030. Programmatic data indicates that 53% of adolescents and young people do not know their HIV status in Zimbabwe. Therefore, the unmet need for HIV testing services (HTS), particularly for this special group remains a hindrance for epidemic control. This points out the need of adopting innovative mobile accessible HTS to clients at risk of contracting HIV. It is against this background, that HIV-Self Testing (HIV/ST) is an alternative which provide clients with an opportunity to screen themselves for HIV.

Methods: Africaid is implementing a Community Based Project aimed at improving children, adolescents and young people's experiences of HTS, diagnosis and linkage to care and treatment support in Zimbabwe. Africaid is piloting the distribution of HIV/ST within communities through working with Community Adolescent Treatment Supporters (CATS) aged 18-24 years in Chipinge, Bulawayo, Makoni, Chitungwiza, Bulilima, Mutare, Buhera, Gutu, Masvingo, Gweru and Mwenezi districts. These community based cadres openly living with HIV work between the homes to mobilize their peers and provide them with HIV/ST kits.

Results: Through the index case tracing strategy, CATS distributed 1919 HIV/ST kits to young people (16-24 years) from September-December 2018. A total of 70 clients had reactive tests and where linked to health facilities for confirmatory testing. The 70 clients all tested positive and were successfully initiated on ART. HIV/ST motivates distributors as it makes them feel like direct service providers when they provide HIV/ST kits to their peers. The pre and post-test counselling provided by the lay cadres assisted clients who tested positive to visit clinics for confirmatory tests & ART initiation.

Conclusions: HIV/ST provided young people (18-24yrs) who were reluctant to visit clinics with an opportunity to screen themselves for HIV whilst at home. HIV/ST demonstrated that utilization of a peer led distribution model appeals to young people as they are able to receive support from the CATS. HIV/ST will continue to be explored in other districts to target young people in areas with high artisanal mining activities, border towns and in areas with mobile populations.

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Improving HIV testing efficiency through screening for eligibility before testing in Uganda: A review of the HIV screening tool's diagnostic characteristics

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Background: Uganda has an HIV prevalence of 6.2% with an average positivity rate of 3.3% as by June 2019. Up to 230,000 people living with HIV have been targeted for identification by 2020. Amidst dwindling HIV prevention resources, there is need to improve the testing efficiencies including client screening before HIV testing. We present findings from field testing of a national HIV Testing Services (HTS) eligibility screening tool which is under development.

Materials and Methods: Ministry of Health first developed an adult HIV screening tool in 2018 with the aim of providing targeted HIV testing. The tool was revised in 2019 to improve its ease of use and targeted clients aged 15 years and above who seek HIV testing at outpatient departments. The tool was field tested for 6 weeks (October-November 2019) in 24 health facilities purposively selected across the country basing on regional HIV prevalence and client volume. All screened clients (irrespective of their eligibility) were subjected to the National HIV Testing algorithm after consenting for HIV testing. Data were collected by health workers through customized field testing tools. Data analysis was performed using SPPS version 20 to determine the diagnostic characteristics of the screening tool.

Results: A total of 21,819 clients were screened for HIV testing eligibility, 66% (n=14,442) were females. The minimum and maximum ages were 15 and 75 years respectively. The mean and model ages were 29 and 20 years respectively. The tool categorized 79.5% (n=17,340) of all screened clients as eligible and 20.5% (4,479) as not eligible for HIV testing. Up to 3.9% (n=860) of all screened clients were confirmed HIV positive. The positivity rate was higher among the eligible clients (4.6%, n=800) compared to ineligible clients (1.3%, n=60) representing 7% false negatives screening results (60/860). Those found to be eligible for HIV testing but tested HIV Negative were 16,540 while the ineligible clients who tested HIV negative were 4,419. Overall, the screening tool had a sensitivity of 93% and a specificity of 21%, predictive value positive was 4.6%, while the predicate value negative was 98.7%. The positive and negative likelihood ratios were 1.2 and 0.3 respectively. The sensitivity varied from region to region as well as among health facility levels.

Conclusions: HIV Risk screening before testing using the eligibility screening tool is useful as it saves resources and maximizes identification of people living with HIV. The high sensitivity of the screening tool makes it ideal for triaging clients for HIV testing. Next steps will involve refining the tool to drop less sensitive questions, scientific validation of the tool and rolling it out for national use.

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Effectiveness of assisted partner notification services to HIV Test and Treat Men in Western Kenya; (aPS Scale Up Study)

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Background: Assisted partner services (aPS) or provider notification for sexual partners of persons diagnosed HIV-positive can increase HIV testing and linkage in sub-Saharan Africa (SSA) and is a high yield strategy to identify HIV-positive persons.

Methods: We offered aPNS services in health facilities in Western Kenya. This are findings on effectiveness of aPNS from an ongoing scale up study in Western Kenya. aPS was scaled up since May 2018 by the Ministry of Health in collaboration with Afya Ziwani Program in 16 health facilities in Kisumu County and 15 sites in Homa Bay County. Newly diagnosed HIV-positive females of 15 years and above were screened for eligibility, consented and offered aPS. Those who accepted provided contact and locator information for all male sexual partners. Healthcare providers notified the male partners of their potential HIV exposure and provided HIV testing and referral services for linkage to care or HIV prevention services.

Results: In total, 28075 women were tested and 1260 (yield of 4.5%) were newly diagnosed. The participants were screened for eligibility into the study and 1051 (83%) were enrolled into the study. The female index were elicited for sexual partners, they reported 1825 male sexual partners (partner to index ratio=1.7). The male partners identified by the female index were traced and offered HIV testing services. Overall, 1340 (73%) of male partners named were contacted and tested for HIV. Of partners enrolled, 588(56%) were known positives and newly diagnosed HIV-positive. The male partners identified who were new positives were 227 (38%) and 361(61%) were known HIV-positive. Majority of partners who were known positive were already on ART (95%).

Conclusion: This pilot program provides evidence of the effectiveness of a partner notification program implemented in real-world settings. Testing of male sexual partners of newly diagnosed HIV-positive female clients is a high yield strategy to reaching newly diagnosed HIV positive persons. Partner notification program was feasible and acceptable to the users and identified a high proportion of newly diagnosed HIV-infected participants previously unaware of their status, aPNS therefore is an effective strategy to increasing uptake of partner HIV testing within routine healthcare settings.

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Acceptability, feasibility, and preference for youth HIV self-testing distribution programs at tertiary level colleges in Zimbabwe

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Background: Oral mucosal transudate (OMT) HIV self-testing may be a method to augment HIV testing services, serving as an entry point for youth to engage with HIV prevention and care cascade. We assess the feasibility of HIV OMT self-test distribution at tertiary level colleges in Zimbabwe, and examine factors associated with uptake of HIV self-testing off-site.

Methods: Youth 16-24 years old, who had not taken an HIV test in the past 3 months or of unknown HIV status, were offered an HIV OMT self-test at selected tertiary level colleges in Zimbabwe. Distribution points on campus were chosen through social mapping in Harare, Masvingo and Bindura, Zimbabwe. Youth had the option to perform the self-test on-site in a private booth, or off-site in a location of their choice. Feedback of results was in person, via Whats App or use of a free-to-use mobile application. After one month of distribution, blood based confirmatory testing was offered using SD Standard Q HIV ½ Ab 4-Line® and Chembio HIV ½ Stat-Pak®. Participants with reactive test results self-reported linkage to care via a follow-up phone call. Sociodemographics including HIV testing history and condom use at last sexual intercourse were collected using Survey CTO® encrypted software. Multivariate logistic regression analysis explored factors associated with testing off-site. In-depth interviews and focus group discussions were conducted and explored preferences and experiences of on or off-site testing. Qualitative data were analyzed through thematic coding using NVIVO12.

Results: Over a period of 111 days, 4,825 youth received a HIV OMT self-test kit; 3,138 (65%) female, median age 21 years (IQR 20-23). Overall, 1,749 (36%) youth were first time testers, and 2,085 (43%) had previously heard of a HIV self-test. Off-site testing was chosen by 2,989 (62%) youth, of which 1,082 (36%) reported their results. In total, 2,751 (57%) results were received; 41 (1.5%) were reactive, 12 were confirmed positive (of whom 7 linked to care within one month of testing) 2 were confirmed negative on parallel blood-based testing. Use of condom at last sexual intercourse was associated with opting to test off-site (a0R 1.3 (C.I. 1.2-1.6; p<0.001). In-depth interview and focus group data showed that HIV OMT self-test distribution programs at tertiary level colleges were highly accepted. Participants who tested off-site, reported increased convenience and privacy influenced their choice of where to test. Participants who tested on-site reported their desire for support and fear of testing alone, influenced their choice of testing location. All participants agreed that HIV OMT self-test distribution programs at tertiary level colleges should offer both on and off-site testing, with referrals to diverse support services.

Conclusions: HIV OMT self-test programs may facilitate routine testing in this age group by allowing individuals to determine the level of support needed during the testing experience. Awareness campaigns on how to use and interpret HIV OMT self-testing may increase youth's confidence in opting to test privately. Given the low HIV prevalence reported,efforts to link to HIV prevention services should be included. Efforts are needed to understand seamless linkage to care for those testing reactive.

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Closing the Gap: Using the PLHIV Tracker to Enhance Linkage, Retention, and Viral Load Monitoring for Key Populations in Kenya

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Background: Tracking service delivery across the continuum of care is critical for monitoring HIV prevention, care, and treatment for key population (KP) programs. Within the PEPFAR/USAID-funded LINKAGES project in Kenya, more than 85% of HIV-positive KP members are enrolled in link-facilities while 25% are at community-run drop-in centers, making it difficult to monitor outcomes. LINKAGES introduced a system in FY18 to track linkage to HIV treatment, care, retention, and viral suppression for people living with HIV (PLHIV).

Methods: In collaboration with the Ministry of Health and the KP community, LINKAGES Kenya developed a PLHIV-Tracker, a spreadsheet for following up all PLHIV identified. The Tracker was customized from the antiretroviral therapy (ART) cohort register with additional conditional formats to flag outliers such as those due for viral load testing. Built-in summaries aggregate monthly results for effective, efficient reports.
Every month, clinical service providers engage with PLHIV during outreaches, visit the linked facilities, and update the tracker. At the end of the reporting period outcomes were recorded and gaps, such as low viral load uptake, were apparent. Engagement with the linked facilities' in-charges was intensified to follow up PLHIV across the continuum to ensure optimal treatment outcomes.

Results: By end of September 2019, all PLHIV could be accounted for in all facilities. Linkage to ART improved from 50% in Q1 FY18 to 96% in Q4 FY19. Retention in care and treatment among PLHIV enrolled at the linked facilities improved from 78%(FY18) to 93%(FY19). Viral-load testing coverage improved from 32% to 74% and suppression from 87% to 95% due to improved collaboration with linked facilities and intensified support for adherence. The PLHIV-Tracker has been adopted and rolled out by the national government to other KP programs that do not provide treatment at their sites but refer clients to linked facilities.

Conclusions: The PLHIV-Tracker is a key strategy for accounting for care and treatment outcomes for PLHIV among KPs. To reach epidemic control, monitoring and accounting for every PLHIV identified is crucial irrespective of where they access treatment. For programs offering only HIV prevention services and referral for clinical services, the PLHIV-Tracker is critical for monitoring outcomes.

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Prevention 2.0: Social networks, virtual hotspots and peer online mobilizers – information and communication technologies in the fight against HIV for key populations in Cameroon

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Background: FSW and MSM in Cameroon have high burden of HIV and face multiple barriers to accessing HIV services. The 'Continuum of prevention, care and treatment of HIV/AIDS with Most-at-risk Populations' (CHAMP) program provides community-based services to key populations (KP). From March 2019 CHAMP piloted an approach to increase reach and recruitment of KP through social media platforms.

Materials & Methods: CHAMP developed a youth-friendly Facebook page to provide approachable information on HIV and sexual health in vernacular language and promote services in Yaounde and Douala. Online peer mobilizers used professional profiles in Facebook and WhatsApp to reach KP in virtual hotspots. Mobilizers combined social profile outreach through weekly content sharing and 'boosts' targeted to specific key population groups with one-on-one online outreach. Guided by a message matrix, mobilizers sensitized online users on HIV/STI prevention, offered risk assessments, and mobilized individuals for HIV testing services (HTS). They also accompanied individuals to community-health services. Monitoring and evaluation tools were adapted to track online-to-offline mobilization.

Results: From March–September 2019, the CHAMP Facebook page obtained 1.9K followers. Online mobilizers conversed with 1,138 individuals and assessed risk among 487 individuals. All were referred for HTS and 186/487 (38%) accessed HTS at CHAMP facilities. All were new to CHAMP. Online-referred tests accounted for 3% (161/5,527) and <1% (25/8,722) of all tests among MSM and FSW respectively. Among online clients tested, 15% (27/186) were diagnosed with HIV and 78% (21/27) were linked to treatment. Among those testing HIV-negative, 34/159 (21%) were initiated on PrEP, accounting for 16% (34/208) of all individuals initiated on PrEP during the evaluation period.

Online mobilization was more successful at reaching MSM (87% of those reached) than FSW. Concerns regarding legal repercussions influenced the transience of virtual hotspots, deterred FSW from engaging, and required repeated online mapping. Clients expressed appreciation for online-to-offline support, and based on client feedback, this continuity encouraged some individuals to accept testing.

Conclusions: Online mobilization is a successful strategy in Cameroon for engaging individuals at high risk of HIV, especially harder-to-reach MSM. It shows potential to strengthen engagement in socio-political circumstances which challenge access, such as community stigma, violence, and unrest. A substantial proportion of online clients progressed to offline services, and online clients made a meaningful contribution to PrEP initiation. Impact may be expanded through involvement of community influencers, ongoing empowerment of peer mobilizers, and increased online campaigns.

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Promoting uptake of HIV services using social media interventions among Men who have Sex with Men (MSM) in Ghana

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Issue: Social media is gradually becoming a safe environment for communication and information sharing among men who have sex with men (MSM) in Ghana. MSM are increasingly soliciting clients and potential sexual partners through social media platforms rather than geographic hotspots.
Due to stigma, discrimination and societal exclusion, some MSM are "hidden" and engage in risky sexual behaviors, but are not reached by HIV programs targeted at physical outreach locations. A differential approach to community mobilization on social media platforms was introduced to increase uptake of HIV testing among hidden MSM in Cape Coast, Ghana.

Description: A social media mobilizer was trained to engage hard-to-reach MSM through social networking platforms such as Facebook, Badoo, WhatsApp groups, Grindr and Instagram. IEC materials were developed and posted on selected social media platforms to raise awareness regarding HIV services among the hidden population.

MSM who accessed these platforms were engaged through a one–on-one interaction and online counselling with confidentiality assurance by the trained mobilizer. MSM recruited were given different timed appointments and encouraged to access services at the Drop-In-Center.

Lessons Learned: Data from January to June 2019 shows that social media reached out to more high risk MSM than through in-person outreach at hotspots. Among 166 new MSM that were recruited through social media and provided with prevention information, 113 (68%) had not been tested for HIV within the last six months.

Comparatively, physical outreach reached 431 new MSM and only 133 (31%) had not been tested within the last six months. 59% of MSM recruited from social media engaged in inconsistent use of condoms for casual anal sex, compared to 38% identified at hotspots.

Additionally, the HIV positivity rate was higher among those tested through social media outreach compared to hotspot outreach. 125 MSM were tested through social media and 32 were diagnosed HIV positive (25.6% HIV+ yield). In contrast, 396 MSM were tested through physical outreach at hotspots and 28 were diagnosed HIV positive (9% HIV+ yield).

Next Steps: Confidential and accessible health services through social media encourages hidden MSM to seek HIV services themselves. There is a high need to invest in newer approaches of HIV programming that take into account the changing times and community dynamics.

Linking MSM to services through social media has shown to deliver higher HIV+ yield among hard to reach MSM. Hence, implementing partners should use social media as an effective tool for sharing behavior change messages to reach hidden MSM.

Social media interventions should be complemented by other participatory community engagement approaches in transitioning KPs reached online to physical outreach points

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Motivators and Barriers to scale-up and functionality of OpenMedical Record System for data capture, reporting and use for monitoring HIV service delivery in Uganda

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Background: Despite intensified efforts to roll-out OpenMedical Records Systems (OpenMRS) to improve the quality of data used for patient care, reporting and monitoring HIV service delivery in Uganda, the system coverage remains low at 63% nationally due to barriers affecting its implementation. This study aimed to investigate the motivators and barriers to OpenMRS scale-up and functionality in Uganda.

Methods: A cross-sectional study done at 78 sites in Fort Portal Region, Uganda in 2019. Health facility OpenMRS Users and District supervisors were interviewed and data on demographics, computer experience, training, system support, motivating factors and barriers was collected. A site was classified as functional if OpenMRS was updated, used for reporting and patient care. We determined the factors associated with OpenMRS functionality using multivariate logistic regression.

Results: Of 159 participants 54.0% were males; median age was 28 years (IQR: 26, 29) for users at functional versus 36 years (IQR: 33, 38) at non-functional sites. 56.6% had received OpenMRS training, 48.4% had basic computer-skills and 70.4% received regular OpenMRS support. 56 (72%) sites had functional OpenMRS. Factors significantly associated with functionality were user's age (p=0.0087), training (p=0.0208) and regular OpenMRS support (p=0.002). Users aged <30 years were 4 times more likely to have functional OpenMRS (aOR =4.57; 1.47-14.25). Users who received didactic OpenMRS training and regular OpenMRS support were 4 times (aOR=3.90; 1.23-12.37) and 7 times (aOR=7.46; 2.59-21.43) more likely to have a functional OpenMRS, respectively. Computer experience (p=0.8604) and gender (p=0.5277) were not associated with OpenMRS functionality. Key motivators of OpenMRS functionality were user's perceived system benefits including simplified reporting and data access for patient management and planning. Barriers to OpenMRS scale-up and functionality were workload, unstable power supply, irregular system maintenance, limited infrastructure, staff capacity and human resource (HR) gaps.

Conclusion: Results showed that younger age, training and EMR support were associated with OpenMRS functionality. Users' perceived benefits was a motivating factor to OpenMRS scale-up and functionality while gaps in infrastructure, power, HR and system maintenance gaps were key barriers. These factors need to be considered when designing interventions to improve functionality and coverage of EMR systems.

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Determinants of Use of Electronic Medical Records systems (EMRS) to Deliver HIV Care in Kenya

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Background: Electronic Health (E-Health) is the development and use of a wide range of ICT systems for healthcare. Application of ICT to manage Patient level health information is expected to improve efficiencies, leading to availability of quality health information for clinical decision support, monitoring and evaluation and delivery of healthcare services and programs.

Problem: The process of adoption and implementation of Electronic Medical Records Systems (EMRS) in Kenya as Patient level HIS for HIV prevention care and treatment was initiated in 2012 (I-TECH, 2015). Unfortunately, these systems remain underutilized or all together abandoned, yet EMRS are known to revolutionize the process by which physicians consult with, educate, and treat their patients (Ackerman et al., 2010). For maximum benefits to be reaped from this implementation, these EMRS needs to be optimally utilized across all categories of targeted users.

Objective: The aim of this study was to understand critical determinants that influence use of EMRs to deliver HIV care in Kenya.

Methodology: We reviewed literature on technology adoption theories and models, with the aim of determining the most appropriate model to adopt for this study. Majorly we focused on the theories and models' strengths and weaknesses in selected case studies where they had been applied in technology adoption studies, their results and the deductions drawn. We therefore adopted and validated the Unified Theory of Acceptance and Use of Technology (UTAUT) model for this study. Questionnaires were pretested to collect quantitative data which was analyzed using SmartPLS 3 to determine the relationships between Independent and Dependent variables through Structural Equation Modelling (SEM).

Results: The results indicate that multiple user-related, institutional, social and behavioral factors were the critical determinants of successful EMR use. For the full data set model Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) account for 58.8% of the variance in Behavioral Intention to Use (BI) and about 56.2% in actual use of EMRS Healthcare workers in HIV Care delivery settings. The influence of PE on BI was moderated by gender such that the effect was stronger for men than women. The effect of EE on BI was moderated by Gender such that effect was stronger for women than men. The effect of FC on BI to use of EMRS was moderated by Experience, such that the effect was strongest with increasing experience.

Conclusion: The study confirms that UTAUT model is applicable in this context but not all the factors currently included in UTAUT explain use of HIS in Kenya. This results also tend to agree with Karuri et al. (2017) that that the strength of factors that determine acceptance and use of health IT varies across different health workers' categories. It is therefore paramount for health care facilities to be accessed for these factors before EMR rollout to ensure optimal use of health IT.

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Sustaining high performance: Use of a Prevention of Mother to Child HIV Transmission (PMTCT) Self-assessment tool to improve facility performance in Phalombe District, Malawi

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Background: Beginning in 2016, Malawi began conducting quarterly PMTCT mentorships at the district-level. During the first year of mentorship, Phalombe district registered significant improvement in its PMTCT indicators, becoming one of the highest performing districts in the country. Due to this success, Phalombe graduated from the mentorship programme in 2017. In order to sustain this high performance, the Phalombe District Health Office developed a facility PMTCT Self-Assessment Tool (PSAT). The tool was designed to guide facilities in collecting data from existing registers to measure their performance for 13 programme indicators each month. In this way, facilities could monitor their own progress outside of national mentorship visits and identify key areas for improvement through the development of facility-specific action plans.

Methods: All 15 public health facilities in Phalombe were oriented to the PSAT during a one-day orientation. Facilities were given a period of two months to use the tool. During this period, supervision and mentorship were conducted by the district PMTCT coordinator. After two months, an evaluation meeting was conducted to assess the outcome and collect feedback from end users. Data from each PSAT was used to measure progress across the 13 indicators. Facilities were then able to compare performance by month to evaluate trends and review action plans.

Results: Across the 6 indicators, there was an average increase of 19% in PMTCT performance. All indicators with improvement of 5% and above were considered statistically significant. The tool has shown that it has potential to improve or sustain facility performance if used consistently. Facilities reported that the tool was helpful and easy to use. Furthermore, there was great improvement (from 27% to 93%) in completeness of the data.

Conclusions: The PMTCT self-assessment tool is a simple, effective that can contribute to improving and sustaining facility performance. The tool will be recommended for continued use in the district, as well as considered for national scale-up for use in other districts to improve performance of the PMTCT programme.

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The effect of WhatsApp platforms on HIV logistics management in Ghana

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Background: Health commodity consumption reports improve management decisions that govern the logistics system and are critical to ensuring the availability of adequate stocks while minimising expi-ry. This is even more important for HIV programmes that require a constant availability of commodities to minimise the development of resistant strains while reducing wastage. However, availability of consump-tion data from Antiretroviral therapy(ART) sites in Ghana has always been a challenge with several unsuc-cessful attempts to address this. This resulted in challenges with availability of commodities.

Previous efforts included the submission of paper-based reports to the regional health directorates. How-ever, reporting rates were very low as several facilities were located very far from the regional capitals. Again, the Ghana Health Service introduced a stand-alone Microsoft Access-based software for facilities. Despite training health workers across the country and procuring the required logistics including comput-ers and printers at huge costs, the system did not produce the desired results and was discontinued soon after implementation.

Methods: In March 2016, the National AIDS/STI Control Programme in collaboration with the Regional Health Directorates, revised the reports submission process following a review of the previous challenges. The core strategy was the creation of Regional HIV Whatsapp® platforms;
•   to send reminders and provide timely logistics management support and
•   to collect monthly logistics reports.
This was to take advantage of the country's 128% mobile phone usage rate (with 90% of them subscribed to the WhatsApp® application). It was, however, complementary to the paper-based and email submission of the reports.

Results: Despite the rapid increase in the number of ART sites over the last three years, the aver-age monthly reporting rate for HIV commodity consumption reports which was virtually non-existent has been consistently high, with yearly averages of 99.8%, 99.5% and 98.8% for 2017, 2018 and 2019 respectively. Stock-out rate of tracer commodities also reduced from 16% in 2017 to less than 1% in 2019.

Conclusion: The success of this intervention has shown the potential of internet-based electronic media in improving reporting of HIV consumption data. Therefore, there is a need to accelerate the ongoing implementation of the electronic Logistics Management Information system in Ghana.

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A Prospective Study of the Effect of Real-time Monitoring of Newly diagnosed HIV+ cases and enrollment lead-time using Mobile Technology among Key Populations in Benue State, Nigeria

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Background: The highly mobile nature of key populations in Nigeria prompts a demand for dynamic instruments to closely monitor newly diagnosed HIV+ cases, and linkage to care processes to tailor interventions that improve health outcomes. Adaptable electronic data capture mobile and server applications provide novel opportunities to inexpensively capture and transmit information that can be instantly visualized by implementing partners to identify cascade areas requiring improvement interventions. The aim of this study was to assess the impact of a real-time dashboard designed to monitor new cases and enrolment lead-time, on HIV testing positivity yield and linkage percentages among key populations in Benue State, Nigeria.

Methods: Demographic, geographic and linkage data was collected from Female Sex Workers (FSW), Men who have Sex with Men (MSM), People Who Inject Drugs (PWID) and Transgenders newly diagnosed as HIV+ at testing and linkage points by community health workers on android mobile devices using ODK Collect (a free data collection app) in 5 Local Governments in Benue State between October and December 2019. Data was transmitted at the time of collection to an online server which instantly fed an online dashboard that was programmed to visualize concentrated areas of new cases and lead-time statistics. Insights from the dashboard were used to feedback evidence-based strategies to improve the HIV initiation-to-care cascade. Yield and linkage percentages were compared to baseline data for each KP group for statistical significance using a paired t-test.

Results: A total of 754 FSW, 532 MSM, 185 PWID, and 11 Transgenders were provided HTS. From baseline, an increase in average percent yield was 1.45%, 1.63%, and -1.25% while the decrease in average lead-time in days was 8.1, 6.2, and 6.5 for FSW, MSM, and PWID categories respectively. No Transgender positive for HIV was identified.

Conclusion: A significant reduction of lead-time was demonstrated in analyzed KP groups. However, more time would be required to accumulate sufficient prevalence data to evaluate the dashboard's effect on yield. Initial implementation challenges notably inconsistent reporting was

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Implementation of Laboratory information Management System (LIMS) for Early Infant Diagnosis and Viral load in Malawi

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Background: Malawi started to advance in Early Infant Diagnosis (EID) activities for HIV exposed infants in 2010. At that time, the country did not have any formal system to manage the data and information for blood samples, testing process, and test results. This lack of proper system to manage EID testing process also made it impossible for the Ministry of Health and Population (MoHP) and stakeholders to have access to the information for decision making as well as to the overall visibility of the initiative

Description: The project began in 2011 in 2 laboratories with the plan to setup and improve data management system for Early Infant Diagnosis (EID) and Viral Load (VL) in all molecular laboratories in the country. The activities completed during the project include system development, implementation, trainings and continuous user support. The system has expanded and is currently running in 10 Molecular laboratories. It has also been integrated to other systems and interfaced with diagnostic machines in the laboratories.

Lessons learned: Throughout the project, we used periodic system reviews to unearth areas of improvement and ensure the system would be user-friendly. Support from MoHP leadership was crucial for the sustainability of the system since the intent is to transition the system to the MoHP, but there is often a lack of resources to absorb all the work needed to design, develop and implement computer systems. Consistent stakeholder engagement and collaboration provided new challenges in timely system implementation due to differences in working styles, cultures and work priorities.

Conclusion: The finding sets out new approach to computer system development for health service delivery. Implementation should revolve around understanding the needs of the MoHP and being flexible to accommodate new requirements as testing protocols in laboratories change in response to program changes. The MoHP to take control and leadership of the development process, having continuous system reviews with users in order to improve the system and continuously make it user friendly and having a dedicated technical team in order to provide timely technical support to users.

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Integrating Mobile Health Engagement into a DREAMS Project to Support Information Dissemination on HIV/AIDs among Adolescent Girls and Young Women.

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Background: The current information dissemination modalities for HIV/AIDS awareness used in Uganda like peer-to-peer models of stepping stones and mass media have challenges that include; a need for large contact time, physical space. In a setting with an adult (15-49 years) HIV/AIDS prevalence of 7.2%, adolescent girls and young women (AGYW) being at higher risk, new demographic specific modalities of cascading HIV/AIDS information are needed. We assessed the feasibility of using mHealth to increase HIV/AIDs awareness among Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program's AGYW in Lango sub-region, Northern Uganda from October 2018 to December 2019.

Methodology: The USAID supported Regional Health Integration to Enhance Services-North, Lango (RHITES-N, Lango) project implements DREAMS activities in 4 districts of the Lango sub-region. AGYW who consented for mHealth had their demographic details (name, age, address, contact) collected and uploaded into an SMS platform (Rapidpro). A 10 question pre-test knowledge assessment on HIV/AIDs awareness was conducted. They then received weekly SMS information on HIV/AIDs awareness including prevention and had 24/7 toll-free access to doctors via a project hotline. A post-test with the same questions as the pre-test was conducted 10 weeks from entry into the SMS campaign to assess improvement in knowledge. Microsoft Excel 2019 was used for data analysis.

Results: 60,649 AGYW consented for mhealth support. 76% (46,094) completed both the pre-test and post-test. Lot Quality Assurance Sampling (LQAS) showed average knowledge on HIV/AIDs among AGYW at the start of the project was 45%. The average post-test result was 84.5%. This demonstrated a 39.5% increment in accuracy of information on HIV/AIDs and thus a decline in the overall number of new HIV infections among AGYW.

Conclusion: Integrating mHealth into the physical training sessions supports information dissemination to support awareness on highly stigmatized issues like HIV/AIDS.

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Integrating Mobile Health Approaches With Facility Based Care To Improve Access And Adherence To Pre-exposure Prophylaxis (Prep) In Lango region, Uganda.

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Issue: Pre-Exposure Prophylaxis (PrEP) as a biomedical HIV prevention modality has been proven to be effective though uptake has remained suboptimal in Uganda with only about 11,500 PrEP users countrywide. Factors like stigma, lack of credible information, lack of service points, and misconceptions about PrEP have been documented to be the drivers of this trend. Mobile Health (mHealth) offers a feasible way to provide remote information support, education and coordination of healthcare. We share our experience of mHealth support for PrEP roll out in the Lango Region of Uganda through the Regional Health Integration to Enhance Services (RHITES) project supported by USAID.

Description/Project Setting: The RHITES project implements PrEP in 2 districts (Lira and Dokolo) with beneficiaries receiving an mHealth package including 24/7 access to doctors via toll free voice line, SMS reminders on facility appointments and access to health content on PrEP use, benefits and side effects. We reviewed electronic medical records and conducted key informant interviews with tele-health providers supporting PrEP clients. Demographic information including age, gender, number of clients in PrEP was analyzed. Open-ended interviewer administered questionnaire was used to evaluate the mHealth package for PrEP clients. Information on adherence and honoring facility appointments was also assessed.

Lessons Learnt: From October 2018 to June 2019 a total of 190 clients (52.6% males and 47.4% females) with a median age of 33 years. The at risk populations included; commercial sex workers (23%), clients of commercial sex workers (10%), discordant couples (60%), and migrant workers (7%) were consented for the mHealth PrEP package. 60% of those under mhealth follow up honor facility appointments, the highest (90%) being among discordant couples, this is higher compared to the 40% reported by MARPI. Health inquiries from the mHealth PrEP beneficiaries cut across various categories including; how to use PrEP (55%), side effects (32%) and myths and misconceptions (13%).

Conclusion: Telehealth has potential for complementing efforts for PrEP roll out through sensitization and credible consultation using tools like SMS and voice calls. Large scale randomized trials and other program experiences are required to provide more evidence for such platforms to be recommended for large scale deployment.

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Establishing threshold of missed telephone calls that predict missed clinic appointment among young adults living with HIV in Uganda.

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Introduction: Increased use of mobile phones in Africa especially among young adults indicate opportunity to use mHealth tools to support retention in HIV care among this population. We aimed at determining optimal threshold number of calls not answered by a young adult to evaluate missed clinic visits from HIV care.

Method: Used data from a mHealth tool (Call for Life Uganda – CFLU) a randomized control trial designed to improve outcomes in people living with HIV (PLHIV) in Uganda through interactive voice response (IVR) and SMS from August 2016 to November 2018. CFLU offered daily pill reminder calls/sms at time scheduled for pills, and scheduled clinic visit appointment reminders. We defined young adult as participant aged below 25 years and missed clinic visit appointment as failure to attend scheduled clinic appointment within 3 working days of scheduled attendance. We described participants using descriptive statistics and used receiver operating characteristic curve (ROC) analysis to determine the optimal cutoff off of percentage calls-not-answered by a patient, including Sensitivity (Sn), specificity (Sp), and area under curve (AUC). Data was analyzed using STATA 14.2 (StataCorp, College Station, TX, USA) and MedCalc software version 19.1.3.

Results: From 300 participants receiving CFLU intervention, 81/300 (27%) were young adults. Majority were females 72/81 (89%) with median (iqr) age of 23.2 (21.6 – 23.8) years. At month 12 study visit, 35/81 (42.6%) of the young adults missed their clinic appointment visit. The overall mean (standard deviation (SD)) percentage of calls not answered by young adults was 59.1% (19.8). The ROC analysis showed that the optimal threshold (cut-off) of percentage of calls not answered by a young adults to miss a scheduled appointment was >54% (95% CI: >39% to >77%), Sn and Sp, 66.7%, 59.5% respectively and AUC 0.659 (95% CI: 0.529 – 0.773; p-value 0.023)

Conclusion: The optimal threshold percentage of calls not answered by young adults of >54 had a high sensitivity for missed appointment to clinic visits and could be used as a screening test among HIV positive young adults on CFLU tool for early detection of would be lost to follow ups in HIV care.

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Tracking Silent Transfers Using Electronic HIV Case Based Surveillance: Experience from Livingstone District in Zambia

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Introductions/background: The generalized HIV epidemic in Africa and other Lower and Middle Income Countries (LMIC) is maturing with most countries adopting and on course toward attaining the UNAIDS fast track epidemic triple 90 goals. With this progress, retention of HIV infected recipient of care has emerged as the prime challenge for most HIV programs in LMIC.
Zambia has about 1.1 million PLHIV diagnosed and on ART. The rate of attrition out of care is estimated at 20% and it was estimated that 150000 HIV recipient of care were lost to follow up (LTFU) in 2019. Silent transfers; the changing of health service point without the knowledge of the care providers, is thought to be the commonest cause of false LTFU. Other causes of LTFU include, unrecorded deaths, defaulting and while others are just uninvestigated.
Zambia has close to 1000 facility with EHR system and the HIV case based surveillance (HIV CBS) system has been operationalized in close to 80 facilities in 6 districts. Livingstone district in southern Zambia is a model district for HIV CBS using EHR in Zambia with all the 25 health facilities equipped with a functional HIV CBS system.
Silent transfers are difficult to measure. They also present a huge false data problem of attrition and are a danger for the correct running of the ART programs. We show cased how HIV case-based surveillance using electronic medical records can be used to identify and restitute for silent transfers.

Methods: An analysis of a list of LTFU and new client from April to October 2019 was retrieved from the HIV-CBS database at a district level from Livingstone district office. A simple de-duplication criterion using Age, Sex, dates of LTFU and initiations into treatment was used to identify possible silent transfers. Client follow up by phone or with physical interview and counterchecking of patient records was done to correct the records and reinitiate some into care. Logistic regression was used to identify possible predictors of LTFU.

Findings: During the targeted 6-month period, 1673 were LTFU in Livingstone district. 305 (18%) were flagged as possible silent transfers using our criteria. Of the 212 clients either physically interviewed or called by phone, 186 (87%) were duplicates and five (5) clients had visited more than 2 facilities in the same period. There was no correlation between age, sex, period of being on ART, health care facility and LTFU.

Conclusion: HIV case-based records at supra-facility level can be used to reliably identify silent transfers using a simple de-duplication criterion. The rate of silent transfers is high and the determinants could be random based on client convenience or social-economic factors. Further studies in the scalability and operationalization of this initiative are required.

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Assessing the response of text messaging to improve retention during the first year of Human Immune deficiency Virus(HIV) care at Uasin Gishu County.

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Background: Retention in care after a positive HIV test ensures timely initiation of antiretroviral therapy (ART) viral suppression and to prevent any other risks of morbidity and mortality. The text messages are sent to the patient when the time to visit the clinic is due.
Objectives
1.	To assess the use of mobile texting among the patients
2.	To assess the response of mobile texts sent from the clinic
3.	To find out he challenges experienced by the patients and the health care workers coordinating via text messaging.

Methods: The intervention uses electronic technology, cell phones and SMS texting through cell phones. Patients due for visit are alerted through a text message on when they should visit the clinic. The patients are alerted that they should expect a text message to remind them of their clinic visits

Results: With a total of 17,500 clients enrolled in care, 10850(62%) of the patients owned cell phones. The majority 8680 (80%) were able to read and interpret the text message. Average time taken to respond after receiving the text message is two days.
Lack of transport fare and being on transit contributed to 329 (3.8%) and 608(7%) didn't honour clinic appointment while 8402(96.8%) honored the appointment.

Conclusion: The use of text messages is an effective way to improve retention rates of clinic attendance HIV patients.

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Step1.co.ke – An online reservation application to reach previously unreached key populations in Kenya

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Background: With a growing majority of Kenyan´s connected online and through social media platforms, HIV risk has also moved online and outside the reach of traditional physical HIV programs. Going online may help HIV programs realign outreach efforts to additional high-risk networks, leading to improved HIV case finding. However, there is limited documented experience of HIV programs in African countries implementing and tracking the effectiveness of such online interventions.

Materials & Methods: In March 2019, the USAID- and PEPFAR-funded LINKAGES project in Kenya implemented an online campaign for key populations (KPs) of men who have sex with men, transgender women, and sex workers and launched Step1.co.ke – a website for clients to assess their own HIV risk and book appointments for HIV services at 12 community and private clinics. Clinicians receiving these appointments used a secure login on Step1 to report client arrivals and services provided to clients across the HIV services cascade. Demand generation for Step1 included 1) outreach workers based at local community service organization (CSOs) who reached into online social networks, 2) promotions by popular social media influencers, and 3) targeted advertising on Grindr and Facebook and Google ad managers. Online ads and influencer promotions reduced after August 2019, and reductions in project funding in October 2019 reduced the number of CSO partners from five to one, limiting outreach and demand generation efforts. Step1´s key performance indicators are recorded on a secure online database that can be exported to Excel for data analysis or they can be visualized on four live online dashboards.

Results: From March 2019 to January 2020, Step1 recorded 5,825 risk assessments, 760 appointments, 369 client arrivals at a clinic, 259 HIV tests with 8 diagnosed HIV positive (seven of which linked to HIV treatment), and 153 STI screenings with 25 diagnosed STI positive (all of which were linked to STI treatment). Among those screened HIV negative, 21% were linked to PrEP. Online advertisements and influencers resulted in 75% of all risk assessments. However, the team of community outreach workers resulted in 65% of appointments on Step1 and a much higher proportion of their appointments converted to a clinic arrival. Only 19% of appointments from online advertisements, and 16% of appointments from influencers, converted to a clinic arrival, compared to 65% of appointments from online outreach workers. Among clients arriving at the clinic from Step1, 70% reported they were not referred for HIV testing by another organization in the last six months and 32% reported being first time testers.

Conclusions: Step1 successfully reached previously unreached audiences with similar HIV case finding as the project´s physical KP HIV outreach and testing efforts (around 3%) However, Step1 was implemented on the margin of the LINKAGES HIV program, and suffered budget cuts and inconsistent partner commitment, resulting in a low overall volume of clients reached during its implementation. Efforts are being made to transition Step1 to a local CSO and build capacity for continued online HIV outreach efforts.

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Feasibility and acceptability of iThemba - A mobile health application to support engagement in HIV care and viral load suppression

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Introduction: Ithemba is a mobile health application (app), designed with input from health professionals and patients, promoting engagement with HIV care through access to medical results. The feasibility and acceptability of receiving HIV viral load (VL) results through the app was evaluated.

Methods: Using purposive sampling, adults having routine VL phlebotomy were recruited from two Johannesburg health centers. After signed consent, the app was downloaded to their android smartphones, phlebotomy was performed and sample barcodes scanned through their phone to link the sample and app. Participants received SMS notification when results available and logged into app. Results were presented with an explanation and recommended action. Participants who did not achieve VL suppression were told to return to the clinic for adherence counselling and confirmatory VL per national guidelines.

Results: 750 people were screened to enroll 500 participants. 15% (113/750) failed inclusion criteria: access to smartphone(9%), VL phlebotomy (2.1%), consent (2.5%), literacy (0.9%), non-pregnant (0.3%), other (0.3%). 21% (137/637) had smartphone technical limitations (unable to download app, unable to scan sample barcode) preventing enrollment. Results were released to 92% (461/500) of participant's phones, with app technical issues and laboratory operational issues limiting the number of released results. 360/461(78%) results were viewed in the app, with a median time from notification of availability to result viewed of 15.5 hours. Turn-around-time from phlebotomy to result received was 6 days with app vs 56 days with standard-of-care (SOC). 20 users received unsuppressed results (VL>1000copies/mL). Turn-around-time for unsuppressed results was 7 days with app vs. 37.5days with SOC. 12 users returned for a confirmatory VL within the study period. 262/500 (52.4%) users completed an exit survey where 22%(55/250) reported challenges viewing their VL result: opening app (53.4%), data access (27.6%), other (19%). 58.3% (35/60) reported they overcame the challenge with technical assistance from others. Nevertheless, 97.3% (255/262) wanted to continue using app to receive VL results.

Conclusion: Using the iThemba mobile app to recieve HIV-VL results was well received by users in health centers despite limited smartphone access for 27% of screened participants. App users received results 10 times sooner than SOC, and 5 times sooner than SOC if their VL>1000cp/mL. This increased speed of notification led to participants wanting to continue iThemba usage.

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Implementer perceptions of participant experiences during enrolment into an m-Health study in Johannesburg clinics

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Introduction: Health telematics is being adopted to advance delivery of health services and improve patient clinical outcomes. m-Health is the new edge on health care innovation as it proposes to deliver healthcare anytime and anywhere, it is a promising tool that will engage patients in their own health care and a medium to deliver health information. iThemba is a mobile health application (app) designed to promote patient engagement in HIV care by providing viral load (VL) results (with interpretation guidance) directly from laboratory instruments to recipient's phone. The objective of the study was to describe study staff's perceptions of participants' experiences and engagement with iThemba during enrolment.

Materials and Methods: Using purposive sampling in two high volume Johannesburg clinics, counsellors recruited people living with HIV who were waiting for a routine HIV viral load test. Eligible patients were consented and iThemba was installed on their Android phones. Study nurses completed processes related to the blood draw and facility shipping of samples.

Results: 705 people were screened to enroll 500 participants. Participants showed enthusiasm about iThemba and eagerness to enroll in the study after hearing that they will receive their viral load results within 3-5 days through iThemba (which is much earlier than the standard of care).
"Being able to receive my results few days after collecting blood on my finger-tips, this app is the best thing ever."(Female,Yeoville)
The perceived enthusiasm was supported by additional participant behaviours. In instances where patients were screened out because of the type of phone (non-Android/Smartphone) they would return with their compatible phones to gain eligibility for enrolment.
"One participant came to have the app downloaded onto her phone because her husband received his viral load results within three days." (Yeoville,Recruiter)
"I can't wait to see my results because of my husband results." (Female,Yeoville)
During interactions, participants indicated that they found iThemba simple to register and log into and the sample barcode scanning processes easy to execute. Some enquired about functionality beyond viral load.
"I wish this app can give me all my blood results" (Male,Hillbrow)
Participants were willing to delete some of the contents on their phones to create space for iThemba to be installed.

Some participants reported that that they been having their blood collected for VL testing but have never received their results, therefore the App will finally help them to receive their results to their phones anywhere and anytime.

Conclusion: Participants displayed positive attitudes during screening, enrolment, app downloading and VL testing. The perceived willingness to be involved in the study highlights the need for improvement in HIV VL standards of care. iThemba has the potential to strengthen linkage to and retention in care for all people living with HIV.

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From a week to a day: Improved HIV data management through interoperability of DHIS2 and DATIM software

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Background: In the past, the PEPFAR-funded Integrated HIV/AIDS Project in Haut Katanga and Lualaba (IHAP-HK/L), Democratic Republic of the Congo, manually transferred data between DHIS2, the national health management information system, and DATIM, PEPFAR's health information platform for facility-level HIV service information . Many PEPFAR countries faced the same issue. The indicators generated by DHIS2 were extracted into Excel, then processed and adapted to the appropriate format to be entered in DATIM by 20 data clerks. This process took an entire week per quarter. In addition, the Data Systems Officer's counter-verification process for data quality added about 3 days of work. Following a PEPFAR recommendation to optimize resource use to improve HIV program performance, IHAP-HK/L undertook an initiative to create interoperability between DHIS2 and DATIM.

Materials & Methods: After evaluating several options, the project team , led by IntraHealth HIS developer decided on an innovative approach of designing intermediate software between DHIS2 and DATIM. A dictionary was developed to create correspondence between the HIV service indicator codes used in each system. The intermediate software, called DATIM Generator, draws data from DHIS2 in Excel and processes it to match DATIM indicators using the dictionary. Without modifying DHIS2, the team designed a system that quickly generates a file ready for import to DATIM.

Results: DATIM Generator reduced the time for data transfer from 7 to 1 working day, consisting of data extraction and formatting from DHIS2 by the Data Systems Officer. Data entry errors were eliminated due to automatic data processing, except for any errors that existed in DHIS2. The 20 data clerks, made of assistant nurse, nurses, community workers, were redeployed to assist HIV facilities to improve the quality of service provision . IHAP-HK/L improved the quality and timeliness of data, enabling a more cost-effective decision-making process toward achieving PEPFAR's 95-95-95 goal

Conclusion: This experience can be applied to connect DHIS2 and DATIM in the other provinces, and also different databased existing in the country. The opportunity to connect those databases can help to integrate different technical domains (e.g., HR management, malaria, tuberculosis) to improve data quality and optimize resources.

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Appointment reminder: a wake-up call.

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Background: Appointment spacing in HIV clinics and multi month antiretroviral drug refill for stable patients has resulted in decongestion of heath facilities providing HIV services in Lusaka. However, data from routine HIV program shows that up to 30% of patients miss their appointment by more than a day. Failing to keep a clinical appointment may result in reduced adherence to ARVs and ultimately poor health outcomes. We developed an appointment reminder system to improve clinic attendance and adherence to ARVs

Description: Phone numbers, informed consent are obtained from each patient and saved in electronic records when enrolling them in HIV care. A day prior to the HIV clinic an appointment list is printed containing patient identifier and contact phone numbers. A dedicated lay health worker is assigned to make phones calls a day prior to the clinic to remind patients about their appointments. We implemented an appointment reminder system in 10 high volume ART clinics in Lusaka since October 2019 using mobile phone calls.

Lessons: We randomly assigned patients to two groups, in the intervention group we call all patients a day prior to their appointment to remind them about the clinic visit, in the control group no phone calls are made. 2557 phone calls were made in November 2019, 37% of patients called were male, 96% of those who were called showed up for their appointment versus 72.4% (2473/3415) in the control group. 58.8% of those who missed their appointment in the control group are female.

Conclusions: Appointment reminder system using phone calls in HIV clinics in Lusaka is feasible and is associated with increased attendance in ART clinic. Clinic attendance is not associated with sex and age. We anticipate scaling up and evaluate this intervention at larger scale and over a longer period of time.

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Effect of Mobile Phone Messaging on Knowledge and Practice of the Tuberculosis Preventive Therapy Guideline: Experience From a Quasi-experimental Study among Health Workers in Ebonyi State, Nigeria

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Background: Although prophylaxis with isoniazid has been shown to reduce the incidence of tuberculosis in HIV infected persons, health workers continue to play a critical role in optimizing its effectiveness. This study aimed to determine the effect of mobile phone based education and reminders on health worker knowledge and practice of tuberculosis preventive therapy (TPT) guidelines.

Method: The study was carried out in six health facilities in Ebonyi state, Nigeria and employed a quasi-experimental design without randomization. Three health facilities were assigned to intervention and control arms each. Simple random sampling was used to select the participating health facilities and all eligible health workers (total population of 45 and 41 in intervention and control arms respectively) who had worked in the HIV clinics for not less than six months were selected. A pre-tested self-administered questionnaire was used for the survey. The intervention consisted of mobile phone messages and reminders on the tuberculosis preventive therapy guideline to the health workers. Data was analysed using Statistical Package for Social Sciences (IBM-SPSS) version 20. Chi square test was carried out and analytical decisions were taken at p < 0.05. Ethical approval was obtained from the research and ethics committee of Alex-Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State and written informed consent was obtained from the participants.

Results: Mean age of the health workers was 40.43 ± 7.16 and 33.15 ± 8.56 in the intervention and control arms respectively. Majority of the respondents in both arms (56.8% and 58.5% respectively) were females. At baseline, majority of the health workers 54.5% and 63.4% in intervention and control arms respectively had high knowledge level. At post-intervention, significantly higher proportion of health workers in the intervention arm (90.2%) had high knowledge level (p<0.0001). For the baseline practice of the TPT guideline, 61.4% and 90.2% of health workers had good practice in intervention and control arms respectively. At post-intervention, there was a statistically significant increase in the proportion of respondents who had good practice within the intervention arm only (p=0.01).

Conclusion: Mobile phone messaging improved the knowledge and practice of tuberculosis preventive therapy guideline among health workers in this study and should be considered for inclusion in the guideline and policy for prevention of tuberculosis among HIV patients.

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Introduction of electronic mail reporting system to improve quarterly reporting on HIV activities by Metro, Municipal and District Assemblies in Western Region, Ghana

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Issue: The Technical Support Plan (TSP) for Western Region, Ghana needs adequate data from the decentralized response for effective HIV programming. Unfortunately, quarterly reporting on HIV activities by Metro, Municipal and District Assemblies (MMDAs) remains low at 21.%. Poor reporting on HIV activities in the districts has been linked to poor supervision from Metro, Municipal and District Chief Executives (MMDCEs), high attrition of district HIV focal persons and the transporting of hard copies of reports from the districts to the Regional Coordinating Council (RCC). As a measure to increase quarterly reporting by 40% the Technical Support Unit (TSU) introduced the MMDA Electronic Mail Reporting System (e-MRS) in Western Region, Ghana

Description: The TSU put in place three main interventions to improve quarterly reporting through the e-MRS. Firstly, the TSU created the e-MRS designed with microsoft office outlook. Secondly, the TSU engaged the RCC to design wireless messages that were sent to MMDAs before the end of every quarter requesting MMDCEs to ensure that reports are sent through the system. Thirdly, the TSU created a whatsapp platform for district HIV focal persons were the national reporting guideline document and soft copies of the wireless messages were repeatedly shared to serve as reminders. The e-MRS was supervised by the monitoring and evaluation officer at the TSU. This initiative has prevented districts from transporting hard copies of reports to the RCC

Lessons Learned: Statistics from the TSU shows that MMDAs quarterly reporting on HIV activities for 2019 has increased after the introduction of the e-MRS. 10 out of 14 districts submitted their quarterly reports via the e-MRS (i.e 50% increase in reporting). The standard of reporting has improved and it is accordance with the national reporting guidelines. This has also resulted in timely submission of quarterly reports by MMDAs.

Next Steps:
- The results showed the acceptability, effectiveness and convenience in the usage of the e-MRS to improve quarterly reporting. The Ghana AIDS Commission should adopt the e-MRS as a national reporting system for all MMDAs in the country.
- Provide and mainstream HIV and AIDS refresher trainings in MMDA activities
- Increase monitoring and evaluation of HIV activities at the decentralized level.

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Open source HIS for improved care in HIV patient care / Database integration for efficiency in HIV interventions.

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Background: The HIV and TB records are currently being recorded and managed using a system called ePMS(electronic Patient Management System) which works well either online or offline .this system was developed with Filemaker - a proprietary cross-platform relational database application, which requires an expensive license. (This application's popularity amongst health workers or end-users is low), there is a shortage of FileMaker software experts in the industry. Reports generating is a tedious process, as it involves data cleaning since it has lots of duplicates records, export to excel sheets before creating report aggregation.
Systems Interoperability is a limitation on this set up, example ePMS (HIV and TB records), speak to eDT(Pharmaceutical system), data management process will be improved, ie; tracking patients who have missed theirs follow ups, patients who have not picked their medicines, ensuring medicines are collected by the right patients and adherence to their drugs.

Material & Methods: We reviewed the existing systems and evaluated the processes of health management systems and their workflow. We have also analysed existing report formats, We developed a new data exchange process which incorporate Java technology, Open DataBase Connectivity(ODBC), Launch4J(free packaging software). This innovation ensured connection to ePMS and SQL for data migration process (from ePMS to SQL), We then used SPSS software which connect to MS SQL for data analysis and reporting. In conclusion all of the steps are automated via SQL script.

Results: Data extraction tool, which has a dual connection at the same time, via ODBC connection to FileMaker(ePMS) and also to MS SQL, it then copies data from ePMS and inserts into SQL Server where users run reports, we then create dashboards easily using SSRS (SQL Server Reporting Services) this is administered via a web interface and also using Power BI which is the business analytics service by Microsoft(possibly via SQL Server) and it provides interactive visualizations and business intelligence capabilities with an interface simple enough for end-users to create their own reports and dashboards which can be hostet and accessed remotely. SQL and eDT(Pharmacy system) have the same structure, after patient data migration
process is complete,the two systems are able to share information (interoperability) since eDT has SQL database as well.
On the other hand, the clinical team also have access to the SQL server via a report builder(free software installed on their computers). Reports are stored in their computers (in any folder), developed in report builder, it then connects to the server and pulls out the required data, already formatted as required, export to excel for reporting purposes and SPSS can now connect to SQL and pull data for analysis process.

Conclusion: Embracing this approach of interoperability of systems, will drastically reduce waiting time for patients, increase the value of patient data for decision making, help in knowing where problems are and allows them to make better decisions, improves the quality of care, provide more efficient resources management, lower costs and to optimize workloads. Basically, help to monitor how healthcare systems stack up against one another.

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Retrospective Cohort Study to Determine the Correlation Between HIV Risk Profile and Uptake of Oral Pre-Exposure Prophylaxis (PrEP) among Sex Workers in Johannesburg, South Africa

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Background: Among South Africa's 112,000 female sex workers (FSWs), approximately 54% are living with HIV, and the annual incidence of 7% among FSWs significantly exceeds that of the general population, making pre-exposure prophylaxis (PrEP) an essential intervention. Wits RHI has one of the largest and longest running sex worker programmes globally, which reached more than 30,000 sex workers in 2018 and was an early implementer of daily oral pre-exposure prophylaxis (PrEP) in South Africa.

Methods: A retrospective cohort study included sex workers in Johannesburg receiving services between January 2018 – January 2019. Peer educators conducted risk assessments with the variables: age, condom use, client number, time in sex work, and drinking/drugs/violence while working. A risk score of 0-5 was generated. Risk assessment data were matched with PrEP initiation records. Univariate and multivariate regression models were conducted to determine the association between risk factors and PrEP uptake.

Results: Of 2,108 FSWs who completed the risk assessment, 144 (6.83%) initiated PrEP. FSW's with a "Medium" risk score were most likely to take PrEP (OR=2.62) followed by the "High" risk group (OR=1.50, p=0.0027). PrEP was slightly more likely to be taken by FSWs whad less than 6 months in sex work (AOR=1.391, p=0.1414), and who used substances and/or experienced violence (AOR-1.411, p=0.0527). Sex workers over age 25 (AOR=0.64, p=0.1392), and those reporting inconsistent condom use (0.72, p=0.1392) were slightly less likely to take PrEP. Having more than 10 clients per day (AOR=1.04, p=0.7894) was not associated with PrEP uptake.

Conclusions: This analysis is limited by the nature of the routine programme data, in which risk analysis data was available for only a small subset of PrEP patients and did not distinguish known HIV positive clients.

For PrEP to be effective in interrupting transmissions and contribute towards reaching epidemic control, it is imperative that PrEP be taken by those at highest risk of HIV infection. In key populations, the PrEP promotion strategy should be tailored to better reach those FSWs in the highest risk group.

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sexual and mental health of transgender persons in Nairobi kenya

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Background: Transgender persons (TP) are disproportionately affected by HIV, common mental & substance use disorders due to systemic barriers resultant of homophobia and criminalization of same sex relationships. Additionally, there is no evidence to inform targeted interventions as they are clustered in cisGBMSM yet their specific risk and needs are quite unique.

Methods: The TRANSFORM study enrolled TP and GBMSM in Nairobi via respondent-driven sampling during 2017. Eligibility criteria: age 18+, male gender at birth/currently, Nairobi residence and consensual oral or anal intercourse with a man during the last year. Participants completed a computer-assisted survey including HIV/STI testing and treatment history, PHQ9, AUDIT and question about recent experience of discrimination and violence. Gender identity was elicited using a piloted two-step method. Participants tested for HIV and anogenital STIs (Xpert® CTNG urine and rectal). Frequency measures were weighted using the RDS-II method; measures of association were unweighted and adjusted for sociodemographic confounders.

Results: Among 618 recruits, 522 (84.5%) identified as cisgender GBMSM (cisGBMSM), 86 (13.9%) trans-feminine and 4 (0.7%) trans-masculine (6 missing). Compared to cisGBMSM, trans-feminine and trans-masculine (TP) participants were similar in age, education level, employment and country of birth. TP were more likely than cisGBMSM to be HIV positive (39.9 v 24.6%: aOR 2.0 (1.2-3.3) p=0.007), have rectal NG (23.6 v 11.8%: aOR 2.4 (1.3-4.3) p=0.005; and to have current symptoms suggestive of rectal STI: 18.6 v 7.0%: aOR 2.4 (1.2-4.9) p=0.015. Among HIV positive participants, 90-90-90 indicators were weaker for TG (63-81-82) than cisgender GBMSM (73-84-83) but differences were not statistically significant (p=0.333). 24.0% TP recorded PHQ9 scores of 10+ (moderate-severe depression, vs 16.4% cisGBMSM, aOR 1.8 (1.0-3.1 p=0.047). 14.8% TP had AUDIT scores of 9+ indicative of harmful alcohol use (vs 9.2% cisGBMSM, aOR 2.0 (1.0-3.8) p=0.044).

Conclusion: TP in Nairobi have disproportionately higher burdens of STIs, depression and harmful alcohol use than cisGBMSM. They more frequently suffer discrimination and violence. Service providers should aim to identify and address unique risks and vulnerabilities of the TP. Research should be directed at the same.

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Assessing stigma and knowledge of HIV status amongst female sex workers in Zambia: implications for achieving 'the first 95'

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Background: Female sex workers (FSW) are at high risk of HIV acquisition and transmission and face numerous barriers in accessing HIV services, with stigma and discrimination being a major barrier. This has important implications for reaching the UNAIDS 95-95-95 targets, particularly 'the first 95' (95% of HIV-positive individuals know their status). This study measured the association of sex work-related stigma on knowledge of HIV status amongst FSWs in Livingstone, Lusaka, Ndola, and Solwezi districts in Zambia.

Methods: In March–July 2017, women 18yrs and older reporting exchanging sex for money in the past six months were recruited via respondent-driven sampling to participate in a bio-behavioral survey including HIV testing. Stigma was self-reported as experiencing at least one of the following as a result of being a sex worker in the past 12 months: denial of healthcare, employment, church/religious services, restaurant/bar services, housing, and police assistance. Amongst the 970 FSW who tested positive for HIV, the primary outcome was determined among those incorrectly identifying their serostatus or denying knowledge of their status prior to testing. Responses were weighted using population size estimations to be representative of the study population. A multivariate logistic regression model controlling for socio-demographic characteristics tested for an association between stigma and knowledge of HIV status.

Results: The median age of the study population was 30yrs (standard deviation=6.48yrs). Only 44% of FSW who tested positive knew their status. Few had been refused healthcare (2.58%), restaurant/bar (1.55%), or religious services (2.58%), while refusal of employment (7.32%), police assistance (10.21%), and housing (18.76%) were more common. Over half (61.1%) of FSW reported experiencing at least one form of stigma. In multivariate analysis, stigma lowered the odds of knowing HIV status by 0.71 (p=0.026, 95% CI=0.53-0.96).

Discussion: The alarmingly low rate of HIV positive FSW in Zambia that were aware of their status falls far below the UNAIDS 95-95-95 targets. The findings point to the importance of advocacy efforts to combat stigma against FSW in the community, and suggests that stigma mitigation efforts are needed to improve accessibility of HIV testing amongst FSW and improve the first 95-95-95 target.

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Acceptability and willingness to use HIV self-testing among female sex workers in Zambia: implications for differentiated testing modalities in HIV programming

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Background: Efforts to bring routine HIV testing services (HTS) to scale have been compromised by access, financing, and implementation challenges. HIV self-testing (HIVST) promises to close these gaps, particularly in settings with generalized HIV epidemics like Zambia (adult prevalence: 12%) where marginalized and stigmatized subgroups – including female sex workers (FSWs) – are poorly reached by existing HTS. To determine acceptability and identify appropriate strategies for scaling HIVST in Zambia, this study measured factors associated with willingness to use oral-fluid HIVST among FSWs in Livingstone, Lusaka, Ndola, and Solwezi districts.

Methods: In March–July 2017, women 18yrs and older reporting exchanging sex for money in the past six months were recruited via respondent-driven sampling for a bio-behavioral survey. "Very willing" and "somewhat willing" responses to a single, five-point item were dichotomized as a proxy for HIVST acceptability. Responses were weighted using population size estimations to be representative of the study population. Bi- and multivariate logistic regression was used to identify socio-demographic, behavioral, and service use correlates of HIVST acceptability among FSWs who self-reported negative or unknown HIV status (n=1,312).

Results: The median age of the sample was 25yrs (sd=6.14yrs) and most were never married (61.1%). The majority (80.1%) had an HIV test before, but few had heard of or used HIVST (23.2% and 4.7% respectively). Over half (57.5%) expressed willingness to use HIVST. FSWs currently married and who completed secondary school or higher reported willingness to self-test at significantly higher proportions than FSWs never-married (79.4% vs. 54.9%, p=0.005) and who never completed primary school (69.8% vs. 33.8%, p<0.001), respectively. In multivariate analysis, any prior HIV testing (Adjusted Odds Ratio [AOR]=1.75, 95% Confidence Interval [CI]: 1.15–2.66), previous HIVST use(AOR= 3.47, CI: 1.42-8.47), and current family planning (FP) use (AOR=1.61, CI: 1.01-2.56) were significantly associated with HIVST willingness. Sexual risk behaviors (e.g., condom use inconsistency, number of sexual partners) were not associated with HIVST.

Conclusions: Any prior HIV testing, prior HIVST, and current FP use surfaced as factors significantly associated with future willingness to use HIVST, which was moderately accepted. Findings highlight the role existing facility-based HTS and FP services could play in promoting HIVST for FSWs.

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Factors associated with Inconsistent condom use among young female sex workers in Kampala, Uganda.

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Background: Young female sex workers (YFSWs) are a key population for HIV acquisition in Sub Saharan Africa. The HIV prevalence among YFSWs in Uganda is estimated to be 26%. Access to HIV preventive services is limited for this group due to stigma and other underlying socioeconomic and demographic barriers. We present baseline findings on the factors associated with inconsistent condom use among YFSWs in Kampala, Uganda.

Methods: We recruited 644 HIV-negative YFSWs aged 15-24 years from hotspots in Kampala between November 2016 and February 2019 as part of a randomized controlled trial to assess the effectiveness of a cognitive-behavioral and structural HIV prevention intervention. Audio-Computer-Assisted-Self-Interview was used to collect sensitive information on socio-demographics, sexual behavioral and Intimate Partner Violence (IPV). Bivariate analysis was used to examine the relationship between inconsistent condom use and IPV, number of sexual partners, and substance abuse among the YFSWs at baseline.

Results: Overall, 567 YFSWs had complete and available baseline data. Mean age was 20.4 (SD 2.43) years; 52% reported not using a condom with their sexual partners in the last month. About half of the participants reported having more than 10 partners in the previous month and using condoms consistently.
Inconsistent condom use did not differ across the ages; 15-19 and 20 -24 (P>0.05). Education status below and above primary level was 57% and 42% for inconsistent condom use respectively (P<0.001). Physical violence was at 55%, P<0.013. Substance use was 43%, 62%, 63% for none, less frequent and frequent respectively among the inconsistent condom users (P<0.001)

Conclusion: Lower education status, IPV and substance use were significantly associated with inconsistent condom use. Additionally, YFSWs with fewer sexual partners were least likely to use condoms. Health education as well as YFSW-friendly and tailored services should be integrated in the national programmes designed to prevent IPV, substance use and illiteracy among YFSWs.

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Same-Day Initiation of ART: Does it impact retention at 12 months among Key Populations in South Africa?

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Background: In order to achieve the UNAIDS 95-95-95 targets, services must successfully link newly diagnosed positives to antiretroviral therapy (ART) while also ensuring long-term retention in care. In the past, standard of care for HIV included pre-ART laboratory procedures, counselling, and multiple clinic visits, which resulted in significant loss to follow up before starting treatment. Among Key Populations (transgender individuals and sex workers) in South Africa, same-day initiation of ART has improved linkage to care, however the effect of SDI on retention in care remains unknown. This study examines the association between day of ART initiation and retention at 12 months, at the Wits Reproductive Health and HIV institute (Wits RHI) Key Populations program.

Methodology: This is a retrospective cohort study that utilized routine program data from patients who were initiated on ART across four South African districts from January 2018 to December 2018. Records were included in analysis if data was complete for both HIV test date and ART start date, and the main outcome is retention at 12 months. Descriptive statistics and unadjusted and adjusted Binary Logistic Regression Models were conducted in STATA 15 to examine the association between day of initiation, selected factors and retention at 12 months.

Results: Of the 547 sex worker and transgender patients included, 89.03% were initiated on ART on the same day that they tested positive for HIV, 3.84% were initiated 1-14 days after testing positive, and 7.13% were initiated more than 14 days after their test. Retention in care at 12 months after initiation was 47.4% among the SDI group, 38.10% among the 1-14 day initiations, and 43.59% among 14+ days initiations. There was no significant association between time to ART initiation and retention at 12 months: patients who were initiated between 1-14 days after testing HIV diagnosis had 0.71 odds of retention (95%CI: 0.271-1.853), while patients who were initiated after 14 days had 1.49 times the odds of retention (95%CI: 0.756-2.947), when compared to the reference group of SDI.
Older patients had better odds of retention at 12 months as compared to those aged 15-24 years [25-34 years, OR:1.32, 95%CI: 0.823-2.102; 35+ years, OR:2.11, 95%CI:1.218-3.664]. Lastly, individuals who were initiated in community-based settings have lower odds of retention at 12 months as compared to people who attended a fixed clinic for their ART initiation [OR: 0.60, 95%CI:0.404-0.989]

Conclusion: Retention at 12 months is low, and strategies to improve services as well as accommodate for mobility among Key Populations are essential. Approaches to retain younger people and people initiated in community settings should be prioritized.
The time between testing and initiation did not have a significant effect on retention at 12 months. Since same-day initiation is an important approach to reduce loss to care in the pre-ART period which does not increase patients' risk of lost to follow-up, this approach should be maintained in serving Key Populations.

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REACHING FEMALE SEX WORKERS AND THEIR CLIENTS THROUGH "MOONLIGHT" HIV TESTING.

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Background: HIV diagnosis rates have declined in the recent years compromising the global efforts to attain the 1st 90 UNAIDS goal in ending AIDS epidemic by 2020. In Tanzania, the country has achieved 78% and has not yet achieved the now revised target of 95%. Harmful gender norms fuel men's general lack of engagement in health services. Many of them have multiple sexual partners, a significant proportion of them do not to use condoms and some engage in substance abuse behavior which increases the risk of HIV infection. The Walter Reed Program-Henry Jackson Foundation Tanzania (WRP-HJFMRI) implemented Moonlight HIV testing to complement other efforts of identifying newly HIV-infected and other hitherto unidentified HIV positive people in two regions of Mbeya and Ruvuma in Tanzania.

Methods: Mapping of hot-spots for moonlight HIV testing to identify bars, night clubs, truck stops and other areas with individuals at high risk of acquiring or transmitting HIV was done. Key stakeholders were included. Permits and consents to conduct moonlight HIV counseling and testing services was obtained from police, night club owners and bar managers and district leaders informed so as to support the activity in terms of security. The activity was conducted between 08:00 p.m and 01:00 am (EAT). A descriptive cross sectional analysis was done to evaluate the incidence of HIV and linkage to care among female sex workers (FSWs) and their male clients

Results: From February to June 2019 a total of 632 high risk individuals tested through the moonlight approach, 78 (12.3%) individuals were identified HIV+. Of 335 FSWs tested 48 (14.3%) were HIV+ and 45 (93.7%) FSWs of them linked to care. 297 clients of FSWs were tested and 30 (10.1%) were HIV+ and 27 (90%) of them were linked to care. Overall, a total 72 (92.3%) HIV+ individual were linked care.

Conclusion: Moonlight HIV testing is an inventive and highly successful way to provide, HIV testing and counseling services to high-risk individuals including commercial sex workers and their clients.

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Factors associated with condom use with non-commercial partners among transgender women in Cambodia: findings from a national survey using respondent-driven sampling

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Background: Globally, the prevalence of HIV among transgender women is 49 times higher than that of the general adult population. The rate of consistent condom use among this population remains persistently low. This study explores factors associated with consistent condom use among transgender women in Cambodia, specifically with their non-commercial partners.

Materials & Methods: Data used for this study were collected as part of the National Integrated Biological and Behavioral Survey 2016. Participants were recruited from the capital city of Phnom Penh and 12 other provinces with high burden of HIV using the Respondent-Driven Sampling method. Face-to-face interviews were conducted using a structured questionnaire. Weighted multivariate logistic regression analysis was conducted to explore independent factors associated with consistent condom use. This study was approved by the National Ethics Committee for Health Research (No. 420 NECHR).

Results: This study included 1,202 transgender women who reported having anal sex with at least a male partner not in exchange for money or gifts in the past three months. The mean age of the participants was 26.0 (SD= 7.0) years. Of total, 41.5% reported always using condoms with male non-commercial partners in the past three months. After adjustment, the likelihood of consistent condom use was significantly higher among participants who resided in an urban community (AOR= 1.7, 95% CI= 1.1-2.6), had attained at least 10 years of formal education (AOR= 1.8, 95% CI= 1.2-2.7), perceived that they were likely or very likely to be HIV infected (AOR= 2.9, 95% CI= 2.0-4.1), reported drinking alcohol two to three times per week (AOR= 3.1, 95% CI= 1.1-8.3), reported using amphetamine-type stimulants (AOR= 1.9, 95%= 1.1-3.8) or other drugs (AOR= 7.6, 95% CI= 1.5-39.5), and reported inconsistent condom use with male commercial partners in the past three months (AOR= 4.3, 95% CI= 1.8-10.4) compared to that of their respective reference group.

Conclusions: This study confirms the persistently low rates of condom use, particularly in non-commercial relationship among transgender women in Cambodia. To address these concerns, efforts towards education about harmful effects of multiple, concurrent relationships, and inconsistent condom use should be reinforced among transgender women.

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Men Aged 23-35 Years Living with HIV in Sub-Saharan Africa: Knowledge Gaps in the Literature

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Background: A key component of the transmission cycle of HIV in Sub-Saharan Africa (SSA) is the population of men aged 23-35 years. This population is responsible for a significant number of infections among adolescent and young adult females. While the broader population of men aged 15-49 is extensively described in the literature, not much is known about this specific younger subgroup.

Materials & Methods: To identify gaps in knowledge about men aged 23-35 living with HIV in SSA, a systematic review of available data on this population was conducted including identification of country- and population-specific details. Gaps in pre-specified information of interest (HIV prevalence and incidence, mortality, 90-90-90 targets, quality of life, and other individual characteristics) were noted and summarized. Papers published in English from 2014-July 2019 were included in the analysis.

Results: For a majority of countries in SSA, only HIV prevalence is reported. Much of the prevalence data comes from reliable surveys representing whole countries. Reliable data regarding approach to 90-90-90 targets and HIV incidence is available only for Eastern and Southern countries. HIV-related mortality data are very limited. Notable knowledge gaps exist regarding other characteristics of men aged 23-35 living with HIV in SSA and are reported rarely in smaller, regional studies offering only a limited possibility of data extrapolation. No data regarding quality of life of HIV-positive men aged 23-35 in SSA were identified.

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"When you provide an HIV self-testing kit […] you also need to know the results": lay providers' concerns on HIV self-testing provision to peers, ATLAS project

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Background: HIV self-testing (HIVST) is a process in which a person collects his or her own specimen (oral fluid or blood), using a simple rapid HIV test and then performs the test and interprets the result, often in a private setting, either alone or with someone he/she trusts (WHO, 2018). HIVST is convenient to reach stigmatized groups such as key populations. In the ATLAS project, provision of HIVST kits is done by lay providers to sex workers, drug users and men who have sex with men, or through secondary distribution by primary contacts to their partners and other peers. There is a shifting of paradigm because the result of an HIVST is not necessarily shared with the lay provider. How do lay providers responsible for HIVST kits distribution to key populations in West Africa adopt this new testing strategy? This abstract discusses the concerns of lay providers who offer HIVST kits to peers in the ATLAS Project (Cote d'Ivoire, Mali and Senegal).

Material and Methods: We conducted seven focus group discussions with fifty-six lay providers who had experience in offering HIVST to peers (sex workers, men who have sex with men, drug users) in the three countries two months after the ATLAS project started.
Results. Lay providers report no major opposition or conflict in offering HIVST kits. Testimonies from primary recipients also suggest that the HIVST was performed correctly in the case of secondary distribution. However, lay providers' concerns remain with the lack of knowledge of the self-test results. In previous HIV testing strategies, providers usually played a key role to support their client during pre- and post-test counselling, especially when the test result was positive. Therefore, their question is how can they continue to support peers while respecting the private nature of self-testing? The concern is at two levels. At the individual level, lay providers fear that the continuum of care is not guaranteed and peers who self-test with a reactive test result may stay alone. At the collective level, lay providers fear to miss their performance objectives linked to the number of new HIV-positive cases they found and requested by some donors. Consequently, alongside HIVST provision, lay providers share their phone numbers, call back their primary recipients, or apply other indirect strategies to know the self-test result of their recipients.

Conclusion: Lay providers develop strategies to learn about the issue of the HIVST they offer and to provide support to their peers following HIVST provision. Is this behaviour related to a cultural context that values social relationships or a sign of empathy to key populations and people living with HIV in a context of high stigmatization? Or is it related to existing performance objectives for new HIV-positive cases finding requested by donors? The meanings of this practice call for a deep reflection on whether or not the WHO guidelines need to be adapted to this context.

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Sustained improvements in linkage to treatment among key populations in Cameroon

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Background: In Cameroon female sex workers (FSW) and men who have sex with men (MSM) have high burden of HIV. Barriers to accessing HIV services include stigma, discrimination, violence, long waiting times, user fees, and population mobility.

Materials & Methods: Under the 'Continuum of prevention, care and treatment of HIV/AIDS with Most-at-risk Populations' (CHAMP) program, community-based organisations (CBOs) in three cities have provided peer-driven HIV services since 2014. Initiation on antiretroviral therapy (ART) is predominantly provided to new clients through HIV treatment health facilities.

HIV testing and linkage to ART data were electronically collected. Aggregate data on diagnoses and linkage to ART were analysed by fiscal year (FY) and key population (KP) from October 2014–September 2019.

Results: Prior to national 'Test & Treat' guidelines, introduced early 2017, linkage to ART was 31% (297/948) among FSW and 57% (216/379) among MSM in FY16. Linkage to ART increased to 72% (740/1,033) among FSW and 68% (345/511) among MSM in FY17 but remained below targets. Innovations to support linkage to ART were scaled in FY18, and linkage increased to 93% (1,264/1,359) and 95% (709/747), respectively. High linkage was maintained in FY19 among FSW (95%; 1,688/1,777) and MSM (96%; 790/819).

Key initiatives heading this success were: active referral for same-day initiation or arranged appointments by strengthening the role of peer navigators; sensitizing focal points at treatment centres on KPs' needs; involving peer navigators and clinicians during outreach testing; piloting on-site initiation; performance-based management; and weekly follow-up by case management teams. Additionally, during FY18 psychosocial counsellors and peer navigators were trained to use motivational interviewing, and during FY19 extended opening hours were arranged at selected treatment centres.

Conclusions: Combined strategies involving active referral, coordinated and patient-centred support by peer workers, psychosocial counsellors and clinicians, and collaboration between community-based and national health facilities led to sustained improvements in linkage to ART. These approaches are likely to also support retention on ART and should be considered for widespread implementation.

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Improving access to HIV care and treatment for hard to reach high risk fishing populations-L.Victoria,Uganda

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Background: Fishing populations in Uganda have been characterized as HIV high risk with limited access to health services. The UVRI-IAVI- HIV Vaccine Program has been engaging Lake Victoria fishing communities in HIV prevention research for more than a decade and is currently involved in HPTN084 efficacy trial testing long acting injectable PrEP. We identified mechanisms to provide lifelong care and treatment to 24 hard to reach HIV research communities while engaging communities as the first res ponders to the epidemic.

Methods: HIV care and treatment providers were identified to support an optimal referral mechanism based at 5 community HIV research hubs within the fishing communities. Memorandum of Understanding were developed with the providers to extent HIV care and treatment to these communities using the hubs.
Training and capacity strengthening were provided to 54 Village Health Teams (VHTs) members to support community sensitization, mobilization and referrals.
Monthly HIV care and treatment outreaches were provided, with regular implementation meetings to support the hub referral system.

Results: For period under review between 2016-2019, a total of 39,550 were tested, 954(632 females, 312 males, 25 children) hub referrals into care and treatment and 595 external referrals. Key issues included; improved hub-based retention into care, strengthened grass root support structures, improved service provider collaboration, networking and meaningful engagement of communities in research using Good Participatory Practices (GPP). The above data were fed into the national health information system to support policy direction.

Conclusion: The health care outreach and referral mechanism in the research context offers a significant influence on the communities HIV prevention efforts, underscoring the role of research in improving community health. The referral mechanism also offers a contribution to improve service delivery in the hard to reach fishing populations. The critical role of community structures in shaping the treatment and care landscape in such under served populations could be replicated.

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Breaking Barriers: Increasing access to HIV Testing for Key populations through community and Facility based HIV Self-Testing: A case of Uganda.

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Background: Current HTS challenges require new focus and approaches to reach people with undiagnosed HIV infection. In Uganda, 88% of the PLHIV have been identified as end of 2019.The average National HTS yield is currently at 3%. Only 63% of the men and 62% of the key populations have been identified. HIVST uniquely presents an opportunity to innovatively deliver HIV testing for these populations through the APN platform, ANC, and community based peer distribution.

Description: MOH developed HIVST guidelines in 2018 following formative studies in 2017 that provided programmatic evidence about HIVST. The guidelines allowed HIVST as an additional approach to HIV testing in the country. Rollout of HIVST started in September 2018 using a standardized curriculum developed by MOH. From about 79 facilities in September 2018 to 250 sites by September 2019. Kits are distributed at both community and facility. For secondary delivery to a sexual partners, screening for Intimate Partner Violence (IPV) is conducted to screen out those susceptible to IPV.
The Intervention targets MSM, FSWs, Incarcerated men, Injection Drug Users and Transgender people. A toll free 24hr telephone is located at Mulago National referral hospital for all clients to call when in need.
23912 kits were distributed from April to September 2019 through facility (7067) and community (13114). 98% (n=2388) of MSM and 94% (n=453) of Transgender (TG) people were reached through facility distribution whereas 65% (n=13114) of FSWs were reached through the community. 2.8% of those who received kits reported a positive test and 75% of these were confirmed and 92% linked to care

Lessons:
• FSWs are best reached through community peer distribution, this is the model of preference.
• MSM, Transgender people and Injection Drug users can best be reached through facility distribution.
• HIVST has increased access to HTS by MSM, TG and FSWs
Linkage to care for HIVST among KPs was higher than the National average of 90%

Conclusions:
• A mix of both facility and community models are required for optimizing HIVST among KPs
• With positivity of 2.8% which is twice the general HIVST positivity, HIVST will potentially contribute to Identifying the remaining key populations
• There is need to scale up HIVST for Key populations to optimize the program

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Factors associated with non-retention in care among female sex workers living with HIV in Ouagadougou

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Background: Universal access to prevention, care and antiretroviral treatment (ART) for female sex workers (FSWs) is an important strategy for preventing HIV and reducing new infections. The new method of treatment as prevention (TasP) therefore remains a priority. However, FSWs face many challenges in access and retention in HIV care. The objective of this research was to study the factors associated with non-retention in the care among FSWs living with HIV followed at the Yerelon clinic in Ouagadougou between 2009 and 2019.

Methods: The design was a retrospective cohort study and the sampling was exhaustive. Data from HIV-infected FSWs at the Yerelon Clinic in Ouagadougou, collected in ESOPE software version 5.0, were analyzed using Cox regression to identify factors associated with non-retention to care.

Results: Approximately 87.44% of the 215 FSWs screened were linked to care. The median survival time was 4.31 years (IIQ: 1.37 - 8.85). The overall retention rate was 82.05 per 100 person-years. Factors significantly associated with non-retention of FSWs were increased age [HRa 0.95 (95% CI: 0.91 - 0.99)], alcohol consumption [HRa 2.68 (95% CI: 0.91-0.99)], and age [HRa 0.95 (95% CI: 0.91 - 0.99)]:1.56 - 4.58)], advanced WHO clinical stage [HRa 7.07 (95% CI: 2.91 - 17.20)], delayed ART [HRa 5.36 (95% CI: 3.10 - 9.26)] and high viral load [HRa 5.71 (95% CI: 1.25 - 26.13)].

Conclusion: Retention of FSWs declines over time, especially in young people and those in the advanced WHO clinical stage. Scaling up and sensitizing them for inclusion in care programmes will enable rapid initiation of ART. To this end, maintaining and replicating Yerelon programmes will ensure good coverage of services offered to FSWs.

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Peer-led Community-based Interventions are Effective in Ensuring HIV-Positive Men Who Have Sex with Men and Transgender People Achieve Viral Suppression: Evidence from Malawi

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Background: Achieving the third 90 - 90% of people on antiretroviral therapy (ART) virally suppressed - especially among key populations (KP), including men who have sex with men (MSM) and transgender people (TG), remains a major challenge across countries pursuing epidemic control. Between October 2018 and September 2019, the USAID/PEPFAR-supported LINKAGES project, in collaboration with local partner CEDEP, implemented community-led interventions in four districts of Malawi to support HIV-positive MSM and TG to achieve viral suppression.

Description: LINKAGES introduced a combination of strategies, including peer navigation and community-led support groups, to improve support for ART adherence and generate demand for viral load (VL) testing. Trained MSM and TG peer navigators (PNs) – medication-adherent role models living with HIV –provided enhanced support to HIV-positive peers through follow-up visits at their homes and 'safe spaces'. During the visits, PNs conducted motivational counseling sessions on the importance of ART adherence and benefits of VL testing. Eleven support groups were established to clients' literacy on VL, and drop-in centres (DICs) provided reminders to clients who were due for VL testing. Whole blood samples were collected from DICs and transported to laboratories for processing. Clients accessed results at DICs during routine subsequent visits. VL suppression was defined as <1000 copies/ml.

Lessons Learned: A total of 653 (570 MSM and 83 TG) records of KPs living with HIV were reviewed to monitor VL suppression trends over 12 months. Of these, 556 (85%) were on ART and 249 (44.7%) were due for VL monitoring. VL samples were collected and analyzed for 202 clients (81%) [176 MSM and 26 TG], and results were returned for 176 [150 MSM and 26 TG]. Of the 176 with recorded results, 171 (96.6%) [145 MSM and 26 TG] were virally suppressed, representing 96% and 100% suppression rates among MSM and TG, respectively.

Conclusion: We achieved high rates of viral suppression among MSM and TG people with community-led adherence support and VL demand generation interventions, underscoring the importance of community-led approaches to achieving the 'third 90'. Based on these results, LINKAGES will scale-up these approaches across the entire program in Malawi.

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Reaching out to key populations to offer effective HIV programming in rural areas

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Background: Sexual minorities has been a hidden group especially in rural areas in Kenya reaching out has been a big challenge thus affecting testing uptake, and treatment adherence. Key populations (KPs) especially men who have sex with men (MSM), and male sex workers (MSW) are known to face high levels of violence, rejection from community and being family outcasts thus affecting them both socially and economically. Knowledge of local experiences, understanding KP network and dynamics may inform effective HIV programming.

Methods: We conducted a field study with the few clients who used to come all the way to Nairobi to get services and a need to set up a dice where all the other MSM/MSW could access was realized. In April 2018, we got a space in an area where they could feel comfortable to access and we trained 19 peer educators from different areas in the county to help sensitize, mobilize and also help to come up with strategies on how our community could be reached in a safe and yet easy to access manner.

Results: Having reached 827 MSM/MSW most of our clients reported widespread violence and fear for their lives. Due to this they are more vulnerable to STIs especially anal and throat infections which go un attended since they cannot access stigma/Discrimination free services or leading to self-diagnosis. Being on a rural setup, those seen as most vulnerable and reported high mortality rates were MSM from middle and lower "class". An increase in vulnerability among people living with HIV was seen across all the known HIV positives and the newly tested HIV positive clients. Respondents reported that HCWs do not screen for violence routinely and that no MSM/MSW is likely to report violence, particularly to police (with some exception for a few knowledgeable about their rights) and that this is a clear programming gap. They suggested psychosocial support and safe spaces could be offered by community-based organizations (CBOs) and recommended strengthening of outreaches but not in their hotspots they preferred (MSM/MSW) houses and social halls where no one outside the community would know what is going on. There was a lot of myths and misconceptions on HIV and STIs hence a need for peer to peer education.

Conclusions: Understanding the dynamics is a vital part of effective KP HIV programming, particularly because in rural areas it is not business as usual, you can be in their hotspot and recognize none as they operate in a very different and secretive manner, this reduce their access to services and commodities like condoms and lubricants for both HIV positive and negative. violence is most common among those KPs who are living with HIV or with the greatest HIV risk e.g. sex workers. KPs want greater access to HIV testing and treatment. Sensitization of HCWs, police and other stakeholders like bar owners will help in access for services and commodities, creating strong violence/HIV service links would promote human rights while increasing opportunities for the most vulnerable to be linked to HIV services.

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Scaling Up Index Testing to Improve Case Identification among Sexual Partners of Female Sex Workers in Gaborone, Botswana

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Background: Reaching members of the sexual and risk networks of key population (KP) individuals living with HIV (KPLHIV) is critical to achieving epidemic control. While significant efforts have been made to expand access to HIV testing services in Botswana, members of KPs still have poor access. Index testing is a way to reach sexual networks of KP members and improve HIV case finding. Index testing was implemented among FSWs in a community-based setting in Botswana.

Description: From April 2019 to September 2019, the PEPFAR/USAID-funded LINKAGES project, through implementing partner Nkaikela Youth Group (NYG), piloted index testing for FSWs in Gaborone to increase case detection. FSWs who had ever tested positive through the project, regardless of treatment status, were recruited and asked to provide contact lists of their sexual partners and children age 15 or less for index testing. The index cases included FSWs newly diagnosed, those with known HIV-positive status and on antiretroviral therapy (ART), and those who had defaulted. Testing was done at Nkaikela youth group drop-in center (DIC).

Lessons Learned: A total of 82 PLHIV were identified as index cases (ratio of three contacts per index); they provided 243 sexual contacts. Of these, 119 (49%) were known positives; 51% (124 contacts) were eligible for testing; and 47% (58) accepted testing, which resulted in a 36% case-finding rate (21 partners tested HIV positive). A total of 18 out of 21 (86%) male partners were initiated on ART. Of the 82 identified index cases, 17 yielded partners with a positive status. The 36 clients who tested negative were then offered pre-exposure prophylaxis (PrEP); 27 (75%) declined and 9 (25%) were initiated on PrEP.

Conclusions/Next Steps: Index testing can be instrumental in accelerating efforts toward achieving the first 95, by reaching sexual networks of high-risk groups, such as FSWs and finding the hard-to-reach men who are still undiagnosed. Index testing will be scaled up across all five districts to break into hard-to-reach and high-risk networks.

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Reaching Transgender Women in South Africa through incentivised peer to peer referrals.

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Background: Transgender women (TGW) in South Africa are disproportionately affected by HIV, with a prevalence of 46%. Discrimination and stigma towards TGW limits access to health care and contributes to poor health outcomes. Innovative outreach approaches are crucial to optimise health care access and reach for TGW. Engaging hard to reach individuals in HIV prevention and treatment services can contribute towards achieving the UNAIDS 95-95-95 targets. There is a dearth of evidence documenting different outreach approaches in transgender populations in Africa. This abstract presents results from a 3-month enhanced peer outreach approach (EPOA) project conducted by Wits Reproductive Health and HIV Institute (Wits RHI) Key Populations Programme in four districts in South Africa. The goal of the EPOA was to increase HIV testing yield, link HIV positive TGW to treatment & care services, and to connect those that are HIV negative with pre-exposure prophylaxis (PrEP) and sexual and reproductive health services

Methods: In order to reach TGW who may not be engaged through traditional community outreach activities, the programme implemented EPOA across four TG clinic sites in South Africa between August and October 2019. The EPOA strategy was adapted from the FHI360 2017 Guidelines on EPOA implementation. Wits RHI TG peer educators were trained to distribute coupons to peer mobilisers "seeds" who were identified from the TG community. The seeds were selected based on their knowledge of the TG community, links to other community members who may be at risk of HIV, age, communication skills, and size of their social networks. The "seeds" were given five to ten coupons each to distribute. For each coupon returned, the seed received a monetary incentive if their TGW contacts returned coupons. Further incentives were given if the contact accepted HIV testing and/or was more than 25 years old. The data were captured and analysed using Microsoft Excel.

Results: A total of 51 seeds were identified and 392 coupons were distributed. The return rate of the coupons was 44% (171/392). HIV testing uptake was high among the TGW, 92% (157) of the TGW who returned coupons were tested for HIV. Of the 157 TGW who tested, 40 of them tested positive, HIV yield was 34%. The linkage rate was 85%. 34 TGW were linked to care and initiated on antiretroviral therapy (ART). PrEP uptake was also high, with 49 TGW (42%) of all TGW who tested negative accepting PrEP.

Conclusion: The HIV prevalence in this cohort was similar to what previous studies have reported . EPOA can be implemented successfully to increase detection of new HIV positive status in TGW and can complement traditional outreach strategies. Untapped or hidden communities can be reached for services through EPOA. EPOA roll out should be carefully considered with a sustainability plan, particularly in resource limited settings. The criteria for incentivising seeds can be revised or adopted according to the context of the programme.

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Offering Starter Packs of Antiretroviral Drugs Improves Treatment Outcomes among HIV-Infected Female Sex Workers in Nairobi, Kenya

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Background: Female sex workers (FSWs) in Kenya remain disproportionately affected by HIV, yet have lower access to, uptake of, and retention on treatment than the general population. Their highly mobile nature and irregular hours are contributing factors. The PEPFAR/USAID-funded LINKAGES project led by FHI 360, working with Bar Hostess Empowerment and Support program (BHESP), sought to improve linkage to treatment for HIV-positive FSWs in Nairobi by offering starter packs during outreaches.

Materials and methods: BHESP provides comprehensive HIV services, including HIV testing, to FSWs at their drop-in center (DIC) or through outreaches to hot spots where FSWs congregate. All newly identified HIV-positive FSWs are referred for treatment at the DIC or other facility of their choice. As part of same-day antiretroviral treatment initiation, in May 2019, BHESP clinicians began offering five–14-day ART starter packs to those diagnosed during outreaches. The number of tablets offered corresponded to the number of days until the first appointment at the DIC or link facility. The FSWs were then followed up by peer navigators to ensure completion of linkage to treatment. Outcomes were analyzed using descriptive statistics.

Results: During five months, a total of 109 FSWs were newly identified as HIV positive. Their median age was 34 (IQR 29–41). Of these, 79 FSWs (73%) were diagnosed during outreaches, and all received starter packs with an average of 12 pills. Of women receiving starter packs, 86% attended their initial clinic visit as scheduled, with the majority (95%) accessing services at the BHESP DIC. Overall linkage to treatment improved from 76% (35/46 FSWs testing positive during seven months before intervention) to 100% (109/109 FSWs testing positive during intervention). Of those eligible for viral load testing who had the test done and received a starter pack, 96% were virally suppressed at their six-month visit compared to 47% of all FSWs newly identified as HIV positive in the preceding year.

Conclusions: Offering ART starter packs to FSWs diagnosed at outreaches provides an opportunity for same-day ART initiation, leading to improved treatment outcomes. The program will build on the success of this intervention by expanding it to all outreach activities.

Abstract 314 and 315 are withdrawn

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Call for research on key population in Southern Africa: can 90-90-90 goals to improve HIV testing and linkages to treatment be achieved when a whole population is left out?

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This presentation call for research on LGBT population so that they are not left behind on progress made in HIV. Despite these practices dating back to ancient civilizations, many countries in Southern Africa have criminalized homosexuality. People who have sex with other men, the transgender population, sex workers and their clients, people who inject drugs and prisoners are identified as a population at a high risk of contracting the HIV infection. In 2016, outside of sub-Saharan Africa, key populations and their sexual partners accounted for 80% of new HIV infections, while in sub-Saharan Africa, key populations accounted for 25% of new HIV infections . UNAIDS considers gay men and other men who have sex with men, sex workers and their clients, transgender people, people who inject drugs and prisoners and other incarcerated people as key population groups. These populations encounter punitive laws or stigmatizing policies, violence, social and economic marginalization and criminalization. They are also the population at a high risk for exposure to HIV. The 90-90-90 aims for 90% of all people living with HIV will know their HIV status, 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy, and 90% of all people receiving antiretroviral therapy will have viral suppression.The UNAIDS 2016–2021 Strategy calls for bold action to Fast-Track the AIDS response. It incorporates a human rights-based approach to development and aims to leave no one behind in the AIDS response. There may be many socio-cultural and religious objections to LGBT, but research on LGBT must be superseded by principles for life, quality and healthy life, giving value, which all practitioners and scientists consider to be of great importance. Research on LGBT and health related issues is likely to provide information that will have a contemporary as well as a generational impact on the national health status. It is important research is conducted in the interest of public health. While LGBT rights issues include many social concerns, there have also been prominent areas of effort and contention in the era of HIV. The HIV epidemic among LGBT population is expanding but prevention, treatment, and care programs funded to reverse the epidemic often neglect this population. Strides have been made in reducing new HIV infection; the same level of effort is required to change the trajectory of the HIV epidemic among LGBT in Southern Africa.

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Profile des travailleuses de sexe utilisant internet pour la recherche de clients au Burkina Faso : Implication pour la prévention du VIH/IST

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Contexte: Durant les dix dernières années, l'accès et l'utilisation d'internet a connu une forte évolution en Afrique. Les travailleuses de sexe (TS) utilisent l'internet pour rechercher des clients afin de réduire leur sortie dans la rue. La présente étude vise à examiner l'utilisation d'internet par les TS, les facteurs associés à son utilisation et d'explorer la faisabilité d'une intervention internet contre le VIH/IST dans cette population clé au Burkina Faso.

Méthodes: Nous avons utilisé les données de l'enquête bio comportementale nationale réalisée au Burkina en 2017. Au total 4780 TS ont participé à cette étude. Une analyse descriptive a été faite pour observer la répartition des TS en fonction de l'usage d'internet. Une régression logistique tenant compte de la nature hiérarchique des données a été également réalisée pour identifier les facteurs associés à l'utilisation d'internet.

Résultats: L'âge médian des TS était de 24 ans (IQR 21-29). Environ 10% des TS utilisaient l'internet pour obtenir des clients. Parmi les TS qui utilisent l'internet dans un but professionnel 54% avaient un niveau d'éducation secondaire et 65% avaient un partenaire sexuel régulier. L'utilisation d'internet était significativement associée à l'âge, au niveau d'instruction, à la durée dans la profession du sexe, à la catégorie de TS, à la consommation d'alcool et du tabac, à la pratique sexuelle anale, au lieu de résidence, aux déplacements, aux attitudes discriminatoires envers les PVVIH, à l'affiliation à une association de profession de sexe et à la couverture par les services de prévention VIH/IST . Des analyses multivariées ont montré que l'affiliation à une association de profession de sexe, la couverture par les services de prévention VIH/IST, le jeune âge (20-24ans), le niveau d'éducation supérieur et le déplacement étaient significativement associées à une utilisation accrue d'internet avec des odds ratio respectifs de 2,12 [1,59 ; 2,82], 1,12[0,90; 1,40], 1,55[1,09; 2,21], 3,97[2,17 ; 7,24] et 1,66[1,33 ; 2,08] au seuil de 5%.

Conclusion: Nos données montrent que l'internet pourrait offrir une stratégie prometteuse pour donner de programmes de prévention du VIH/IST à faibles coûts au Burkina Faso.

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UTILLISATION DE WATSAPP : UN MOYEN POUR RENFORCER LE DIAGNOSTIC ET LA PRISE CHARGE DES IST /VIH CHEZ LES Hommes ayant des rapports sexuels avec d'autres Hommes AU SENEGAL

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Contexte : Au Sénégal depuis vingt ans la prise en charge des HSH est soutenue par les autorités étatiques et la société civile mais aussi à travers un réseau d'associations identitaires très dynamique pour lutter contre la stigmatisation et l'homophobie afin de faciliter l'accès aux soins à cette population où la prévalence du VIH reste élevée 27%.
L'environnement social reste précaire pour les HSH et les discours entretenus par les masses media et vidéo partagées ne font que renforcer la peur qui anime les HSH de recourir aux soins.
Les réseaux sociaux constituent un puissant moyen de communication mais peuvent être utilisés comme moyens de diagnostics et de traitement pour des populations difficiles d'accès. L'objectif de cette étude est de montrer l'utilité des TIC/WhatsApp pour renforcer le diagnostic et la prise en charge des problèmes de santé chez les HSH au Sénégal.

Methode: Il s'agissait d'une étude rétrospective portant sur des images photos et des appels vidéo partagés par les HSH avec leur médecin référent entre 2017 et 2018 via WhatsApp. L'analyse des images et vidéos a permis de poser des diagnostics et proposer des orientations pour thérapies.

Resultats: Ainsi entre 2017 et 2018 nous avons reçu plus de quatre-vingt images photos et appels vidéo montrant des lésions diverses et variées chez des HSH soit très loin à l'intérieur du Sénégal soit angoissés à l'idée de se présenter dans les structures par peur du dévoilement de leur orientation sexuelle. Ces images correspondaient à des lésions et affections infectieuses dans la plupart des cas des HSH qui souffraient en silence.
A travers ces images nous avons pu diagnostiquer et prendre en charge cinq cas de syphilis secondaires, vingt cas d'écoulement urétral, trois cas de zona, douze végétations anales à HPV, trois fistules anales, un abcès et, cinq thromboses hémorroïdaires. Au total treize HSH ont pu bénéficier du traitement ARV après dépistage.

Conclusion: Dans un contexte de stigmatisation, d'homophobie et d'un environnement défavorable, les HSH ont souvent peur d'aller vers les structures de santé juste pour se protéger.
Cependant les technologies de l'information et de la communication comme WhatsApp présent dans presque tous les Android des HSH peuvent renforcer l'accès à l'orientation diagnostique et à la prise en charge.

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The methodological aspects of designing a female sex worker-led community intervention to improve pre-exposure prophylaxis uptake and retention in South Africa; An intervention mapping approach

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Background: In 2016 the South African government approved PrEP distribution among high risk groups to reduce new HIV infections. Sex workers were targeted with PrEP as part of combination prevention. Research by the department of health showed that from June 2016-May 2018, 87% of FSWs tested negative, 66% were offered PrEP however only 13% were initiated. The reasons for low uptake have been concerns about side effects, lack of knowledge, as well as the social stigma and inability to adhere because of mobility. Due to these challenges, it was important to engage FSWs in the design of a FSW led community intervention to promote PrEP and address challenges pertaining to uptake, adherence and retention.

Methods: From May-November 2018, we conducted a needs analysis with 30 individual interviews with FSWs, a researcher and a nurse and focus groups with nine FSWs. Data from the needs analysis informed the development of an intervention. The intervention was co-created following a six step mapping process with eight FSW peer educators and a researcher, who held six meetings to discuss and formulate intervention determinants, change objectives, theory based methods, intervention program as well as identifying implementing partners and an evaluation plan.

Results: All the participants interviewed appreciated the role of PrEP as an additional prevention tool, however recognised that the current strategies were not person-centred. The FSW-led intervention highlights the development of agency, power, self-efficacy and hope among FSWs. The proposed intervention destigmatizes PrEP through positive messaging, equipping FSWs with the ability to differentiate PrEP from ARVs given to people living with HIV. Suggestions are given on how to manage pill supply and side effects as well as equipping participants to be ambassadors for PrEP.

Conclusion: Efforts towards improving uptake of PrEP among FSWs will require dedicated efforts in designing FSW acceptable interventions that address their individual and social needs. Meaningful involvement of FSWs in the design and implementation of PrEP services encourages uptake, and creates a sense of ownership to ensure sustainability of programs.

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Females who inject drugs in Nigeria: A 2018 population size estimate and its implication for HIV programming

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Background: People who inject drugs (PWID) are about twenty-two times more at risk of contracting HIV compared with the general population, with HIV prevalence among females who inject drugs (female PWID) almost seven times higher than among men who inject (IBBSS 2014). There is limited information on the number estimates of female PWID in Nigeria to guide HIV programming among them. This study aims at providing information on size estimates of females who inject drugs across ten states in Nigeria for effective planning and HIV programming among them.

Method: This study was conducted in 2018 among PWID in ten states (Abia, Anambra, Imo, Enugu, Kano, Kaduna, Gombe, Taraba, Edo, and Oyo) in Nigeria, using a programmatic mapping approach. It involved a two-level process. In the first level (L1), secondary key informants were interviewed to gather information regarding the geographic locations and description of their hotspots. The second level (L2) was focused on validating the information collected and collated in the previous L1 exercise and profiling of identified "hot spots" to characterize operational dynamics and estimate the size of PWID.

Results: The total number of PWID was estimated at 49,876 across the 10 states. Oyo State had the highest number of PWID with an estimate of 14,741, followed by Kaduna state 9,232, Kano 6,859 and Gombe 6,577 PWID. Edo state had the least estimated PWID with 549. The total mean estimated number of female PWID across the 10 states was 11,031 accounting for approximately 22% of the total estimated PWID. The highest female PWID estimates were found in Kaduna 3,340; Oyo 2,711, Abia 1,180 and Gombe 1,028 states. However, the highest proportion per state of estimated female PWID compared to the total estimated number of PWID was seen in Edo (38%), Kaduna (36%) and Abia (32%) states. Oyo state though had the highest estimate of PWID per state, the proportion of female PWID was less than 20% of the total estimated PWID population in the state.

Conclusion: Female PWID accounted for about one-fifth of the total number of estimated PWID across the ten states and greater than one-fifth of the proportion of the estimated PWID population in six states. This is high. Further studies need to be carried out to ascertain risk factors associated with these findings, the type of drugs they inject and better understand how to design gender-specific HIV programs for female PWID while taking into cognizance socio-cultural and religious factors and their reproductive health. Additionally, conducting this size estimates in the remaining states of the country is highly recommended.

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Client-driven differentiated service delivery model improving ART services for adolescents and young people living with HIV in Mzuzu, Malawi: A mixed-methods study

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In Malawi, young people living with HIV (YPLHIV) face a number of barriers to accessing HIV treatment and care. With 3.6% of young women and 2.5% of young men (aged 15-24) living with HIV in Malawi, access to and uptake of key HIV services remain very low. Health services that are youth supportive, stigma and discrimination coupled with limited access to quality HIV information result in lower uptake of services and poorer retention rates. This study aimed at improving anti retroviral therapy (ART) services for YPLHIV at Mapale Health Centre, Malawi, using a client-driven differentiated service delivery (DSD) model.Between July 2018 and July 2019, YPLHIV aged 10-24 at Mapale Health Centre developed their ideal DSD model through focus group discussions which was then piloted. Through a qualitative and quantitative questionnaire at the end of each teen club an analysis was made to identify the number of YPLHIV accessing ART, newly diagnosed with HIV and linked to care, the percentage retained in care and adhering to treatment.After the pilot phase, the number of YPLHIV accessing HIV services increased from 40 at baseline to 169 and the percentage of YPLHIV adhering to treatment percentage was >95% with females slightly adhering more than males. An additional result was that a peer supporter system was established, responsible for retaining 38 clients in care through defaulter tracing and conducting intensive adherence counselling. When the youth peer supporters followed the operating procedures, they identified gaps in the policy and felt empowered to advocate for policy change. The policy was changed to reflect the introduction of a DSD model which was oriented to the needs of the YPLHIV at Mapale Health Centre. We recommend to expand the model to more clinics in Mzuzu and for the district health office to organize youth-friendly service training for their health workers to strengthen the health care systems and also involve youth people in the community health system linkage platform for sustainability. Client driven or demand driven DSD models should be integrated in primary health care as it responds to YPLHIV's needs and can improve adherence and retention.

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Uptake and seroconversion rates among key and priority populations screened for pre-exposure prophylaxis in Kampala, Uganda.

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Background: Pre-Exposure Prophylaxis (PrEP) is effective in reducing HIV transmission among populations at high risk of acquiring HIV. Individuals must perceive their risk and faithfully take the daily PrEP. We report the uptake and seroconversion rates among key and priority populations (KP/PPs) of PrEP in Kampala, Uganda.

Methods: Clients that attended three PEPFAR supported clinics were followed up from August 2017 to September 2019. KP/PPs were: discordant couples, female sex workers (FSW), men who have sex with men (MSM), fisherfolk, non-injecting and injecting drug users. A client was eligible for PrEP if: HIV negative, at substantial risk of acquiring HIV (sex work, irregular condom use, multiple partners, recurrent STIs) with normal renal function (creatinine clearance ≥ 60ml/min). Clients were screened using the national PrEP eligibility tool and counselled. Those that accepted provided consent and were initiated on PrEP (TDF/3TC) at the clinic or in the community; followed up monthly and retested for HIV every 3 months. Seroconversion was defined as testing HIV positive after testing negative while on PrEP. A descriptive analysis was done using frequencies and percentages.

Results: A total of 9,878 clients tested HIV negative [Females 6,203 (62.8%); 4,133 (41.8%) young adults 10 to 24 years]. Those eligible for PrEP were 7,381 (74.7%) [Females 4,749 (64.3%), young adults 3,307 (44.8%)]. Majority 6424(87%) accepted, and were initiated on PrEP [Females 4,205 (65.5%), young adults 2,863 (44.6%)]. Uptake was highest among the discordant couples 429 (99%), transgender people 29 (91%) followed by the FSW 3936 (88%) and MSMs 1106 (82%). See Fig 1
There were 15 clients that seroconverted, an incidence rate of 7.4 per 100 person years. FSW 10 (66%), 3 (20%) MSMs, 1 (7%) drug user and 1 (7%) DC. Seroconversion was associated with suboptimal adherence. 10 (67%) were taking drugs intermittently, 5 (20%) stopped due to side effects and new partners. The average time on PrEP was 8.2 months (range 3-17). Retention at 12 months was 11%.

Conclusion: PrEP uptake was suboptimal among KP/PPs. Apparent seroconversions were few, but those lost to followup may have higher seroconversion rates. Further research is needed to understand barriers and develop strategies to improve uptake and adherence to PrEP.

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A FRIEND TO REACH A FRIEND IN NEED: Promising Findings Through the Social Network HIV Testing Strategy at AIDS Information Centre in Kampala, Uganda

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Background: Social Network Strategy (SNS) for HIV Testing Recruitment is based on the underlying principle that persons within the same social network who know, trust, and can exert influence on each other share the same risks and risk behaviours for HIV. SNS entails engaging people at high risk of HIV infection as well as those living with HIV/AIDS code named as "informants" to identify their peers and social contacts for HIV services. These informants provide contact details of their social networks to the health worker for follow up however, they can as well accompany them to Health facilities to access HIV services. Informants are empowered to provide basic information about HIV/AIDS to their peers and contacts to enable them embrace the services.

Materials and Methods: Male and female individuals attending the AIDS Information Centre clinic between January and December 2019 were identified as informants for SNS HIV testing after being classified as high risk. Risk was determined by one's sexual orientation, number of sexual partners in the past 12 months, drug use among others. The individuals classified as high-risk were given basic information about HIV/AIDS and encouraged to elicit the social contacts who would be followed up for HIV testing with an assumption that they were equally likely to be at risk. HIV testing services were delivered to the elicited persons at their place of convenience; either at the health facility or in the community.
Informant and elicited social contacts' identification information, HIV test results were recorded in registers.
We present the HIV positivity yield from the clients who were elicited and tested through SNS.

Results: Two hundred and ninety-three social contacts were elicited by 166 high-risk informants identified. 215 were notified about their risk of HIV infection; 147 of whom accepted to take an HIV test. Out of the 147 who tested, 25(17%) were newly identified as HIV positive.

Conclusion: HIV testing through Social Network Strategy delivers higher HIV positivity yield. It is effective in targeting un-diagnosed HIV positive individuals using minimum resources and should be embraced in resource constrained settings.

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Application of Total Quality Leadership and Accountability (TQLA) to improve linkage of key populations to ART in Zambia.

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Background: The USAID/Open Doors Project (ODP) is a key population project operating in eight districts of Zambia. The target population are female sex workers (FSWs), men-who-have-sex-with men (MSM) and transgender (TGs). In June 2018, program data reviewed showed sub-optimal linkage at the Chililabombwe site. To mitigate, the Total Quality Leadership and Accountability (TQLA) approach was adopted as an overarching performance improvement framework. TQLA© is an adaptive management model developed and tested by FHI 360 will be the overarching approach for strengthening leadership capacity to be more accountable and use data.

Method: TQLA© entails holding of daily situation room meetings (SRM) for granular review of the data. Arising from SRMs, sub-optimal linkage was noted at the Chililabombwe site prompting a data quality audit (DQA). File separation and line listing were done to identify the unlinked clients. Trained counselors were assigned to track these clients using telephone calls and by home visits. Escorted referral ensured linkage to ART care was documented. Each counselor contribution to linkage were monitored and documented daily. Statistical test was used to compare linkage proportions for two time periods: April - July 2018 (before intervention) and December 2018 -September 2019 (after intervention).

Result: For both periods combined, 1,907 Key Populations tested for HIV (before intervention 530, after intervention 1377. There were 173 (33% positivity yield) new cases before intervention and 575 (42% positivity yield) after intervention. The linkage rate before intervention was 80% and 100% post intervention. There is strong association (95% CI: 0.14,0.26 p-value: 0.001) between the TQLA© and improved linkage to ART.

Conclusion: TQLA© when used as a technical and program management tool has the potential to improve HIV program outcomes by holding staff at all levels accountable, using daily data.

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TB, a ticking time bomb Among the key population-lessons learnt from Kenya PWID program

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Background: People who inject drugs(PWID) are at high risk of contracting tuberculosis, whether or not they are infected with the human immunodeficiency virus (HIV). Studies conducted by WHO before and after the emergence of HIV infection show that, when compared with the general population, PWID have a higher risk not just of getting tuberculosis infection, but also of developing active disease. Similarly, outbreaks of drug-susceptible and multidrug resistant (MDR) tuberculosis are common in this group. The management of tuberculosis in PWID calls for a systematic, coordinated approach because of the common convergence of tuberculosis, HIV infection and viral hepatitis

Methodology: An analysis of patient data from 5 Sub-Recipients of Global Fund under Kenya Red Cross Society in 4 Counties-Mombasa, Kilifi, Kwale and Nairobi. The Rapid Results Initiative (RRI) activity targeted a total of 10789(100%) of the total cohort of PWID enrolled in the program and are actively injecting, or have started Methadone, taking an average of 6 days in each county. A one day sensitization to Health Care Workers (HCW) was conducted by Kenya Red Cross Society in collaborated with the ministry of health and counties through TB program in Kenya where different methodologies of screening and diagnosis- Intensive Case Finding (ICF) Tool Screening, Sputum Collection for Gene Xpert and Chest X-Ray were adopted to be used. All the clients went through the process with outcome at each stage analysed through a comparative analysis.

Findings:
•   All the PWIDS were mobilized for the activity who otherwise had no complains related to TB yet 2.2% of the 2992 sputum samples had gene x pert positive results.
•   74.6% of gene x-perts positive results had suggestive chest X-ray findings
•   Chest X ray services provided was a key motivator for mobilisation as well as Complimentary screening tool/diagnosis of other ailments for PWIDs.
•   TB is a hidden disease among the PWIDS thus need to integrate TB SDA in HIV prevention program for KPs. TB prevalence from the TB RRI PWIDs was marked at 1792 per 100000-Should be part of conclusion
Limitations
•   Breakdown of the gene expert machines due to work load and capacity limitations of the X-Ray machines.
•   Turn-around time for the diagnosis by the clinical team affected timely decision making.

Recommendations:
•   Continued partnership with the county and Civil Society Organisations providing services to PWIDs in regard to concerted efforts on TB case identification and management among the Key population is key
•   Sustained TB active case finding among the PWIDS is likely to timely bring out cases for adequate management than the currently used intensive case finding approach
•   Continuous capacity building to the KP Service Providers on TB management is key for all KP programs.

Conclusion: These findings support the fact that TB is a hidden disease among the PWIDS since those that did not have complaints of cough of any duration nor physical manifestation still had gene x pert positive results. TB prevalence from the TB RRI for PWIDs was marked at 1792 per 100000, against the National prevalence for GP which stood at 558 per 100000. A Sustained ACF among the PWIDs and integration TB Service delivery approach in HIV prevention program for KPs is therefore key in eliminating the disease.

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HIV prevention service coverage & injecting drug use practices among persons who inject drugs (PWID) in Nigeria: Lessons from 10 state programmatic mapping & size estimation study.

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Background: Injecting drug use is associated with many serious drug related harms, such as the transmission of HIV and viral hepatitis, fatal and non-fatal overdoses, bacterial infections at injection sites etc. Among the high-risk drug users 21per cent, or an estimated 80,000 users, had injected drugs. The HIV prevalence amongst people who inject drug is estimated at 3.4 %, which is above the average national prevalence of 1.4%. Previously, there has been reluctance in starting harm reduction programmes due to lack of population size estimates and epidemiology data among people who inject drug. The Nigeria government, with support from Global fund, recently commissioned needle exchange pilots, following the results from the Key population programmatic mapping & size estimation study and related efforts.

Methods: Persons who inject drugs were mapped in 10 States through programmatic mapping. This involved two sequential data collection steps known as level one (L1) and level 2(L2). During L1, information on geographic locations where PWIDs congregate (hotspots), characteristics of spots, estimate of PWIDs found there, their injecting drug use practices and HIV prevention service coverage was collected from key informants. During L2, key informants' interviews were conducted by trained data collectors at identified spots across the 10 study States. In L2, primary key informants validated information collected during L1.

Results: 3847 PWIDs spots were identified across 10 states. Kano state has the highest number of PWID spots (847) while Edo has the least (45). Oyo states has the highest number of PWIDs per spot (17.3), with about 56% of all PWIDs in Oyo state sharing needles. Abia and Gombe states has about 41% and 39% of all PWIDs sharing needles while Enugu has the least proportion of her PWIDs sharing needles (13%). Only about 5% of spots in Gombe has a needle replacement/exchange services available while there is none in Oyo State and all other states. About 2.2 % of used needles are disposed safely in Gombe state. Many of the states do not have any safety programmes for PWIDs. About 22% of all PWIDs are women.

Conclusions: Information from the study can be used to plan targeted interventions for people who inject drugs in Nigeria based on risk level and their degree of access to HIV prevention service programmes. It can also be used as an advocacy material for mobilizing and mainstreaming sustainable HIV prevention programs for PWIDs, considering that members of Key populations (PWIDs inclusive) are critical in Nigeria's drive towards 0% incidence by 2030.

Abstract 327 is withdrawn

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The Effects of Social, Clinical, and Familial Victimization Exposure on Drug and Alcohol Misuse in Adolescents Living with HIV in the Amathole District, South Africa: A Cross Sectional Study

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Objectives: The aim of this study is to examine the associations between social, clinical, and familial victimization influences associated with alcohol and drug misuse in Adolescent Living with HIV (ALHIV) in Amathole District of the Eastern Cape of South Africa. The primary objective of this study is to determine rates of negative familial, clinical and/or social victimization experiences and to investigate to what degree these contribute to an increase in alcohol and drug misuse.

Design: Secondary analysis of cross-sectional data from 1 050 ALHIV participating in Year 2 of the Mzantsi Wakho study.

Setting: This study took place in The Eastern Cape Province in South Africa, the poorest province in the country. The parent Mzantsi Wakho study was carried out in a health sub-district that comprises of urban, rural, and peri-urban housing areas and includes 53 health facilities that provide adolescent antiretroviral therapy (ART) services.

Main Outcome Measures: ALHIV who reported to have consumed sufficient alcohol or drugs to make them forget what happened, and not be able to walk or talk properly in the past three months.

Results: Out of the 1 050 ALHIV study participants, 5.43% (57 / 1 050) reported substance misuse in the last three months. After adjusting for confounding variables, substance misuse was independently associated with verbal threats from a family member of being kicked out of the house, (aOR=2.78, 95% CI: 1.32-5.79, p=0.007); name calling by a family member, (aOR=2.27, 95% CI: 1.18-4.35, p=0.01); visiting a clinician who did not know answers to the ALHIV questions, (aOR=6.15 , 95% CI: 2.34-16.18, p<0.0001); experiencing a clinician who became angry with them about how they took their pills, (aOR=2.64, 95% CI: 1.24-5.61, p=0.01); peer bullying through manipulative behaviour, (aOR=2.93, 95% CI: 1.38-6.21, p=0.01); and sexual abuse through rape by any perpetrator, (aOR=2.99, 95% CI: 1.04-8.61, p=0.04). After fitting a logistic regression model with the confounders and the exposure variables shown to be statistically significant, the clinician exposure - clinician who did not know the answers to questions posed by the ALHIV, maintained statistical significance, (aOR=4.84, 95% CI: 1.73-13.56, p=0.003). Evidence of interaction was observed in 6 combinations of variables. After fitting logistic regression models with interaction terms, the association between substance misuse and ALHIV experiencing clinicians not knowing the answers to questions who were also exposed to clinicians who became angry with them because of how they took their pills led to the highest increase in odds, (OR=5.66, 95% CI: 1.00-32.16, p=0.05).

Conclusions: This study highlights the associations between individual and compounded levels of exposure to different types of violence experienced by ALHIV and substance misuse risk factors. These findings support the need for ALHIV to receive psychosocial interventions that address different levels of abuse and trauma in order to decrease their risk of substance misuse, potentially leading to more positive clinical outcomes in relation to HIV care and treatment.

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Assessing bias in population size estimates among hidden populations when using the Service Multiplier Method combined with Respondent-Driven Sampling surveys

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Background: Population size estimates for hidden populations at increased risk of HIV, including female sex workers (FSW), are important to inform public health policy and resource allocation. The service multiplier method is commonly used to estimate the sizes of hidden populations. We used this method to obtain population size estimates for FSW at nine sites in Zimbabwe and explored methods for assessing potential biases that could arise in using this approach.

Methods: We conducted respondent driven sampling (RDS) surveys at nine sites in late 2013 where the Sisters FSW programme, which collects programme visit data, was also present. Using the service multiplier method, we obtained population size estimates for the FSW in each site by dividing the number of FSW who attended the Sisters programme, based on programme records, by the RDS-II weighted proportion of FSW who reported attending this programme in the previous six months in the RDS survey. Both the RDS weighting and the service multiplier method make a number of assumptions, potentially leading to biases if the assumptions are not met. To test these assumptions, we used convergence and bottleneck plots to assess seed dependence of the RDS-II proportion estimates, the chi-squared test to assess if there was an association between characteristics of women and knowledge of FSW programme existence, and logistic regression to compare the characteristics of women attending the programme with those in RDS data.

Results: The population size estimates ranged from 194 (95% CI: 62-325) to 805 (95% CI: 456-1142) across the nine sites for the period May to November 2013. The 95% CIs for the majority of sites were wide. In some sites, the RDS-II proportion of women who reported programme use in the RDS survey may have been influenced by the characteristics of selected seeds and we also observed bottlenecks in some sites. There was no evidence of association between characteristics of FSW and knowledge of programme existence, and in the majority of sites there was no evidence that the characteristics of the populations differed between RDS and programme data.

Conclusion: We used a series of rigorous methods to explore potential biases in our population size estimates and found that we were able to identify these as well as the potential but not ultimate direction of bias in our estimates. We have some evidence that the PSEs in most sites may be biased, some suggestion that the bias is toward underestimation and this should be considered if the PSEs are to be used. These tests for bias should be included when undertaking population size estimation using the service multiplier method combined with RDS surveys.

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Femmes et vulnérabilités sexuelles : cas des travailleuses du sexe (TS) victimes de violences sexuelles au Burkina Faso

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Contexte et objectif: Les femmes sont plus vulnérables aux IST et le VIH du fait des facteurs biologiques, socioculturels, économiques, comportementaux et professionnels. Au Burkina Faso, avec une 326ust326ms326326e du VIH 16 fois plus élevée que celle de la population 326ust326ms326, les TS sont 326ust326ms de multiples violences et abus sociaux don't les violences sexuelles qui les rendent plus vulnérables au VIH. La littérature 326ust africaine a peu documenté ce type de violences chez les TS. L'objectif de cette étude est d'analyser les violences sexuelles chez les TS au Burkina Faso.

Matériels et méthodes: Il s'agit d'une étude transversale, qualitative. Une cinquantaine d'entretiens individuels et sept focus group ont été réalisés avec des TS, des auteurs des violences à leur égard et des acteurs de leur protection. Les enquêtés ont été sélectionnés de façon raisonnée jusqu'à la saturation des informations recherchées. Les données ont été dépouillées manuellement ensuite, une analyse thématique de leur contenu par une simple catégorisation a été réalisée.

Résultats: Il ressort des résultats que la quasi-totalité des TS a subi des violences sexuelles. Ce sont les rapports sexuels non protégés, les caresses non désirées, le harcèlement sexuel, l'exploitation sexuelle, les viols individuels ou collectifs. Ces violences se manifestent par des rapports sexuels brutaux, sans protection ni gel ou protégés mais avec le retrait au cours des rapports, ou la soumission de la TS aux bris de préservatifs, le non-respect de la durée du temps négocié et payé pour un rapport sexuel, le refus de payer les rapports sexuels.

Conclusion: Les TS victimes de violences sexuelles courent un risque élevé de contracter le VIH. Pour réduire la prévalence du VIH chez ces TS, il s'avère nécessaire de lutter contre ces violences sexuelles afin de réduire significativement leurs vulnérabilités sexuelles.

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Community-based ART initiation: implications on quality of HIV care for Key Populations

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Background: In Uganda, of the 1.3 million people living with HIV, an estimated 212,523 persons had not yet been diagnosed by the end of 2018 (PEPFAR data). As a result of this, proactive differentiated models of targeted HIV testing have been adopted, specifically targeted outreaches to the community to screen high-risk individuals for HIV. In addition to facility-based HIV testing, community outreaches have increasingly become the focus for finding the missing HIV patients in a bid to meet the first 90-target set by UNAIDS for HIV epidemic control. Upon HIV diagnosis, same-day ART initiation is recommended, except in the presence of serious opportunistic infections or non-consent. Starter packs of ARVs are dispensed while in the community for same-day linkage to treatment. We set out to study the care quality implications of community ART initiation among a cohort of 96 newly diagnosed Key Populations in July-September 2019.

Description: In July-September 2019, we conducted a total of 46 integrated outreaches and 31 moonlight testing outreaches targeting key populations within Kampala and Wakiso in Central Uganda. A total of 2,325 key populations (59% FSW, 17% TG, 12% MSM, 12% PWID) were tested for HIV and 96 were newly diagnosed (76 FSW, 1 TG, 1 MSM, 18 PWID), 20 were male and 76 female. All newly diagnosed patients were assymptomatic.

Lessons: Despite having ARV starter packs, only 78% (75/96) of the newly diagnosed HIV patients got same-day linkage to ART. Patient interviews revealed non-readiness to initiate ART (16/21), denial and stigma (5/21) and interference with business specifically for the sex workers (18/21) as reasons for not taking up ART. The odds of non-linkage were twice among females at 2.38 (0.8-7.1), compared to males. Among patients initiating ART, 0% had their baseline CD4 result documented and only 64% (48/75) attended their scheduled 2-week follow-up visit.

Conclusions: Whereas community-based ART initiation using ARV starter packs is convenient, we recommend that it should be coupled with mobile baseline point of care CD4 testing, standardized rapid pre-treatment and stigma reduction counseling emphasizing the benefits of early ART despite the absence of symptoms and proactive community follow-up of patients for their scheduled appointments.

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Prevalence and factors associated with HIV infection among female entertainment workers in Cambodia: findings from a national survey

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Background: Cambodia has made tremendous progresses in the fight against HIV epidemic. However, the country continues to face challenges in eliminating HIV among key populations, including female entertainment workers (FEWs). This study explored the prevalence of HIV and factors associated with HIV infection among FEWs in Cambodia.

Materials & Methods: The National Integrated Biological and Behavioral Survey among FEWs was conducted in 2016 in the capital city and 17 other provinces with a large FEW population size and high burden of HIV. The study sample included 3,151 FEWs aged 18 years or older, recruited using a two-stage cluster sampling method. A multivariable logistic regression model was constructed to explore factors associated with HIV infection. This study was approved by the National Ethics Committee for Health Research (Ref: 297NECHR).

Results: The mean age of the participants was 26.2 (SD= 5.7) years. The prevalence of HIV among FEWs in this study was 3.2% (95% CI= 1.76-5.75). After controlling for potential confounders, the risk of HIV infection was significantly higher in women older than 30 (AOR= 2.72, 95% CI= 1.36-8.25), women who were not married but living with a partner (AOR= 3.00, 95% CI= 1.16-7.79), women who reported using illicit drugs in the past three months (AOR= 3.28, 95% CI= 1.20-4.27), and women who reported having genital ulcers or sores (AOR=2.06, 95% CI= 1.09-3.17), genital warts (AOR= 2.89, 95% CI= 1.44-6.33), and abnormal vaginal discharge (AOR= 3.51, 95% CI= 1.12-9.01) in the past three months. The risk was significantly lower in women who had attained at least 10 years of formal education (AOR= 0.32, 95% CI= 0.17-0.83) and women working in a karaoke bar (AOR= 0.26, 95% CI= 0.14-0.50) and beer garden (AOR= 0.17, 95% CI= 0.09-0.54).

Conclusions: This study suggests that to reduce the prevalence of HIV among FEWs, priorities should be geared towards older women and FEWs working as freelance sex workers. While outreach interventions among venue-based FEWs remain essential, online and mobile-based programs should be tailored towards promoting consistent condom use, especially in non-commercial relationships, regular HIV testing, early screening and management of STIs, and reducing the harmful use of alcohol and illicit drugs.

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A CASE STUDY OF STIGMA ELIMINATION AGAINST FEMALE SEX WORKERS AT PUBLIC HEALTH FACILITIES IN KAJIADO NORTH SUB-COUNTY-KENYA

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Introduction: Accessibility to health care facilities is one of the necessities for a healthy life. Female Sex Workers (FSW) face stigma and discrimination from the healthcare providers, and the public in general. This contributes to exclusion from society. Due to this exclusion, the FSW face complex needs like lack of rights to work, limited access to funds, limited access to drug addiction rehabilitation services, deteriorating physical and mental health, extreme poverty, inadequate education, and frail opportunities of breaking from the destructive behavior.

Problem statement: The FSW projects have demonstrated effective ways of changing the risk behaviors and improving the wellbeing and health of these women. However, the delivery model of the FSW projects in Kenya and in Africa, in general, is very unclear, especially in the government facilities. Further studies have shown the kind of services supposed to be offered to the FSW without indicating some of the barriers experienced by the FSWs while seeking these services in public health facilities. This study, therefore, aims to identify some of the confines that were experienced by the FSWs in finding healthcare in public facilities in Kiserian and Rongai wards in Kajiado North sub-county.

Objective: The main aim of the study was to determine whether KRCS through GF grant and ADEO as the SR have eliminated stigma faced by the FSWs that prevent them from seeking medical services from the public facilities in these two sub-counties (Kiserian and Ongata Rongai).

Methodology: The study was conducted in the sex worker's brothels and hotspots along the streets in Kiserian and Ongata Rongai in Kajiado North sub-county, Kajiado County. The study was a cross-sectional study conducted between August to September 2019. Qualitative data collection method was used. This comprised of semi-structured interviews, interviews of key informants, and case narratives. 200 FSWs were sampled out, which was a representative of the entire FSW population.

The findings: The findings indicate that one of the substantial barriers in accessing healthcare services was stigma in the health facilities. In this context, stigma means disgrace of the FSWs by the healthcare providers. Number of FSW accessing the healthcare services before intervention (17), after the intervention (188).

Conclusion: The study ascertained the existence of factors that prevent the FSWs from accessing services in the public health facility. Thanks to the Kenya Red Cross through Global Fund project, that some of these barriers have been eliminated. The staffs at public health facilities in Kajiado North sub-county hospital have now embraced the program and are willing to accommodate the sex workers and keep their information confidential, once referred by the ADEO counsellors.

Recommendations:
i.   Public hospital policies should be strengthened to inform the right practices within the facility.
ii.   There is need for further research studies that will give guidance on the health policies that affect the FSWs.

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Factors associated with condom use among sex workers living with HIV in Burkina Faso

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Background: HIV-infected Female sex workers with a detectable viral load could contribute to the transmission of HIV. Condom using remains one of the most effective means of protection against HIV. Our study therefore explores the factors associated with condom using among FSW living with HIV in Burkina Faso.

Method: The data used are those of the national bio-behavioral study carried out in 2017 in Burkina Faso. Logistic regression has been used to identify the associated factors with condom using. The software SAS has been used for the analysis.

Results: In total, 258 HIV-infected FSW have been included in our study. Among them, the median age was 28 years (IQR: 23-33). More than half had secondary education (54.5%). The major part had at least one non-paying regular sexual partner (58.1%) and 6.2% did not use condom during every sexual intercourse with a client. The multivariate analysis showed that living out of Ouagadougou (AOR: Bobo vs Ouagadougou = 0.14 [0.02-0.78] and other cities = 0.38 [0.07 – 2.07], p = 0.05) and mobility outside the country (AOR = 0.24 [0.07-0.88], p = 0.03) decreased the chances of condom using. However, having no regular partner (3.92 [0.99-15.62], p = 0.03) and do not use modern contraceptive had a positive impact on the chances of using condom (3.03 [1.01-9.09], p = 0.05).

Conclusion: The results show that actions of sensitization should be reinforced, mostly in the other cities than Ouagadougou. In addition, special emphasis should be placed on FSW traveling outside for sex work.

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The Impact Of Third-Party Logistics Providers On Access To HIV Care In Key Population-Friendly Facilities In Ghana

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Background: Comprehensive management of Key Populations(KP) living with HIV is critical to achieving epidemic control in Ghana. The availability of HIV Commodities at KP-friendly sites is pivotal in achieving this objective. However, many service delivery points(SDPs) in Ghana do not have adequate human resource to provide optimal healthcare. In some instances, clinical workers double as commodity managers, affecting their ability to adequately cater for clients. In addition, multiple assessments of the public health supply chain in Ghana highlighted significant challenges including the absence of a reliable distribution system for HIV commodities.
Previously, workers at antiretroviral therapy(ART) sites sometimes had to commute long distances to access essential health commodities for their facilities. This resulted in multiple, uncoordinated pick-up of commodities by healthcare staff at considerable costs to facilities, disrupted service delivery at ART sites and limited commodity availability. Therefore, in 2002, the Government of Ghana(GoG) adopted a policy to ensure the scheduled delivery of commodities from Regional Medical Stores(RMS) to SDPs. Despite procuring several vehicles and other resources, the implementation was not effective.

Methods: In 2016, GoG, The Global Fund and USAID agreed to explore other options by contracting third-party logis-tics providers(3PL) to address this perennial challenge. Consequently, in 2017, the Partners en-gaged several 3PL to undertake a comprehensive programme to support the RMS to distribute commodities to selected SDPs including all KP-friendly sites. Deliveries were made along des-ignated routes on a scheduled basis.

Results:
•   By September 2018, HIV commodities were delivered through the 3PL to all KP-friendly sites, re-sulting in the reduction of the average stock-out rate of tracer commodities by 10% and 99.3% avail-ability of first-line HIV medicines at service delivery points.
•   A costing study also revealed that health facility pick-ups were about $50 higher than the 3PL per cubic metre delivered to the KP-friendly facilities. In the post-implementation assessment report, facility managers expressed satisfaction as the stress of ART and other staff travelling to pick up commodities from the RMS were taken away.

Conclusion: Despite apprehension by several Policy makers in sub-Saharan Africa, 3PL provide private sec-tor efficiencies and skills which can accelerate efforts to achieve the 90-90-90 and other healthcare targets.

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Progress and Challenges toward Reaching 90-90-90 Targets among Key Populations in Botswana

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Background: Botswana has made great strides toward achieving the UNAIDS 90-90-90 goals, however achieving these targets for key populations (KPs) remains a challenge. KPs, such as men who have sex with men (MSM) and female sex workers (FSWs), have limited access to HIV prevention, care, and treatment services due to stigma and discrimination, and lack of an enabling environment. Using data from the first and second Biological and Behavioral Surveillance Surveys (BBSS1, BBSS2), we analyzed progress toward reaching the targets among KPs in Botswana.

Methods: To examine progress between 2012 (BBSS1) and 2017 (BBSS2), comparisons were made for the three districts represented in both surveys: Gaborone, Francistown, and Chobe. KP members aged 16–64 years responded to a questionnaire and were tested for sexually transmitted infections, including HIV. HIV testing was done with all participants regardless of documented status.

Results: HIV prevalence among FSWs remained high; 2012 (61.9%) and 2017 (51.5%), with no significant change (p=0.19). HIV-positive FSWs who self-reported as positive increased slightly (68.4% vs. 45.1%, p=0.008). Compared to 2012, significantly more FSWs who knew their HIV status self-reported being on ART (24.9% vs. 87.8%, p=0.000). The number of FSWs living with HIV and on ART significantly increased from 10.6% to 60.3% (p=0.000). Only 59.5% of all FSWs living with HIV who know their status are on ART and reported taking it daily in 2017.

Among MSM, HIV prevalence increased significantly from 13.1% to 19.1% (p=0.016). This may be due to the slightly older sample in 2017 (28 years) compared to 2012 (23.3 years). The number of HIV-positive MSM who knew their status increased (41% vs. 16.9%, p=0.016). Of those who knew their status in 2017, 82% self-reported to be on ART, up from 13% in 2012. The number of MSM living with HIV significantly increased from 5.1% to 37.2% (p=0.0000). Only 35.9% of MSM living with HIV who knew their status reported taking ART daily in 2017.

Conclusion: Despite the significant improvements between BBSS1 and BBSS2, KPs continues to be highly affected by HIV and are far from reaching the 90-90-90 UNAIDS goals compared to the general population. For the first 90 FSW are at 68.4%;41% for MSM, for the second 90 FSW are at 60.3%; 37.2% and for the 3rd 90 FSW are at 59.5% and 35.9% for MSM (using medical adherence as a proxy). For countries to achieve epidemic control, ongoing investments in programs tailored to the needs of KPs are needed.

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Trends in Prevalence of HIV and other STIs among Key Populations in Three Districts in Botswana: Results of the 2017 Behavioral and Biological Surveillance Survey among Key Populations in Botswana (BBSS2)

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Background: The first Behavioral and Biological Surveillance Survey (BBSS1) in Botswana was conducted in 2012 to generate baseline information on the prevalence and incidence of HIV and other STIs among female sex workers (FSWs) and men who have sex with men (MSM). The study results highlighted critical gaps in the provision of HIV and STI services for key populations (KPs). Five years later, the second BBSS (BBSS2) was conducted to better understand the dynamics of HIV transmission in these populations. We compared trends in the prevalence of HIV and other STIs between BBSS1 and BBSS2.

Methodology: Both studies used a cross-sectional design to establish the prevalence of HIV and other STIs among the selected KP groups. A mapping exercise of all venues where FSWs solicited clients was used to create a time-location sampling frame, while respondent-driven sampling was used for the often hidden MSM population. Comparisons were only made for the three districts represented in BBSS1 (Gaborone, Francistown, Chobe) and only for the STIs previously studied in BBSS1 (syphilis, gonorrhea, and chlamydia).

Results: Overall, HIV prevalence among FSWs decreased from 61.9% (BBSS1) to 51.3% (BBSS2). HIV prevalence among MSM increased significantly from 13.1% (BBSS1) to 19.1% (BBSS2) (p=0.016). The most common STI for both groups in both studies was chlamydia. FSWs experienced an increase in the prevalence of chlamydia (11.9% to 13.7%) and syphilis (3.5% to 6.7%) and decline in gonorrhea (10.5% to 7.2%) from BBSS1 to BBSS2. Among MSM, there was decline in prevalence for all three STIs from 2.9% to 1.7% for gonorrhea, from 11.3% to 9.2% for chlamydia, and from 2.7% to 1.8% for syphilis. Finally, self-reported access to ART treatment improved significantly, from 25% to 88% (p=0.000) for FSWs, and from 13.1% to 82.1% for MSM from BBSS1 to BBSS2.

Conclusion: Prevalence of HIV and STIs remains high among KPs in Botswana. Given the correlation between STIs and HIV transmission, there is a need to scale up combination prevention strategies that include prevention education, pre-exposure prophylaxis (PrEP), and promotion of condom and lubricant use.

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Programmatic mapping and size estimation to hotspot level helped inform effective HIV programming for key populations within Montserrado County

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Background: While Liberia has a generalized HIV epidemic with an estimated prevalence of 2.1% among the general population (men 1.7% and women 2.4%), key populations (KPs) are the most vulnerable with an estimated prevalence of 19.8% among men who have sex with men (MSM) and 9.8% among female sex workers (FSWs). The PEPFAR/USAID-funded LINKAGES project implemented by FHI 360 conducted programmatic mapping and size estimation at hotspot level to strengthen reach and linkage of KPs to effective HIV programming.

Methods: In May 2019, some lead KP representatives and key informants (bar men, hotspot owners and regular hotspot patrons) were interviewed to understand KP dynamics according to geographic locations in 124 hotspots (places where KPs are most likely to engage in risky behaviors). This was repeated in July 2019 as a validation exercise and information was collected from 305 hotspots in 7 health districts in Montserrado County. KP Peak days and times and any pointers to some risk such as approximate ages of KPs were noted. Population size estimates were calculated for each hotspot and adjusted for duplication and then aggregated to inform project estimates.

Results: Forty five percent of 428 MSM (193) operate through physical spots including entertainment centers, streets and homes of some member while fifty five percent (235) and the majority of 197 transgender people, socialize through the internet, owing to the large stigma and discrimination in Liberia. Seventy percent (300/428) of the MSM are found in 4 major health districts. A significant number of MSM (53% or 227/428) are reported to have engaged in sex with other men for money. Of the 5,327 FSWs, 90% (4,794/5,327) also operate through physical spots, while 10% (533/5,327) use cell phones for both calls and other social media networks to connect with clients. This information allowed the LINKAGES project to target outreach to where and when KPs are most accessible.

Conclusions: Hotspot level programmatic mapping and size estimation help to understand locales, influence proper allocation of program activities according to district of areas of need and facilitate services to KPs. The mapping and size estimation will be updated annually.

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Promoting Viral Load Suppression among Female Sex Workers Living with HIV in Malawi through Community-led Solutions: Lessons from LINKAGES Project in Zomba and Machinga Districts, Malawi

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Background: The 2015-2016 Malawi Population-Based HIV Impact Assessment estimates 62.3% of female sex workers (FSW) in Malawi are HIV positive. Through the USAID/PEPFAR-funded LINKAGES project, FHI 360 supports the country's response to the epidemic by working with volunteer peer educators (PEs) and peer navigators (PNs) from the FSW community to deliver HIV services. We describe the FSW-led strategies the project implemented to facilitate adherence to antiretroviral therapy (ART) among FSWs living with HIV and their impact on viral load outcomes.

Methods: Between October 2016 to September 2018, LINKAGES established 48 support groups for FSWs living with HIV in 56 clustered hotspots in Machinga and Zomba districts. HIV Positive Key Population selected leaders amongst themselves in each cluster to be trained as Peer Navigators (PNs). PNs are medication-adherent role models living with HIV who are trained to provide HIV services that increase linkage and medication adherence to ART at community level. PN work in collaboration with community ART support group peers to promote positive living, ART adherence, creating demand for viral load (VL) and index testing, nutrition counselling, psychosocial support, screening for tuberculosis and sexually transmitted infections, gender-based violence screening and reporting.

Results: As of September 2018, a total of 923 FSWs living with HIV and on ART were linked to support groups. Of these, 328 FSWs were eligible for VL testing with 265 having their dry blood spot samples collected for VL testing with the support of PNs. Of these 265, 88.8 % (235/265) received their results and 88.9% (233/265), including 29 FSWs who defaulted on ART and were identified by their peers and re-initiated on treatment, were virally suppressed (<1000 copies/ml). During this period, no death was recorded among the HIV-positive cohort.

Conclusions: Programmes providing care and treatment services for FSWs should consider recruiting and involving PNs to maximize the benefits of ART, especially viral suppression. The involvement of PNs with the collaboration of ART support groups enhance sustained adherence to ART to improve viral load outcomes.

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Use of condom and associated factors among adolescents aged 10 to 19 years attending youth centers and secondary schools in Cameroon

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Introduction: The HIV infection mainly concerns the young population and is predominantly sexually transmitted in Africa. In most regions of the world, teenagers, girls in particular, are the main vulnerable group of this infection. This study aimed at studying factors associated with reporting of sexual initiation and use of condom at the last sexual intercourse in Cameroonian adolescents.

Methods: This cross-sectional survey was conducted in 2017 and concerned 4 regions Cameroon (East, Far North, North and West). In total, 23 secondary schools and 14 youth centers were selected. Adolescents aged 10 to 19 were randomly enrolled. The information was collected on sociodemographic characteristics, knowledge, attitudes and practices towards HIV and AIDS.

Results: Among the 1153 adolescents enrolled in this study at a median age of 16 years (IQR: 14-18), a half (51.2%) were boys. In total, 293 (25.4%) adolescents reported sexual initiation. Among these, 200 (69.7%) noted the use of condom at the last sexual intercourse. Among sexually active adolescents, the ones attending youth centers were more likely to report condom use at the last sexual intercourse than those in secondary schools. [p=0.035].

Conclusion: More frequent condom use at the last sexual intercourse among adolescents attending youth centers could be explained by better access to sex education and other STD prevention and contraceptive methods, due to the provision of Comprehensive Sexuality Education.

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Challenge in prevention and transmission of HIV among HIV positive sex workers at Adama town the case of Adama sex worker clinic

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Background: Commercial sex workers have been known in Ethiopia since older times, although there are no data as to when and where commercial sex first appeared in the country. Some sources associate the beginnings of commercial sex with the movement of kings, nobles and warlords, the establishment of cities and the development of trading (Andargachew 1988).
The poor socio-economic situation across most of Ethiopia's cities, towns and villages has pushed many women into the sex work and city attract sex workers due to their large mobile client base.

Main question: HIV positive sex workers may also in need of adhering to ART, but they frequently faces different challenges. This research tries to answer, 1 what is the main challenges of sex workers in preventing the transmission of HIV? 2. What is the main challenge of HIV positive sex workers to adhere to their anti-retro virus therapy?

Methods: A facility based cross-sectional study was carried out using both quantitative and qualitative method in Adama town by applying a structured questioner with face to face interview from January 1-5 2019. Systematic random sampling technique was used. A total of 78 sex workers were participated both in questionaries' and focus group discussion.

Key findings/Results: As the demographic data indicate majority 51 (65.3%) of commercial sex workers were grown in rural area of the country. The most common problems identified by the participants to be a sex workers were financial problems and divorce of parents which accounts 55.56% and 22.2% respectively. 88.9% of sex workers experienced abortion and 33.3% of them aborted one up to three times in their life. 48% of respondents had hx of negotiation sex without condom due to extra payment.
Regarding on frequent alcohol consumption in the last 4 week, all replied as they consume every day and 78 of them were also get intoxicated. Based on any incidence of condom breakage and slippage, 88.9% were experienced the incidence and only 56.6% were changed the broken and slipped condom. The participants asked if they take ARV pill regular or not, 85% of respondents replied as they take every day and the remaining were missed the pill due to intoxication. 78 of them were screened for TB and 3.8% of them were smear positive and started treatment but 1 patent discontinue due to nutritional problem. All respondents were tested for viral load and 15.3% of them were found below 1000copies/ml. 3.8% of respondents were get retesting after discontinuing the treatment for 2-4 weeks by claiming as they healed by prayer and drinking a holly water but found positive and all re started their treatment

Conclusion: Non-use of condoms with different (regular and casual) partners was highly prevalent among PLHIV sex workers. Inconsistent condom use with different partners among PLHIV was fond to be a challenge in HIV prevention.

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DETERMINANTS OF CONTRACEPTIVE CHOICES AMONG HIV POSITIVE WOMEN OF REPRODUCTIVE AGE ATTENDING FOR CONTRACEPTIVE SERVICE: - THE CASE OF ADAMA FGAE MODEL CLINIC

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Background: Sub-Saharan Africa is the region most severely affected by HIV [1]. Women of productive age account for 58% of the people living with HIV [2] and 53% of all adult deaths [3]. In Ethiopia, more women (2.9%) than men (1.9%) are living with HIV [4]. Most of these women are particularly vulnerable to HIV due to complex burden they have [5] including physiological, social vulnerability and gender inequalities [3].
Research questions:- what is the level of knowledge on modern contraception and types of contraceptives used and what are the factors influencing contraceptive choices among the HIV infected women of 15-49 years'

Methods: The study was conducted at FGAE model clinic found in Adama cities Ethiopia. The study employed quantitative data to analyses. To this effect, secondary data generated by the clinic was consulted. These sources include quarter statistical report of year 2018.

Key findings: A total of 88 (98.3%) participants participated in the study. Majority of the respondents 87 (98.8%) had heard about contraception of which 56 (64.3%) heard it from the media. The methods that were mostly used by the women were Depo-Provera 42 (47.7%), implants 21 (23.8%) and pills 3 (3.4%)). Male condom was widely used at 25% due to health care providers advice. Dual method was only used by about 12 (13.6%) of the respondents. Out of 88 HIV positive respondents, only 52(59.0%) spouse know their HIV status, among them, 51(86.4%) were positive while 9(13.5%) were discordant result. Out of 51 HIV positive spouses, 32(62.7%) were started ART.
Only 21(40.3%) use condom for HIV prevention. The higher percentage 71 (80.6%) used the method of contraceptive to avoid pregnancy, 2 (2.2%) to prevent spread of HIV/AIDS and 15 (17.0%) used it to avoid pregnancy and prevent spread of HIV/AIDS at the same time. The culture of 6 (6.8%) of the women prohibit use of contraception though they are keep in using the method secretly. 68 (77.2%) woman was a joint decision between them and their husband while 20 (22.7%) was by their own choice.
21(23.8%) agreed with the statements that there is no need of using contraceptives when one is aware of her HIV status and that use of modern contraception by a HIV positive woman increases her chance of dying earlier due to its side effects. 15(17.0%) of respondents had heard from friends that modern contraceptives are the cause of many sexually transmitted infections including HIV.

Conclusion: Dual method was only used by a small percentage of the study participants. The high rates of unmet need for family planning among the HIV positive women in studied area, suggests that the WHO'S strategy of preventing unintended pregnancies amongst the HIV positive women to minimize vertical transmission of HIV must be reinforced. Long acting and permanent methods of contraception could fill an important gap in family planning services among this group in Adama.

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Profil nutritionnel de femmes infectées par le VIH suivies à « Yèrèlon », Centre MURAZ à Bobo-Dioulasso

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Introduction: L'alimentation adéquate est fondamentale lors de l'infection par le virus de l'immunodéficience humaine (VIH) pour renforcer les résultats de la prise en charge. Toutefois ce rôle ne fait souvent pas l'objet ni d'attention individuelle particulière chez l'infecté, ni d'actions particulières intégrées à la prise en charge dans certains contextes comme le nôtre. Notre étude visait ainsi à évaluer le profil nutritionnel de femmes vivant avec le VIH suivies dans un centre de suivi dans la ville de Bobo-Dioulasso.

Méthodes: Une étude transversale qualitative des consommations alimentaires chez les femmes de 18 ans et plus vivant avec le VIH sous traitements antirétroviraux a été conduite à la clinique « Yèrèlon » du Centre MURAZ à Bobo-Dioulasso. Le statut nutritionnel a été évalué conformément à la classification de l'Organisation Mondiale de la Santé (2008) et les données sur les consommations alimentaires collectées grâce au questionnaire de fréquence alimentaire et au rappel de 24 heures.

Résultats: Un échantillon de 72 femmes dont la médiane d'âge était de 43,5 ans (34-50) ont été interviewées. Les participantes étaient infectées par le VIH-1 pour 94,33% et leur durée de suivi d'une médiane de 100 mois (49-127). L'insuffisance pondérale existait dans 8,33% tandis que l'obésité et le surpoids étaient respectivement de 27,77% et de 23,61%. En moyenne trois repas quotidiens étaient obtenus par les enquêtées : petit déjeuner (70,88%), déjeuner (87,50%) et dîner (88,89%). La consommation alimentaire relevée portait sur les céréales (80,55%), les corps gras (90,27%), les produits sucrés (81,94%), les viandes/poissons/œufs (55,55%), le lait et produits laitiers (29,16%), et les fruits et légumes crus (38,89%).

Conclusion: Dans la population étudiée, la consommation des aliments énergétiques est fréquente, alors que celle des fruits et légumes sources de micronutriments est faible. Ceci serait lié à l'ignorance des bons comportements alimentaires et aux difficultés d'accès aux différents aliments. Des programmes alimentaires et nutritionnels devraient être développés dans la lutte contre le VIH.

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< no title indicated during submission>

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Background: Young people aged 10-24 year constitute one –quarter of the world's population and are among individual most affected by the global HIV/AIDS epidemic .Adolescent girls are more vulnerable, and those with disability experience compounded vulnerabilities. Despite this concern , many adolescent with disabilities do not access health services to receive prevention interventions because they do not perceive their risk, experience stigma and discrimination ,and due to lack of appropriate tailor-made materials and interventions. Global Fund is a large scale project, which provides Evidence Based Interventions (EBI's) and community outreaches to adolescent and young people in Kenya. The EBI's are delivered in and out of schools, outreaches with comprehensive services are delivered in churches, high learning institutions, community and within youth friendly services facilities. We investigated the knowledge on prevention and uptake of services comparing between the adolescent with disability and other GP adolescent.

Material and methods: we report demographic and reported uptake of services in relation to knowledge gap of adolescent ages 10-24 years, implementing EBI's from July 2019 to December 2019. The adolescents received EBI's or outreach service from Global Fund AYP implementing partner coverage area. Before we enrolled the participant we assessed the knowledge level and risky behavior of the participant encounter form as documented by the facilitators during eligibility assessment for the adolescent attending for the first time .This was conducted on de-identified participant data sourced from EBI's enrollment form. During this exercise we were able to evaluate inter-group differences and odds ration of the risk factors between the two groups and knowledge gap.

Result: Among 4,209 of adolescent girls and young women (AGYW) reached with HIV prevention programs as per defined package of services 176 (80 with hearing impairment and 96 with other type with disabilities), (4.2 %) identified as adolescent with disability age 11-17 years ,The 160 were reached with My Health My Choice targeting age 13-17 year, most of this adolescent were in primary boarding school , out of the 160 at least 80 percent were sexually active and are engaging in risky behavior among themselves and some engaged into risky behavior their family members .The other 16 where reached with Health Choices For A better Future intervention and this was the first time to come across prevention education information .on condom information aged appropriate participant had low knowledge on condom use and even most of the were not using hence this puts them on risk factors

Conclusions: There have been limited concerted effort to focus on the health need of adolescent with disability as they are they are considered underage. The data from DEK show that preventing HIV infection in adolescent with disability need to include intervention for those with disabilities due to the hire burden of lack of effective learning materials that are friendly to them e.g. hearing impaired lack ksl materials, visually impaired lack braille material that educate them on health issues hence this contribute to low uptake of services and reduces risky behavior among adolescent with disability.

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PrEP uptake and adherence among Young Female Sex Workers in Kampala, Uganda in POPPi; a Randomized Controlled Trial

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Young women at high risk (YWHR) 15 to 24-years old are at very high risk of sexually transmitted infections (STIs) and HIV. YWHR HIV prevalence in Kampala is estimated at 26% and preventive services are very limited. Little is known about the capacity to initiate and adhere to PrEP among this highly mobile population. We investigated uptake and adherence to PrEP among YWHR participants in POPPi, a pilot randomized controlled trial designed to assess the effectiveness of an HIV prevention intervention.

Women's eligibility criteria were: 15-24 years-old, HIV-negative, engaged in sex work. Participants were randomized to intervention (two group sessions covering health literacy and or control (standard-of-care at a specialized clinic for high-risk women). Follow-up visits were scheduled at 3,6, and 12, months post-enrolment. Participants used audio computer assisted interviews (ACASI), and in-depth interviews with YWHR, bar owners/managers, male partners and 'queen-mothers' on topics including attitudes towards PrEP, HIV self-testing.

Currently, 71% participants have thus far attended 6-month study visits. The median age for the participants was 20 years (range 15-25). Forty-five percent of the participants were aged between 14-19 years. 53% had attained at least secondary school education. Forty-five (75%) of the participants had engaged with multiple sexual partners in the month prior to enrolment. About half of the participants reported having ever experienced physical violence perpetrated by male sexual partners. Asked about condom use in the week prior to enrolment, 38% of the participants reported not having used them, while 22% consistently used them. Of 60 participants enrolled in this pilot study, 44 have so far initiated PrEP (73%). By 6 months, 6/44 have stopped taking their PrEP medication. Reasons for discontinuation included side effects, pregnancy, stigma, travel and mother not agreeing to her daughter taking PrEP. In qualitative interview, one young woman noted of side effects in the first days of taking the medication:
[. . .] it can burn your liver. The nausea, the dizziness, the feeling that you have taken alcohol. You might even get a mental disorder or even run mad. (FGD, YWHR HIV neg, 20-24 years)

Provision of PrEP is feasible and acceptable to young female sex workers in Kampala, Uganda.
Young women at high risk can benefit from a choice of HIV prevention options. Understanding the barriers to uptake and adherence will inform national PrEP rollout. Paying close attention to issues of side effects, beliefs around pregnancy and PrEP, stigma and the highly mobile nature of this population will enable a more effective programme.

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The AIDS Support Oganisation (TASO); using a peer led model to increase access to HIV services among rural men having sex with men(MSM) in Masaka ,Uganda.

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Background: In Uganda, the HIV prevalence among Men having Sex with Men (MSM) is 13.2% (UNFPA, 2017) whereas the national prevalence among the general population is at 6.2%. Access to HIV services among MSM in rural areas is curtailed by low education levels, homophobic attitudes, stigma, legal barriers, cultural and religious conservatism in the communities. We set out to test the peer led approach to reach out to MSM in rural areas in Masaka district.

Materials & Methods: In 2017, the AIDS support organization (TASO) in Masaka- Central Uganda partnered with Youth Initiative for Health and Community Empowerment (YIHCOE) an LGBT Organization to promote HIV care and prevention services among rural MSM. Using WhatsApp and text messages, young men identified to be MSM were mobilized for HIV moonlight clinics by their peers working with YIHCOE. Other men frequenting brothels suspected to be clients of female sex workers were mobilized by TASO's Key Population focal person. Clinics were conducted within boundaries of discotheques, cinema halls and brothels permitted by premise owners. We created a free environment, assured participants of confidentiality. Discussions about MSM and access to HIV services were initiated by trained TASO counselors, HIV counseling and testing, STI screening and treatment, education on condom use, Pre-exposure prophylaxis (PrEP) and lubricant distribution, one on one counseling on sexual reproductive health in private rooms was conducted. Social demographic information was collected using ministry of health tools.

Results: A total of 428 men were mobilized from 3 discotheques, 4 brothels and 2 cinema halls, 324(75.7%) received different services.129 (39.8%) were MSM aged between 21 to 37, of whom 34(26.4%) were married, 90 (70%) reported being bisexuals.31(24%) enrolled for PrEP, 109 (84%) tested for HIV, 8 (7.3%) tested HIV positive ,7(87.5%) were linked to care, 1(12.5%) declined linkage. 43(33%) treated for STIs, 21 (16.3%) used condoms consistently, 40(31%) never used condoms, 68(52.7%) reported inconsistent condom use.

Conclusions: Engaging MSM peer led organizations is critical in improving access to HIV care and prevention services among MSM in rural communities.

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PEER NAVIGATION IMPROVES LINKAGE TO HIV TREATMENT AND RETENTION AMONG MSM IN MALAWI

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Background: The USAID/PEPFAR funded-LINKAGES project reaches men who have sex with men (MSM) and transgender people (TG) with HIV prevention, care and treatment services through the Centre for the Development of People (CEDEP) in Malawi. Despite improved HIV case finding, CEDEP has registered low rate of linkage to antiretroviral therapy (ART). We present experience from the implementation of peer navigation for successful linkage to ART among MSM in Malawi.

Description: Using the Ministry of Health-approved PN training curriculum, 18 peer navigators (PNs) drawn from LINKAGES-supported districts of Lilongwe, Mzuzu, Blantyre and Mangochi received a-5-day training in September 2017. PNs are HIV-positive MSM who accept to support their peers living with HIV, including providing support for treatment adherence, screening for sexually transmitted infections and gender-based violence, and counseling on risk reduction. The 5-day PN training focused on imparting skills needed for positive living including identification of hard-to-reach HIV-positive peers and provision of community-based care and support services to improve ART uptake and retention. Routine program data were collected and analyzed to examine trends in ART linkage following introduction of PN.

Lessons Learned: Between February 2016 and September 2017, a total of (97/168) clients were linked to ART representing 58% link rate. Following the PN training, the program recorded a three-fold increase (313%) in linkage to ART between October 2017 to September 2018 (493 clients). PNs also supported 57 HIV-positive individuals who defaulted treatment to re-initiate ART. Out of the total 493 newly initiated on ART and the 57 who were re-initiated, 384 were eligible for viral load testing. Of the 384, 379 viral loads results were received and, 365 were virally suppressed (below 1000 copies/ml), representing a 96% suppression rate.

Conclusion: The introduction of peer navigation played a significant role in increasing linkage to ART, improving retention and access to viral load testing among MSM in Malawi. Programs that target MSM with HIV care and treatment services should invest in the training of PNs to maximize ART uptake and retention in care and viral load suppression.

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Peer Navigation Improves Uptake of Antiretroviral Therapy for Key Populations in Botswana

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Background: Fast-tracking members of key populations (KPs) to antiretroviral therapy (ART) reduces onward transmission of HIV to their clients by ensuring immediate access to treatment and, ultimately, viral suppression. Poor linkage to treatment challenges epidemic control. Factors contributing to non-linkage include passive referrals for initiation, lack of psychosocial support, and stigma and discrimination. Peer-led approaches have been shown to be effective in successful linkage and retention of individuals on treatment. We report the impact of peer navigation on prompt linkage of HIV-positive KP individuals to ART in Botswana.

Description: Between October 2015 and September 2019, the PEPFAR/USAID-funded LINKAGES project implemented interventions to address the HIV epidemic among KPs in Botswana. Peer navigation was introduced toward the end of the third year of implementation as an additional intervention to improve access to HIV care and treatment services. Peer navigators were trained on interpersonal skills and motivational communication to help build rapport with peers and navigate them to treatment facilities. They acted as case managers, sharing their experiences on living with HIV, and providing psychosocial support and treatment literacy to peers newly diagnosed with HIV. They continued to provide support through regular phone check-ups and home visits to ensure long term adherence and retention on ART.

Lessons Learned: Over the life of project, a total of 1,758 FSWs and MSM were diagnosed with HIV, and more than 80% were successfully initiated on treatment. Following the introduction of peer navigation, treatment initiation improved from 49% in year three to 89% in year four for MSM. For FSWs, treatment initiation increased from 54% in year three to 105% in year four, as peer navigators successfully linked both new and previously diagnosed FSWs to treatment.

Conclusion: Peer-led strategies, such as peer navigation are effective in linking KPs to care and treatment. This strategy has been integrated into the KP programs nationwide to help people living with HIV link to treatment early and remain on treatment.

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Conducting research on violence and mental health among sex workers: lessons learned from the Maisha Fiti study Nairobi, Kenya

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Background: Violence and mental health research with marginalized populations such as sex workers require careful thought to help ensure that participation causes no harm to either participants or the research team. It can involve procedures and experiences not encountered before owed to little research on the area as well as stigma on mental health and sex work.

Description: The Maisha Fiti study, a mixed-method two-phase study aimed to establish the interaction between HIV and mental health, violence, and alcohol and substance abuse with 1000 female sex workers in Nairobi. Key challenges included ensuring community buy-in for the study, collecting novel biological samples (genital fluids collected in menstrual cups; hair samples), making contact with selected participants whilst protecting confidentiality, protecting selected participants from backlash from violent intimate partners, creating mental health counseling and support referral pathways for participants, and protecting research staff from trauma transference and burnout.

Lessons: Key strategies included community consultations prior to and throughout the study, not advertising the study as being on violence or mental health or with sex workers, an intensive 3-week study team training on mental health, violence, alcohol and substance abuse. We also included ten sex workers in the study team, tasked with demand creation and creating a nurturing environment at the study clinic. Two of the sex workers are beauticians who assist in hair sample collection creating confidence in the study. Employment of a psychological counselor for participants registering any common mental health issues and link them to follow-up care has ensured continuity of care. Weekly debrief meetings and provision of external psychological support for research staff to enable sharing and offloading stories of trauma and violence. Together these strategies have helped ensure good relationships with the sex work community, completion of participant enrolment within the requisite six-month time-frame, 100% consent for genital, urine and blood sample and >95% consent for hair sample collection, and a collaborative and supportive research team protected from burnout.

Conclusions: Mental health is an area of interest in HIV research. Community engagement, mental health support for staff and participants are key as well as ensuring the participants' safety given the associated stigma.

Abstract 351 is withdrawn

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Effectiveness of Peer-Education in reduction of STIs

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Introduction: Peer Education can be defined as an intervention that includes sharing of HIV/AIDS information on one-to-one or in small groups by a peer educator to the target population (World Health Organization., 2015). In this case the Female Sex Workers (FSWs). Peer Education interventions have often been used for preventing Sexually Transmitted infections (STIs) globally. Peer education is delivered either informally during the day-to-day interactions or formally in structured rooms.
In the recent past, as ADEO has been implementing the Global fund supported – Kenya Red Cross HIV prevention - Key Population (KP) program they realized the alarming STI cases. ADEO has a target of reaching 2,000 Female sex workers in Kajiado North and part of Kajiado West (Kiserian) with comprehensive package of services. In the period between January-March 2019 at least 191 STI cases were reported, and in the period between April- June 2019, 21 STI cases were reported.

Objective: The aim was to determine if an improvement and strengthening of the Peer education help reduce the high numbers of STI cases.

Methodology: A systematic review of the HIV behavioral interventions in the various hotspots with alarming numbers of STIs was done. A sample size of 200 female sex workers was used representing 10% of our target of 2000 female sex workers. Some of the other interventions that were reviewed include treatment as prevention, psychosocial support, mass media and voluntary counselling and testing. An analysis was conducted and it had four concerns for interrogation in the last four weeks including: -Condom use, HIV knowledge, STI infection, and Genital hygiene.

Results: Condom use (135), not used condoms (65), HIV Awareness (197), Lack of HIV Awareness (3), STI Reported (57), No STI (143), Douching (200).
Intervention
A meeting was held with the Peer Educators (PEs) during the microplanning and the findings were shared from the results. The health talks centered on how STIs are transmitted. ADEO staff were present during the formal peer education sessions in the various hotspots. Some of the issues raised included poor sanitation and hygiene in the hotspots, sexual and gender based violence, and poverty levels that made them not use protection whenever a client opted to add extra cash. These were the contributing factors to the high STI cases in the program.
For the FSWs who presented hygiene as a main challenge, the Peer Educators from those hotspots were mobilized and the gatekeepers informed of the clean-up exercise that was to take place. The hotspots were cleaned together with the beddings used in those places with disinfecting reagents. After the intervention, the number of STI cases dropped to 21.

Conclusion: Strengthening the effectiveness of Health Education in the hotspots yields sustainable low risk behavior patterns. Good social skills were also seen to be associated with reduction of STI and HIV infections.

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Réponses virologiques au traitement antirétroviral chez les enfants et adolescent suivis au centre de traitement agrée de l'hôpital Laquintane de Douala, Cameroun

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Introduction: Le suivi de la charge virale (CV) est essentiel dans le suivi clinique des patients VIH sous traitement antirétroviraux (TARV). Les réponses immuno-virologique peuvent varier d'un patient à l'autre entre un succès, un échec ou encore une discordance immunologique. La probabilité de de succès du TARV à long-terme est plus faible chez l'enfant que chez l'adulte. Le but de notre étude était d'évaluer l'issue thérapeutique à l'aide du suivi biologique chez enfants et adolescents vivant avec le VIH.

Méthodologie: IL s'agissait d'une étude rétrospective conduite sur les enfants et adolescent sous TARV depuis au moins 12 mois et suivies au Centre de Traitement Agrée (CTA) de l'hôpital Laquintane de Douala (HLD). Les caractéristiques sociodémographiques, le traitement administré (1ère et 2ème ligne), et les deux résultats de la charge virale (CV) les plus récentes ont été collectées à partir du dossier médical. Selon les normes de l'Organisation Mondial de la santé (OMS), l'échec virologique a été déterminé par un maintien de deux CV > 1000 copies/ml , le succès virologique si les deux valeurs de CV étaient < 1000 copies /ml ou si la première CV était >1000 copies /ml et la deuxième CV <1000 copies/ml et le rebond virologique attribué aux patients avec la première charge virale <1000 copies/ml et la deuxième CV≥ 1000 copies/ml .Les données ont été enregistrées dans un tableur Excel 2015 puis analysées à l'aide du logiciel XLStat 7.5 pour la comparaison des groupe grâce au calcule de Chi2 et la probabilité P considérée significatif si inférieur à 0,05

Résultats: Après toutes autorisations administratives 210 patients d'une moyenne d'âge de 11 (Sd=5) et un sexe ratio de 1,3 femme pour 1 homme ont été inclus. 149 (70, 95%) étaient de 1ère ligne majoritairement 136 (91,28%) sous Tenofovir /Lamivudine /Efavirenz (TDF/3TC/EFV) contre 61 (29,05%) de 2ème ligne majoritairement 37 (60,66 %) sous Abacavir/Lamivudine/Lopinavir+ritonavir (ABC/3TC/LPV/r). Malgré des liens tous non statistiquement non significatif, L'échec virologique a été observé chez 26 (12,38%) patients sous TARV, plus prononcé chez le sexe masculin 14,44% et la tranche d'âge] 5-9 ans]. Il était de presque égale en 1ère ligne qu'en 2ème ligne avec respectivement 12,08% et 13,11%   Le succès virologique observé chez 170 (80,95%) patients et le rebond virologique chez 14 (6,67%) patients.

Conclusion: Le taux de suppression virologique demeure inférieur aux 90% voulu par l'OMS donc des efforts supplémentaire restent à fournir pour toutes les personnes impliquée dans le suivi des enfants vivant avec le VIH à l'HLD

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Increase in Risk Behavior Alongside Increased ART Coverage among Female Sex Workers in Botswana – Evidence from 2012 and 2017 Biological and Behavioral Surveillance Surveys

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Background: Because female sex workers (FSWs) have multiple sex partners and face barriers to consistent condom use, they are highly susceptible to HIV. Under the USAID/PEPFAR-funded LINKAGES project, we compared data from the 2012 and 2017 Behavioral and Biological Surveillance Survey (BBSS) to examine trends in HIV prevalence, risk behaviors, and ART coverage among FSWs in Botswana.

Methods: In both 2012 and 2017, eligible FSWs were recruited using time-location sampling at hot spot venues where face-to-face interviews and collection of biological samples were conducted. Percent changes and p values were calculated for comparisons between 2012 and 2017. Data analysis incorporated sampling weights and adjustments to standard errors for clustering on day-time sampling events.

Results: FSWs continue to be highly affected by HIV in Botswana. The study found a nonsignificant decline in overall HIV prevalence (61.9% vs. 51.3%, p=0.19). However, this decline was statistically significant in Francistown from 53.5% to 37% (p=0.007). Consistent condom use declined with all partner types, most significantly among cohabiting partners (21.4% vs 78.3%, p=0.02). This lower condom use can be triangulated with a significant increase in syphilis prevalence among FSWs (6.7% vs 3.5%, p=0.07). Condom fatigue may be the reason; 7.3% of FSWs reported "not liking" condoms as one of the main reasons they are not used consistently compared to 0.8% in 2012 p=0.000). In 2017, FSWs appear to be more likely to accept more money for not using condoms in commercial sex compared to 2012 (56.1% vs 49.3%, p=0.00). Finally, ART coverage among HIV-positive FSWs improved significantly between 2012 and 2017 (87.8% vs. 24.9%, p=0.000).

Conclusions: There has been good progress since 2012 among FSWs in accessing HIV testing and treatment services, but in contrast, consistent condom use has declined, resulting in an increase in some STIs. Programs need to enhance combination prevention strategies to address this issue.

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Implementation of Youth Care Clubs in a semi-rural district of South Africa: A model of care for adolescents and youth on ART

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Background: The scale-up of antiretroviral therapy (ART) has led to increasing numbers of HIV-infected adolescents on ART. However, they are at higher risk of poor retention in care and treatment failure than adults. Wits RHI's USAID-funded Accelerating Program Achievements to Control the Epidemic (APACE) together with the district Department of Health, is scaling a youth care club model in the semi-rural district of Lejweleputswa, South Africa. This model was previously implemented in Matlosana (North West Province) and the City of Johannesburg, South Africa. Youth Care Clubs (YCCs) offer an integrated group care and treatment model aimed at improving retention in care and clinical outcomes for adolescents and young people (12-24 years) living with HIV (ALHIV) in primary health care clinics. The model is embedded within Youth Zones, seeking to provide efficient, comprehensive and convenient care for adolescents and young people in South Africa.

Methods: YCCs offer adolescents a comprehensive service package including screening for TB, STIs, contraceptive needs, mental health and psychosocial issues. Monthly club meetings include a facilitated health-related discussion and activity and are followed by a clinical consultation if required or according to national guidelines. Adherence is supported through peer support or individual counselling and monitored with coordinated annual viral load (VL) testing. Disbursement of pre-packed medication at the end of the club meeting ensures a fast-tracked service.

Results: Between October 2018 and September 2019, there were a total 35 YCCs implemented in 9 facilities across 5 sub districts in Lejweleputswa, with 430 ALHIV enrolled in clubs. The median age at enrolment was 16 years and 58% were female. Of those with viral loads monitored, 75% were suppressed in the last 12 months. Retention in care since enrolment in clubs is at 98%.

Conclusion: The YCC model of integrated clinical and psychosocial care offers comprehensive, convenient care for ALHIV, ensures retention in care and viral load suppression and fosters supportive relationships between peers and healthcare workers. The model is currently being scaled and continues to be evaluated as more adolescents enrol in clubs.

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How Policy Affects Practice: Policy Barriers to Provision of HIV Biomedical Prevention Services in sub-Saharan Africa

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Background: Policies governing HIV prevention product access are critical guardrails that influence the uptake of biomedical HIV prevention options such as oral pre-exposure prophylaxis (PrEP). Policies determine who can access a product, where they access it, and from whom. If not addressed, policy barriers can also limit access to next generation products. Improving the enabling environment for biomedical HIV prevention products can increase their reach and impact.

Methods: AVAC conducted a desk review of the HIV prevention policy landscape in 8 countries in sub-Saharan Africa. This analysis includes training requirements for provision of PrEP and contraceptives, clinical guidelines, National Strategic Plans for HIV and Sexual and Reproductive Health, and implementation strategies. National policies on age of consent and the criminality of same-sex relationships were also examined. In-depth interviews were conducted with 12 stakeholders from the 8 countries.

Results: Of the 8 countries examined, three countries specified a minimum age of 15 years old to consent to PrEP use; the remaining countries did not clearly indicate age of consent. Contraceptive policies are more flexible, with 7 of 8 countries specifying contraceptives should be made available to any woman of reproductive age, and 1 country with a minimum age of 12 years. Overall, 7 out of 8 countries criminalize same-sex relationships. Finally, 3 countries require that ART and PrEP certified doctors, clinical officers, and nurses prescribe and counsel on PrEP, while 3 require training on PrEP only.

Conclusion: Policies related to age of consent for PrEP are often not aligned with age of consent policies for sexual intercourse, HIV testing services (HTS) & contraceptives. Aligning age of consent policies for family planning & PrEP may facilitate increased access and integrated service delivery. Implementing task-shifting can increase access to PrEP and facilitate implementation of community-led services for key populations, which reduce stigma, improve service quality and adherence. Removing these barriers can improve the impact of oral PrEP and accelerate introduction of future ARV-based prevention products as they become available.

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Potential risk of HIV transmission in barbering practice in Ethiopia: from public health and microbiological perspectives

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Background: HIV and other blood borne infections can be transmitted through the use of improperly sterilized and disinfected sharp equipments.

Methods: A cross sectional study was conducted from January to June, 2010 to assess the potential risk of HIV transmission in barbering practice in Ethiopia from public health and microbiological perspectives. Barbers in barbershop were interviewed using pre-designed questionnaires and check lists were used to evaluate barbering practice. Microbiological data from tips of the sharpener before and after the barbering was collected and processed as per the standard procedure.

Results: One hundred and twenty three barbering sessions and barbers were observed in which 106 (86.2%) were males. Ninety six (78%) of the respondents knew that HIV could be transmitted by sharing non-sterile sharp instruments. Among the total participants 59 (48%) had the correct knowledge of what sterilization mean and 111 (94.1%) of them believed its importance in their work place. Barbers had a mean knowledge score of 6 ± 1.5 out of a score of 10 regarding sterilization and disinfection as well as in the transmission of HIV in their work place. Three (2.5%) barbers were disagreed that unsterilized blade can transmit skin diseases and 26 (21.3%) of them believed disinfection is enough to avoid microbes from sharp objects. Ninety two (76.7%) barbers were using sterilization in their establishment. According to Likert scaling almost all sterilization and disinfection procedures were riskily practiced and respondents had poor level of knowledge. No significant association was found to influence the decontamination and sterilization of barbering equipments except monthly income, pre and post colony count of microbes identified. The isolation of normal skin flora in the pre-and post-sterilization and disinfectant procedures and less average percent colony reduction showed that sterilization and disinfectant practices in barbershop were generally poor that proofed proper sterilization and/or disinfection techniques were unfavorable.

Conclusion: This study has revealed the presence of potential risk of HIV and other blood borne disease transmission among the barbers of the study areas. Thus continuous and intensified public health strategies on health education, training, supervision and monitoring are needed to facilitate the adoption of effective methods of sterilization and/or disinfection.

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Successful transition from efavirenz to dolutegravir-based First-Line ART in Liberia: Strength of a collaborative approach between National AIDS and STI Control Program and implementing partners

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Background: Liberia has approximately 40,000 people living with HIV (PLHIV). about 15,000 of whom are on antiretroviral therapy, including 73% on tenofovir, lamivudine, and efavirenz-600 (TLE-600). In June 2019, the country revised the national treatment guidelines to allow transition to tenofovir, lamivudine, and dolutegravir (TLD), as recommended by the World Health Organization. We present our experience with TLD transition through a collaborative effort between the country's health leadership and collaborating partners.

Methods: The Ministry of Health's National AIDS and STI Control Program (NACP) led the technical working group to spearhead the transition to TLD, together with the USAID-/PEPFAR-funded and FHI 360-led LINKAGES/EpiC project, and Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM). The process included: (1) developing and pretesting TLD literacy material for PLHIV, the general population, and clinical staff; (2) conducting a facility preparedness assessment; (3) implementing pharmaco-vigilance surveillance; and (4) trainings of staff in high burden facilities and removal of nevirapine from service delivery points. The transition started in September 2019 and should be completed by December 2020.

Results: During pilot testing of materials and preliminary staff training, PLHIV and some clinical staff were anxious to transition immediately rather than follow the phased strategy. Clear and motivational communication tailored to both audiences was critical to reduce their concerns and ensure compliance with the transition plan. Total number of PLHIV estimated to be transitioned to DTG by December 2020 is 13,971. So far by 31 December 2019, a total of 1,356 PLHIV were transitioned according to the following priority groups; 192 key population groups, PLHIVs on NVP-Based Regimen 691, newly PLHIV initiated 367, pregnant women 29, and other 77.

Conclusions:
•	Migration of both treatment-experienced and treatment-naïve patients to TLD on a national scale requires considerable planning and collaborative processes.
•	National HIV programs should consider country-specific scenarios such as investing in public and health care worker awareness to minimize the risk of large-scale treatment failure among possibly stable patients who may otherwise be inclined to leave the previous regimen of TLE and rush for TLD.

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Implementing an optimal Advanced HIV Disease (AHD) package of care: Lessons learnt from national service delivery planning in Malawi

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Background: Since 2010, Malawi has tripled the number of people living with HIV (PLHIV) accessing antiretroviral therapy (ART) from ~250,000 to over 800,000 by 2019. Despite significant gains in ART coverage, HIV still claim 15,000 lives every year. A major driver of this mortality: patients still present to care with AHD and are more susceptible to deadly opportunistic infections like TB and cryptococcal meningitis (CM). With an aim to curb deaths, the Malawi Ministry of Health and Population (MoHP), with support from national partners, developed new set of AHD policy recommendations in line with World Health Organization guidance. These policies laid a strong foundation for potential AHD service delivery but required a well-coordinated and holistic implementation approach to ensure a sustainable national transition to the new package of AHD care.

Description: In 2018, Malawi MoHP included AHD management in the revised HIV treatment guidelines. To facilitate decision-making around implementation, a national taskforce was established and responsible for coordinating and leading a number of activities, including, but not limited to: quantifying commodity need, mapping and placing CD4 machines, leading consultative meetings with districts, defining AHD service-delivery and implementation approach, and developing AHD SOPs and training curriculum.

Lessons Learnt: Establishing a taskforce with HIV experts and partners was critical for ensuring a coordinated AHD implementation strategy. A phased implementation was identified as the best approach to ensure a smooth introduction and allow for continuous improvement and sharing of lessons for onward rollout. A hub-and-spoke model was adopted to make AHD implementation feasible given the limited capacity of periphery sites. The adoption of the global AHD toolkit was an efficient way to adopt and tailor existing job aides, training curriculum, and SOPs to Malawi's needs. Ultimately, 108 health facilities out of 751 were selected for the first phase of implementation with more than 300 service providers trained to provide AHD services. Quantification, procurement, and distribution of focal AHD commodities were completed.

Conclusion: Strategic preparation and coordinated stakeholder engagement has led to successful AHD rollout and Malawi will continue to monitor implementation. Countries that have yet to adopt and implement AHD management can learn from Malawi's implementation model.

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Policy adoption of WHO's HIV retesting policy for HIV-negative women during the breastfeeding period: An analysis of 10 high HIV-burden African Countries

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Background: We evaluated how the 2016 WHO recommendation for HIV retesting for HIV-negative breastfeeding women and their HIV-negative sexual partners in the postpartum period to reduce the risk of mother to mother-to-child transmission of HIV was adopted in 10 high HIV-burdened African countries.

Methods: An online search was used to retrieved 10 country-specific HIV treatment guideline dated 2015 to date from an online search including guidelines from Kenya, Zambia, Tanzania, Uganda, Zimbabwe, Malawi, Lesotho, Botswana, Namibia, and Rwanda. Each guideline had to indicate that the WHO 2016 guidelines (launched in 2015) were used to guide its' development. Frequency summaries were used to document how different countries adapted WHO guidelines into their country-specific guidelines.

Results: All (100%) countries had adopted the WHO HIV-resting policy for breastfeeding women in their HIV treatment guidelines with variations in: timing for initial testing in the postnatal period (50% at the 6th-week postpartum immunization visit, 40% at 6 months' postpartum and 10% with test-timing unspecified); frequency of repeat testing (60% recommended retesting 3-monthy, 20% 6-monthly, 10 % as per the general population, and 10% with schedule of repeat testing unspecified). There were also variations in timing of the last HIV test during the postpartum period (30% recommended the last test be at the end of breastfeeding, 30% three months after cessation of breastfeeding, 10% yearly and 10% had the timing of last HIV test unspecified.
Only 40% had recommendations for repeat HIV-testing for the mother's sexual partner at a schedule like that recommended for the breastfeeding mother (25%), recommending offering HIV testing for the male partner (50%) and encouraging partner involvement (25%).

Conclusions: Despite the time lapse between reviewed guidelines and updated clinical guidelines, and the absence of information on the rationale for country-specific recommendations or actual clinical practices, HIV retesting schedules for HIV-negative breastfeeding mothers in high-HIV burden settings during the postpartum period are suboptimal for timely identification of new infection. This is further worsened by limited guidance on HIV retesting for their sexual partners. We recommend the routine policy and practice assessments to align HIV health policies to country-specific HIV statistics.

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Maintaining epidemic control in Namibia: designing the optimal package - Lessons from ACS support to the Namibian Government

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Background: In Namibia, 94% of people living with HIV knowing their status, 96% of those HIV-positive persons are on ART and 95% of those have achieved viral suppression (by 2019). The Namibian Government wanted to develop a priority package of services for epidemic control, a process driven by reduction of international assistance and competing demand for public funding.

Description: From August to December 2019, the USAID/PEPFAR-supported African Collaborative for Health Financing Solutions' (ACS) supported the Namibian Ministry of Health and Social Services to implement the 10-step process suggested by Glassman et al (2016) to devise a service package for HIV/AIDS epidemic control. Semi-structured interviews were conducted with 40 stakeholders critical to the HIV/AIDS response to map existing HIV/AIDS-related interventions and identify services needed to maintain epidemic control. Through a consultative process, ACS facilitated the agreement of the goal of the package of services, the definition of selection criteria, the shaping of package options based on the country epidemiological profile, and the determination of priority services.

Lessons learned:
1) A political economy analysis should be conducted to understand the role of all stakeholders involved in HIV/AIDS interventions to ensure a balanced consensus on the priority services.
2) Openness and regular communication among civil society, academia, government agencies and development partners are critical catalyzers of the process.
3) Clarification and country-specific adaptation of the terminologies (such as epidemic control, fast-track, critical vs noncritical) is essential at the outset of the process given the sensitivity regarding the Namibian context.
4) Engagement of local political networks and technical stakeholders from the beginning was instrumental to mobilize necessary resources to sustain the prioritization process.

Conclusions: An inclusive stakeholders' engagement not only provides sound knowledge, critical thinking and hand-on-experience, but it serves as a vital ingredient to secure country ownership leading to sustainability. As Namibia is one of the pioneers in developing an HIV epidemic-maintenance package, the lessons learned on its experience, especially those related to the drivers of an effective process, should be of inspiration for countries that have similar context or want to go through similar approach.

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Contribution of assisted partner notification to identification of undiagnosed HIV infection among sexual partners of HIV positive index clients in mid-western Uganda: a retrospective review of program data.

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Background: In order to reduce the proportion of people with undiagnosed HIV infection, it is vital to implement effective and efficient HIV case identification strategies. There was limited data on the successes of Assisted Partner Notification (APN) in identification of undiagnosed HIV infections and its contribution to overall HIV case identification. We documented the contribution of APN to HIV case identification in eight districts of mid-western Uganda.

Materials and methods: In May 2018, the Ministry of Health adopted Assisted Partner Notification (APN) as an effective HIV case identification strategy. In eight districts of mid-western region, scale up of APN began in June 2018 with training of 60 regional trainers of trainees (TOTs) who thereafter were facilitated to train lower level health workers. With funding from CDC-Uganda, a total of 145 peripheral health facilities received onsite didactic training in APN with focus on identification of eligible HIV positive clients, elicitation of their sexual partners and delivery of HIV testing services. By October 2018, 131/145 (90.3%) health facilities had initiated APN services to eligible HIV positive individuals. We conducted a retrospective review of facility APN reports for the period October 2018 to September 2019 to ascertain the contribution of APN to HIV case identification.

Results: Of the 14,879 individuals who tested HIV positive, 9826 HIV positive individuals aged 15 years or older were interviewed and accepted to receive APN services. Majority (55.7%) were female. Following enrollment into APN, 18,217 sexual partners were elicited translating to an index client to sexual partner ratio of 1:2. Ninety one percent (16,721/18,217) of elicited sexual contacts were followed up and offered HIV testing services. Of these, 21.4% (3,476/16,271) tested HIV positive. When compared to total positives identified during the twelve months period, APN contributed 21.4% (3,476/14,879) to overall HIV case identification. Fifty five percent (2,052/3,746) of HIV positive sexual partners were female and of these, 57% (1,165/2,052) were aged 15-29 years. Among HIV positive male sexual partners, majority-65% (1121/1694) were aged between 30 and 49 years.

Conclusion: APN was feasible in a rural setting and significantly contributed to HIV case identification.

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Performance-based Incentives – a means to sustainably optimise healthcare worker performance to achieve 90-90-90 targets in South Africa

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Background: In recent years there has been increasing use of primarily financial incentives as a means to optimise healthcare provider performance in resource-limited settings globally. Not enough is known about the efficacy of performance-based incentives (PBI) in South Africa. The Health Economics and Epidemiology Office (HE2RO) thus analysed PBI schemes conducted by four Implementing Partners (IPs) of the United States Agency for International Development (USAID) in a four-month long campaign aimed at meeting the 90-90-90 targets at specific high HIV burden districts across the country.

Methods: Nine key personnel were interviewed by telephone and personally to learn about the strategies IPs' employed to optimise healthcare provider performance to reach targets. These key personnel represented national and district levels and covered experiences across healthcare districts. We identified factors that would strengthen plus add credibility and validity to a sustainable PBI scheme as well as unintended consequences of some of the PBI strategies deployed.

Results: By description, the IPs all implemented a similar PBI scheme model that targeted frontline healthcare providers. It mixed formal and informal programmes with the IPs providing some form of financial incentive. Two IPs added a non-financial component. In order for a PBI scheme to be considered sustainable, credible and valid it was felt that it should be incorporated into the formal performance management approach used by the organisation and should also be coupled with supportive supervision for the frontline staff. Transparent target setting and both data use and verification methodologies for assessing performance against targets are essential; as are staff training on and knowledge of the incentive scheme and related performance contract. Given that IPs function within the health system it was considered critical that Department of Health (DOH) management and staff should be included in the DSP PBI scheme. Also, that the scheme aligns with any DOH PBI strategies to prevent unintended consequences such as absenteeism and low staff morale among staff not supported by the PBI. These findings have led to the design and implementation of a non-financial PBI scheme by the South African National Department of Health (NDOH). This PBI scheme was launched on World AIDS Day where top performing facilities at district, provincial and national level were recognised, through the awarding of certificates and trophies. Inclusion of the Provincial DOH in data verification has added to the integrity and reliability of the results, forming a solid foundation for continued sustainable implementation.

Conclusion: A sustainable and effective PBI scheme needs to be designed and implemented in the context of the health system and must be team-based to protect against and mitigate any unintended consequences. In addition, it must reflect the values and goals of that health system and be well matched to the performance objectives of a team or facility. A more nuanced analysis of the motivational PBI scheme factors that have the greatest impact on performance of healthcare professionals is being designed in collaboration with the USAID IPs and the NDOH.

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Fostering Key populations inclusion through a regional approach: The Southern African Development Community (SADC) case

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Background: The Southern Africa is the most affected region by HIV and AIDS. In the last decade, important milestones have been achieved; new HIV infections have declined by one third while AIDS related deaths have been halved (SADC,HIV Report 2019). However, Key populations (KP) continue to be disproportionally affected, with prevalence being up to 15 times higher than the general population in some countries(SADC,HIV Report 2019) and 25% of new infections occurring in this group and their sexual partners (UNAIDS,2019). Moreover, punitive legislation and policing practices, stigma and discrimination, violence and limited access to health service continue to undermine the HIV response. Therefore, this paper assessed the implementation of the SADC KP Strategy and its impact at national and regional levels.

Method: This cross-sectional study attempts to assess the implementation of the SADC Regional Key Population Strategy in 12 countries. Between May and September 2019, a questionnaire comprising 13 indicators was submitted to National AIDS Coordinating Agency of 16 SADC Countries. Out of 14 questionnaires received, 12 were deemed to be complete and was as such analysed using Stata 15.

Results: The results demonstrate the following: while few countries had anti-discrimination policy(8%) and health care stigma guidelines(17%);83% of countries assessed claimed to have specific anti-stigma and anti-discrimination mechanisms in place. Most countries (75%) did not have an ethical complaint office dedicated to KP although these matters could be addressed through the medical council or ombudsman. Mechanisms of recording HIV related stigma were in place in all Member States with only 1 providing the report of investigations undertaken which suggest suboptimal policy implementation and lack of regional harmonization. Results also indicates that though all countries claimed to have specific packages for different groups of KP, service coverage differed from one KP group to another with Sex Workers coverage attaining 60% in most Countries(70%) while other groups barely reached 30% and 75% of countries depended on external funding for KP specific interventions.

Conclusion and Recommendation: These findings suggest that whilst Key Populations' issues are incorporated in national programme strategies, SADC and other partners should direct their support towards greater effective policy implementation and differentiated health service delivery.

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Measuring Nigeria's progress in attaining the Global HIV Prevention Coalition targets of ending AIDS by 2030 -— a review of the national scorecard and HIV prevention 2020 road map

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Background: The Global HIV Prevention Coalition (GPC) was inaugurated in 2017 to stimulate greater obligation to and investment in HIV prevention. Lack of systematic implementation of combination prevention programmes at scale was one of the identified gaps to achieving the 2020 targets. Nigeria as a high HIV burden nation endorsed and committed to a global prevention 2020 road map with full consideration to four of the five prevention pillars – Adolescents Girls & Young Women (AGYW), Key Population (KP), Condom Programming and Pre-Exposure Prophylaxis, (PrEP). Though infrastructure and capacity to generate and use more frequent, high-quality data for decision making is necessary.

Materials & Methods: National assessments and consultations were conducted towards reaffirming national leadership for HIV prevention. Progress was reviewed to accelerated action for prevention. Responses to the GPC survey questions aligned to the road map was vital to ascertain and reflect country progress as per service packages and delivery platforms based prevention targets. There was a wide consultation process to make sure responses are reflective of the multi-sector approach to the implementation of the HIV Prevention 2020 Road Map and ultimately, the HIV epidemic in Nigeria. The previous GPC data was reviewed by core team and consultant for a more comprehensive report. The national HIV prevention scorecard was validated by stakeholders and surge states.

Results: The process revealed that knowledge of condom as prevention method increase among aged 15-49 years old increased from 57.8% to 72.9% for men and 73.9% to 78.1% for women. With 587million condoms distributed indication an increase from 29% to 49%. Condom use with non-regular partners (men 15-49years) increased from 57.6% to 64.9%, (women 15-49years) reduced from 39.8% to 35.7%. HIV prevalence among young women aged 15-24years remained (0.8%), but it dropped from 0.5% to 0.2% for men aged 15-24years and from 1.5% to 1.4% for adults 15-49years. New HIV infections among adults rose slightly by 8%. It was obvious that the country has no data for condom use among transgender, PLHIV virally suppressed, needle/opiod substitution for PWID. The national consensus is to improve on HIV prevention coverage, outcome and impact across the four pillars as well as dialogue with the CSO Coalition on mechanisms to fast-track HIV prevention service delivery.

Conclusions: With intensified behaviour change communication efforts and scale up of HIV prevention 2020 targets will be achieved. Population size estimate for transgender people and pilot for harm reduction should be conducted. Strategies should fashioned for provision of AGYW, KP and trans friendly services, integrated One Stop Shop (OSS) and public health facility service delivery; increase services for KPs and transgender; develop guidelines and services packages for HIV prevention among transgender. PrEP prescription and management guidelines should be developed and indicators for PrEP access and transgender included in the DHIS platform. Condoms/lubricants programing and procurement should be guided by national strategies and quantification.

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HIV rapid testing trends among clients aged 50 years and above in Uganda: A need for targeted prevention services for the elderly.

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Introduction: By 2017, 72.5% of HIV-positive adults living with HIV in Uganda knew their status. Of these, 75.4 % were females and 67.3% were males (UPHIA 2017). HIV prevention interventions usually focus on pediatric, adolescents as well as adults aged 49 years and below with less focus on those aged 50 years and above. We present an HIV testing yield trend analysis from HTS program data for the elderly (50 years and above) during a 30 months' period and suggest next steps aimed at optimizing HIV testing among this age category in Uganda.

Materials and methods: We reviewed HIV testing program data from the Uganda District Health Information System for the period January 2017 to June 2019. We used descriptive statistics to describe HIV positivity rates among clients aged 50 years and above who received HTS services.

Results: A total of 1,421,227 clients aged 50 years and above were tested for HIV during the review period of which 732,489 (52%) were females and 688,738 (48%) were males. The average HTS positivity rate (yield) was 3.2% (n=45,102 out of 1,421,227)) but higher among males compared to females (3.5% vs 2.9%). The baseline positivity rate (as at January 2017) was at 3% for males and 2.8% for females. The end line positivity rate was higher than the baseline in both gender categories (Males 3.3%, females 2.9%). A total of 4,99 (11%) clients were presumptive TB cases of which 53% (n=2,633) were males and 47% (2,354) were females. Out of the total tested, 32% (23,5048 females and 214,641males) were testing for the first time. Only 7.8% of all those that tested HIV positive had early stage disease defined as CD4 above 500 c/c (Males 8.1% (N=1,50) females (7.1%, n=1528).

Conclusions: HIV positivity rates for elderly clients aged 50 years and above have been increasing over the past 30 months with males having a higher than average national yield of 3.3%. There is need to extend targeted HIV prevention services to the elderly as well just as it is to other age groups. We could however not establish whether the increasing positivity rate was related to new infections (incidence) or due to improved identification of the positive. Next steps include index client testing among the elderly as well as HIV recency testing to establish trends of recent infections.

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Knowledge, Attitude and Perception of Pharmacy and Medical Students in Nigeria towards HIV Pre-Exposure Prophylaxis (PrEP).

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Background: In 2019, UNAIDS and the National Agency for the Control of AIDS estimated that there are 1.9 million people living with HIV in Nigeria. Studies have equally shown that uptake of pre-exposure prophylaxis (PrEP) in Nigeria is low. Awareness of pre-exposure prophylaxis (PrEP) for HIV prevention is increasing, but little is known about the functional knowledge, perception and attitude towards PrEP among pharmacy and medical students in Nigeria. The aim of this study was to assess the knowledge, attitude and perception of pharmacy and medical students in Nigeria towards HIV Pre-exposure Prophylaxis.

Methods: A total number of 352 medical and pharmacy students filled the 15-item web-based questionnaire with representative respondents from each of the universities situated in the six geopolitical zones in Nigeria. The data obtained was entered in Microsoft Excel and analyzed using STATA (Version 12.1).

Results: Findings indicated that 51.1% and 48.9% were males and females respectively with a 66.5% age range of 18-22. Majority (67%) know about HIV PrEP while 80% believed that there will be need for condoms if one is on PrEP. Exactly 65% believed that the use of PrEP is reliable. However, 82% of respondents held positive attitudes towards HIV PrEP but had concerns recommending it for patients due to lack of knowledge and experience. Precisely, 72% are interested in learning more about HIV Pre-Exposure Prophylaxis.

Conclusion: As future primary healthcare providers, there is need for enhanced knowledge and increased awareness in order to address certain misconceptions directed towards HIV Pre-Exposure Prophylaxis; a necessary step to confronting the HIV epidemic in Nigeria.

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Towards 90-90-90 target: Examining the Knowledge and Perception of MSM in Nigeria towards HIV/AIDS.

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Background: In Nigeria, men who have sex with men (MSM) are one of the groups of the key population where the prevalence is still rising. The purpose of this research was to examine available evidences on the knowledge and perception of HIV/AIDS amongst MSM in Nigeria.

Methods: A systematic review of literature on PubMed, Google Scholar and SpringerLink was performed with no date restrictions on the search for literature. The reviewed resources focused on knowledge, perception and attitude towards HIV/AIDS amongst MSM living in Nigeria. Also, additional data were gotten from W.H.O 2015 Progress Report, AVERT and IAS Factsheet 2014. Qualitative content analysis was then carried with the resultant data extracted and summarized to highlight the knowledge and attitude of MSMs towards HIV/AIDS.

Results: Of 19 articles identified, 7 met our inclusion criteria. These papers reported that prevalence in this group stood at 23%, significantly more than the next highest prevalence group- sex workers (at 14.4%). The common sexual practices identified among the articles reviewed were masturbation and homosexuality. However, this population was reported to be the only group in Nigeria where HIV prevalence is still rising significantly but the knowledge of the 90-90-90 target amongst them was found to be very minimal. Due to the widespread of homophobia in Nigeria, MSMs are subjected to stigma. Stigma such as this poses a major barrier to the understanding of HIV/AIDS as its perception amongst men who have sex with men is directly correlated to their experiences of sexual stigma. There were certain misconceptions about HIV/AIDS along with incidences of high risk behaviors amongst MSMs despite the perceived increase in knowledge and awareness about HIV/AIDS. Socio-cultural factors and religion were not prominent factors influencing the knowledge of MSMs. However, it had a significant effect on their attitude towards HIV/AIDS.

Conclusion: Mass enlightenment and sensitization of the public on homophobia is essential to prevent incidences of stigmatization amongst men who have sex with men. Furthermore, more awareness needs to be carried out to address misconceptions about HIV/AIDS as well as reduce the prevalence of risky behaviors amongst MSMs; a necessary step in achieving target 90-90-90.

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Botswana's Provision of Free HIV Treatment for Noncitizens Brings Them Out to Test

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Background: Since Botswana began the national HIV program in 2002, access to antiretroviral therapy (ART) has been limited to citizens. However, an estimated 30,000 non-nationals living with HIV reside in Botswana, and less than a quarter have access to ART. In November 2019, legislation was passed allowing non-nationals, including key populations, to access free ART. We report our experience providing ART services to non-national KP members prior to this policy shift.

Description: From July to September 2019, the PEPFAR/USAID-funded and FHI 360-led LINKAGES project conducted a surge activity in Maun, Chobe, Gaborone, Francistown, and Selibe-Phikwe to find and link to treatment non-nationals who were undiagnosed or previously diagnosed but not on treatment. Peer navigators reached out to all non-nationals diagnosed by the program since 2016. They also reached new non-nationals, provided condoms and lubricants, referred them for testing, and referred them to care and treatment if positive.

Lessons learned: A total of 132 non-national KP members living with HIV were reached. Of the 120 non-nationals previously diagnosed by the program, only 18 (15%) were contactable and relinked to treatment, while 114 non-nationals were newly reached and linked to care and treatment. Ninety-three female sex workers (FSWs) (average age 39 years) and 39 men who have sex with men (MSM) (average age 40 years) were identified as positive. Thirty-two (25%) had been diagnosed more than one year before initiating treatment. About three-quarters (90) were initiated on treatment within one year of being diagnosed; of these, 93% (84/90) were diagnosed and initiated on the same day. Overall, 80% (105) of all PLHIV non-nationals were started on tenofovir/lamivudine/dolutegravir (TLD).

Conclusion/next steps: Providing free ART improves access to HIV services for non-nationals, may help encourage KP members who have been afraid to test to come forth, test, start same-day treatment, be retained on treatment, and achieve viral suppression, thereby contributing to epidemic control. LINKAGES will continue to expand services to non-national KP members and is currently working to strengthen cross-border initiatives to better track non-national KP members between countries to avoid disruption of ART services and improve retention on treatment.

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Females Who Inject Drugs in Nigeria - Lessons from Key Population Size Estimation Study of 10 States

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Background: Understanding drug use among female is important for many reasons including their significantly higher mortality rates, increased likelihood of facing injection related problems, faster progression from first use to dependence, higher rates of HIV and increased risky injection and/or sexual risk behaviours. Furthermore, injection drug use among female is often perceived as contrary to the socially derived roles of women as mothers, partners and caregivers, thereby leaving female IDU (Injection Drug User) to face greater stigma, risks and experience a range of specific harms at higher levels than male IDU.

Method: Programmatic mapping and size estimation required two sequential level of data collection Level 1 and Level 2. Level 1 explore the geographical location where PWID congregate, describes the hotspot and show the characteristics of the hotspot. Level 2 explore information from the hotspot through key informants and gives a description of the group of that congregate, time and period of activities. At level 2, information collected during level 1 are validated.

Result: Approximately 22% of the total estimated PWIDs across the 10 states are females from a total population of PWIDs that were estimated, the exercise show that female who inject drugs are highest in Kaduna (3,340); followed by Oyo (2,711), Abia (1,180) and Gombe (1,028) states. Proportionally, the highest proportion of female PWIDs within the state compared to the total estimated number of PWIDs were seen in Edo (39%), Kaduna (38%) and Abia (32%) states. Oyo state though had the highest number of Female PWIDs per state but proportionally the female PWIDs were less than 20% of the total estimated PWIDs population in the state.

Conclusion: This study reveals that there is one female out of five person injecting drugs (20% of all IDUs are females). In Nigeria, most research around prevention and treatment has focused on male injection drug users. The background information provided by this study has laid the required foundation for effective and appropriate planning and implementation of prevention/treatment services and research for IDU women. This will help in the drive of eliminating HIV/AIDS by 2030.

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The Contribution of HIV Viral Load in Improving the Accuracy of Recent Infection Testing in Rwanda

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Background: Rwanda is committed to achieving the UNAIDS target of ending the HIV/AIDS epidemic by 2030. Rwanda initiated new approaches including index testing, partner notification and recency testing using rapid assays to identify recent infections in combination with Active Case Based Surveillance (A-CBS) system and program to inform public health action to improve on case finding and interrupt ongoing transmission. This analysis aims to assess the contribution of HIV viral load (VL) test in the Recent Infection Testing Algorithm (RITA) to improve the accuracy of recency testing and a comparison of RTRI and RITA results by age and sex in Rwanda.

Methods: Between August 2018 and June 2019, newly identified HIV positive patients aged ≥15 years using the national HIV testing algorithm were tested on a rapid test for recent infection (RTRI: Asante HIV-1 recency test) to determine whether they were recent or long-term infections. Samples classified as recent on Asante (RTRI-recent) were subjected to recent infection testing algorithm (RITA) including viral load testing using COBAS®AmpliPrep/COBAS® TaqMan at the National Reference Lab to confirm recent infection. Confirmed recent infections were classified as RTRI recent samples with HIV-1 RNA >1,000 copies/mL (virally unsuppressed).

Results: Among 2,312 HIV+ samples tested on Asante, 290 (12.5%) were classified as RTRI recent, of which 192 (66.2%) with VL≥1000 RNA copies/ml were classified as RITA recent (8.3%), while 97 (33.4%) with VL<1000 RNA copies/ml were reclassified as long-term infections and one was inconclusive. The proportion of RITA recent among RTRI recent tests was 72.2% in men and 63.4% in women and no significant difference of proportions in the RTRI and RITA classification of recent infection observed across age categories (p=0.246)

Conclusion/Recommendations: Results highlight that VL testing is essential in a RITA for identifying, characterizing, and acting on recent transmission in Rwanda. One in three RTRI-recent cases had suppressed viral load, underscoring that a substantial number of persons reported as new HIV diagnosis in Rwanda may be previously diagnosed and on treatment or to a lesser extent, a long-term non-progressor or elite controller. Repeat or "cure" testing needs to be investigated and documented among previously diagnosed PLHIV, and proper HIV pre-testing counseling to identify these individuals before recency testing.

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Point of Care SAMBA-II vs Central Laboratory monitoring of HIV-1 Infected Children, Adolescents and Young Adults in Rural Zimbabwe.

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Background: Regular virus load monitoring is recommended to maintain virus load suppression (VLS) to < 1000 copies/ml. As near point of care (POC) virus load testing was introduced, we compared the time to switch drug regimens and rate of VLS among children, adolescents and young adults <25 years (CAY) in community and hospital clinic care in rural Zimbabwe.

Methods: We randomized CAY at a hospital clinic and 8 rural ART outreach sites to 6 monthly standard of care (SOC) virus load (VL) monitoring with Roche COBAS® Ampliprep®/COBAS® Taqman48® HIV-1 v2.0 at Chinhoyi Provincial Laboratory or to near POC Simplified Amplification-Based Assay (SAMBA II), Diagnostics for the Real World, at Chidamoyo Hospital. VLS defined as VL<1000 copies/ml, was assessed at 0, 24 and 48 weeks and summarized by age, gender, care site, drug switching and treatment regimen. We explored factors independently associated with VLS at 48 weeks using multivariate logistic regression and estimated odds ratios and associated 95% confidence intervals.

Results: A total of 329 CAY were enrolled and received VL tests at 0, 24 and 48 weeks. The median age (IRQ) was 15 years (5-25) and the median (IRQ) ART duration was 6 (3-9) years. 59% were female and 39% on protease inhibitor (PI) . Virus load results were available by near POC in < 96 hours and > 4 weeks by central laboratory testing. At baseline, overall VLS was 81% with no significant differences between children <10 yrs (79%), adolescents 10-19yrs (81%) and young adults >20yrs (89%) (p=0.433). Children, adolescents and young adults on non- nucleotide reverse transcriptase inhibitor (NNRTI) had significantly higher baseline VLS (86%) compared to those on PI-based regimen (74%) (p=0.009).
At 48 weeks VLS was 79.9% vs. 80.0% by near POC and SOC monitoring respectively. There were no significant differences in VLS comparing gender, or community outreach vs clinic care. The mean time (±STD) to switch regimens from the first VL>1000 copies/ml was 8.2 (±5.6) months by SOC vs. 7.3 (±5.5) months by near POC was not significantly different (p=0.493). CAY on NNRTI had significantly higher VLS (85%) compared to PI-based (78%) (p=0.042). Age group and regimen type were independently associated with VLS at 48 weeks adjusting for gender, care site (community vs clinic) and time on regimen. Adolescents (10-19 yrs) were significantly less likely to be suppressed compared to children (<10yrs) (adjusted OR=0.25,95%CI:0.11–0.58, p=0.001). CAY switching to PI-based regimen (adjusted OR = 0.17, 95% CI: 0.04 – 0.71) were less likely to be suppressed at 48 weeks compared to CAY maintained on NNRTI or PI from baseline. Persistent VLS, defined as all 3 tests; 0, 24 weeks and 48 weeks VL <1000 copies/ml was 68% in community outreach vs 57% in clinic care (P <0.032).

Conclusions: VLS and time to drug switching were not significantly different comparing near POC or SOC monitoring among CAY. Adolescents, switched to PIs for virologic failure are at higher risk for VL>1000 copies/ml. Maintenance of persistent VLS was significantly greater over 48 weeks in community outreach compared to clinic care. Near POC and SOC VL monitoring are effective, however adherence support and interventions to preserve VLS remain critical to prevent virologic failure and the selection of drug resistance.

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Evaluation of Viral Load Coverage and Suppression Rates in the GlobalFund Impact HIV Project in Nigeria; June 2017 – November 2019

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Background: According to the 2018 NAIIS survey, viral load suppression amongst adults (15-64 years) was 44.5%. Data on the UNAIDS 3rd 90 is available for only few countries in sub Saharan Africa. The objective of this abstract is to provide information on the viral load coverage and suppression as recorded in our program.

Method: At program inception, FHI360/GlobalFund collaborated with relevant stakeholders to ensure the linkage of all supported health facilities to the existing national Viral Load (VL) and Early Infant Diagnosis of HIV (EID) laboratory network which is based on hub and spoke model. Training on viral load sample management and transportation was conducted across all supported facilities. Following these two interventions, FHI360/GF created a viral load sample drive in the supported facilities for the uptake of VL testing services. Targets were set per health facility within the project totaling 90,000 viral load samples to be collected and sent to PCR laboratories. To monitor uptake of services, a dashboard was created, and weekly tracking established to monitor progress made across all facilities.
Subsequently, training was done on utilization of data capturing tools, routine program data was inputted in the District Health Information System from June 2017-November 2019. For this analysis, we calculated VL coverage as number of patients with a VL result versus PLHIV on ART. Viral suppression was calculated based on PLHIV with a VL result of <1,000copies/ml versus total number of PLHIV with VL results available. Data was disaggregated by gender and age.

Results: VL coverage on the program has increased steadily from June 2017 – November 2019. There were 182,002(pre RADET data), 151,915 and 165,920 PLHIV on ART in 2017, 2018 and 2019 respectively with 32.1%, 29.1% and 31% being males. The program recorded viral load coverage of 7.45%, 44.31% and 52.35% in the 3 years respectively. The VL coverage amongst females was 7.8%, 44.6% and 53.3% in 2017, 2018 and 2019 whilst it was 6.7%, 43.5% and 50.1% amongst the males. The VL coverage amongst adolescents and young adults (AYA 10-19 years) was almost the same amongst female and male AYA with it being 2.4%, 47.1% and 58.4% amongst the female AYA and 4.2%, 46.3% and 58.6% for male AYA over the 3 years. Total viral suppression rate was 65.9%, 70.6% and 74.3% over the 3 years. Viral suppression was higher in males (66.9%) than in females (65.5%, p>0.05) in 2017, but higher in females (71.7% and 75.1%) than males (67.8% and 72.3%, p<0.05) in 2018 and 2019 respectively. Viral suppression amongst AYA was 55.4%, 52.4% and 52.3% amongst females and 55.1%, 62.1% and 58.6% amongst males in 2017, 2018 and 2019 respectively.

Conclusion: Progress is being made in achieving the UNAIDS 3rd 90, however there is a need for more evidence-based information made available to the public to accurately monitor the achievements made. Monitoring VLS among age groups is required to achieve improved HIV program performance.

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Operational cost per test of cryptococcal antigen (CrAg) reflexed testing in South Africa in the light of proposed inclusion of samples with a CD4 count between 100-200cells/μl

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Background: In South Africa (SA), a national reflexed CrAg testing programme for HIV+ patients was introduced in 2016, testing remnant CD4 samples with a count <100 cells/μl. Recent World Health Organization (WHO) guidelines for cryptococcal antigen (CrAg) testing however recommend including additional samples with a CD4 count between 100-200cells/μl (previously <100 cells/μl). Current CrAg volumes (CD4<100 cells/μl) make up 10.6% of national annual CD4 testing. There is little or no information available about the cost of extending the CrAg screening initiative in line with recent guidelines.

Aim: This study assessed the cost-per-result for a reflexed CrAg, overall and by positive outcome, when including samples with a CD4 count between 100-200 cells/μl in the national screening programme.

Methods: The accounting stance was used as the provider of testing. An exchange rate of R14.518/$1, an error rate of 1% and annual discount of 4% was used (overheads excluded). The outcomes included the overall cost-per-result, annual equivalent costs (AEC) and the cost per CrAg positive result for samples with a CD4 count <100, 100-200 and <200 cells/μl. Historical CD4 test volumes were used to calculate annual tests volumes for the three CD4 categories. Laboratory equipment costs included a pipette and specimen racks. For staff costs, actual working days per annum were calculated (accounting for public holidays, weekends, annual/sick leave and a 7-hour workday). The nett working minutes per year were used to calculate the percentage full time equivalent (FTE), which when multiplied by annual salary costs resulted an AEC for a medical technologist and laboratory manager. Reagent prices were obtained by supplier quotation. The costs reported here are for laboratory testing and exclude patient care or therapy.

Results: The cost-per-result was similar for samples with a CD4<100 vs CD4 of 100-200 cells/μl due to equivalent annual test volumes (10 vs 11% of total CD4 samples in respective categories). A cost-per-result of $6.88 was reported, including laboratory equipment, staff and reagents contributing 0.05%, 34.7% and 65.3% respectively. The AEC was $2 090 604 for the CD4 100-200 cells/μl group ($1983 183 for CD4<100 cells/μl) and $4,073,788 for the CD4 <200 cells/μl category. The cost of finding a single CrAg positive sample with a CD4<100cells/μl was $91.52 (based on a 7% local CrAg positivity rate) with a 3.5 fold increase to $320.30 for the 100-200 cells/μl category (based on a projected ~2% CrAg positivity rate as per literature).

Conclusion: The cost-per-result was equivalent for samples with a count <100 vs. 100-200 cells/μl categories due to similar test volumes. However, the addition of the 100-200 cells/μl group, will double the AEC for the national programme. Assuming CrAg positivity rates of 1-4%, showed significantly higher costs per positive CrAg outcome than positivity rates >5%, without affecting AEC. A prevalence/incidence study is needed to show incremental distribution of CrAg test volumes and expected CrAg positivity in the 100-200cells/μl category to calculate the actual cost-per CrAg positive outcome). A cost effectiveness analysis to assess patient benefits and economical viability of an extended reflexed programme is still needed.

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Post-market assessment of two rapid diagnostic test kits used in the diagnosis of HIV in the Wa Municipality, Ghana

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Background: Ghana adopted the treat all policy in 2016 working towards achieving the UNAIDS 90-90-90 target by 2020. Human immunodeficiency virus (HIV) testing algorithms based on rapid diagnostic tests (RDTs) are widely used for HIV testing and counselling programs in areas with limited laboratory capacity, including Ghana. Bad weather and improper storage could affect the test kits and result in wrong diagnosis. The WHO therefore recommends periodic post market assessment of these test kits. However, little is known about the performance of these test in the Wa Municipal several years after they have been deployed for HIV testing in the Upper West Region. We assessed the sensitivity and the specificity of First Response and OraQuick HIV RDT kits in the Wa municipality.

Method: We conveniently sampled 286 subjects at the Wa Regional Hospital. We used a questionnaire to collect demographic information of the subjects. We tested each subject with First Response and OraQuick test kits using parallel algorithm. We collected venous blood samples of the subjects into SST tubes for ELISA at the National Public Health and Reference Laboratory. We analyzed data as frequencies, proportions, and determined the sensitivity, specificity and predictive values of the test kits using STATA.

Results: The sensitivity of First Response was 88% and OraQuick 98%. The specificity of First Response was 92% and OraQuick 94%. The PPV for First response was 91% and OraQuick 95%. First Response had NPV of 89% and OraQuick 98%. There was a single case of HIV false positive on Anti-retroviral therapy.

Conclusion: The two test kits being used in the Upper West Region performed below the WHO recommendations. The general performance of OraQuick was however better than First Response. We recommended the National AIDS Control Programme and the Food and Drugs Authority to reassess the test kits and that is being carried out.

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Assessing the operational impact of guideline changes to Cryptococcal antigen (CrAg) testing to include samples with a CD4 count of 100-200 cells/µl on a national reflex testing program in South Africa (SA): a desktop exercise using laboratory data

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Background: The National Health Laboratory Service (NHLS) routinely do CrAg testing as a reflex test at 47 CD4 laboratories using remnant CD4 samples with a confirmed count <100cells/µl. Annually 10% of all CD4 samples tested are automatically reflexed for CrAg testing, with a national positivity rate of 6.7%. The 2019 World Health Organization (WHO) recommendations for CrAg testing include all patient samples with a CD4 count of 200cells/µl.

Aim: In anticipating of the National Department of Health (NDOH) adopting the WHO guidelines, this study assessed the operational impact of additional samples (with a CD4 count of 100-200/µl) on the local CrAg reflex program.

Methods: CD4 specimen-level data was extracted from the Corporate Data Warehouse (CDW) for a 12 consecutive month period (Aug 2018 to Jul 2019) to assess test volumes with a count <100, between 100-200 and >200 cells/µl nationally, per province, district and laboratory. The percentage of samples per CD4 category was calculated as well as the average number of tests per month and day (assuming a 21.5 working day month) per laboratory.

Results: Nationally, 2.8 million CD4 tests were conducted, with 283 240 samples receiving a reflexed CrAg test. There were 10.6±2.8% samples eligible for reflexed CrAg testing that equates to 502 tests per month. For the same period, 300 624 samples had a CD4 count between 100-200 cells/µl (11.0±2.1%), translating to 533 additional tests monthly. Of the nine provinces, KwaZulu-Natal had the lowest number of CD4 samples <100 cells/µl and between 100-200 cells/µl (6.2 and 7.6% respectively), with Gauteng (GT) highest at 13% samples with a count <100 cells/µl, followed by Limpopo Province and Western Cape (WC) at 12.9% and 12.3% respectively. For a CD4 count of 100-200cells/µl, WC contributed 14% of national samples and GT 12,5%. CrAg test volumes doubled across all 47 laboratories when adding samples with a count of 100-200 cells/µl. Sixteen laboratories are projected to test > 60 samples daily, 12 labs between 30-59 samples, and 19 laboratories testing <30 samples. Positivity rates for CD4<100 were confirmed at 6.7% nationally (16 994 tests per annum) with a projected 2% positivity for samples with CD4 100-200 cells/µl (6 012 tests per annum).

Conclusion: Scaling up CrAg testing to include CD4 samples with counts between 100-200 cells/µl, will double the testing requirements at each CD4 testing laboratory. The main operational challenges anticipated include the lack of dedicated staff/staff shortages, labour-intensive testing method (lateral flow assay), and manual reporting, which may result in error rates exceeding the current 1%. CrAg reflex testing is an integral per of the workflow of CD4 laboratories without consequences to "scope of practice" guidelines for national health practitioners (HPCSA). Doubling the workload may, however, necessitate automation to enzyme immunoassay (ELISA) platforms for six high volume laboratories, with "out of scope "implications.
The projected CrAg and CrAg incidence/prevalence need to be determined for CD4 of 100-200 cells/µl. Costing analysis should be updated to include additional testing with cost-effectiveness analyses done to assess the impact on patient outcomes versus financial implications and affordability.

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Best practices for statistical method comparison to evaluate new plasma separation devices as alternatives to plasma-based HIV viral load monitoring

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Background: Plasma separation devices(PSD) are being introduced as alternatives to plasma-based viral load(VL) testing, the global standard for monitoring response to antiretroviral therapy. Robust performance evaluation is required to ensure sufficient and relevant knowledge for decision-makers to change existing policy prior to implementation for patient care, but there is limited guidance for statistical method comparison tools when assessing new PSD. We reviewed current statistical approaches to VL technology evaluations to determine the applicability of methods to measure accuracy, precision, and clinical misclassification.

Methods: Online searches of studies reporting HIV-VL molecular technology evaluations between 2005 and 2019 were performed in PubMed, Google Scholar, Google, and Scopus databases. Extracted data included year, molecular platform, VL assay, specimen type, sample size, and statistical methods applied.

Results: Method comparison statistics were sourced from 72 manuscripts. The mean sample size of specimens evaluated was 319 (range: 22, 3114). Reference specimen types consisted of plasma (93%), Dried Blood Spot (56%), Dried Plasma Spot (11%) and PSD (4%), with multiple manuscripts using more than one reference specimen. The predominant testing platforms were Roche CAP/CTM (61%) and Abbott m2000 (57%), with many manuscripts using both technologies. The following statistical methods were applied: Bland-Altman analysis (85%), sensitivity (51%), specificity (46%), positive and negative predictive values (22%), Kappa coefficient (17%), concordance correlation coefficient (17%), Deming regression (6%), percentage similarity (6%), clinical misclassification (6%) and Passing-Bablock analysis (3%); showing a non-standardised approach to evaluation studies. A framework was developed to ensure standardised evaluations of PSD that accommodate potential increased variability due to specimen collection method, type, volume, and storage. Data description should include scatter plots sorted by reference VL and testing sequence. Qualitative agreement must include sensitivity, specificity, and clinical misclassification, while quantitative agreement should be evaluated using Lin's concordance correlation coefficient, Bland-Altman analysis, Passing-Bablock analysis, and percentage similarity. Ideally, all evaluations will include visualisation of the statistics.

Conclusions: These data highlight the variability between HIV-VL evaluations and the need for standardised statistical method comparison. The developed framework incorporates the necessary statistical methods required to evaluate new PSD. It visualizes the data for clear head to head comparison, evaluates the strength of agreement and bias, and assesses the similarities between devices. The recommended framework needs to be applied to relevant datasets evaluating PSD for HIV-VL, to validate this approach.

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Pregnant women at higher risk of hepatotoxicity when initiating TDF/3TC/EFV in Malawi

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Background: Tenofovir/lamivudine/efavirenz (TDF/3TC/EFV) has been the most common used first-line treatment in LMIC countries. While known to have potential hepatic (EFV) and renal (TDF) toxicity, the national antiretroviral therapy (ART) program in Malawi has been implemented without laboratory safety monitoring. We assessed whether pregnancy increases the risk of hepatic toxicity by comparing toxicity between pregnant women, non-pregnant women and men among patients who started EFV-based regimen under two clinical studies in Malawi.

Methods: This is a joint secondary data analysis of two cohort studies of HIV-1-infected treatment-naive adult patients (≥ 16 years of age) initiating standard first-line ART under two observational studies in Malawi from May 2015 to June 2019 at Lighthouse ART clinic and Bwaila hospital, Lilongwe Malawi. We used Kaplan-Meier survival analysis to compare hepatic toxicity incidence among different patient groups in the first 12 months of first-line ART. Factors associated with elevated liver enzymes (LFT) (>= grade 3 according to DAIDS) were modelled using a Cox proportional hazards model.

Results: A total of 1401 were enrolled: 927 (66%) women, of whom 341 were pregnant. Median age for women and men was 31 (IQR 26 -37) and 38 (IQR 32-44), respectively. A total of 24 hepatic toxicity cases were observed; 11 in pregnant women, 10 in non-pregnant women and 3 in men. The incidence of hepatic toxicity was 32 per 1000 person-years (PYs) among pregnant women, 12 per 1000 PYs among non-pregnant women, and 6 per 1000 PYs among men. Women were more likely to be diagnosed with hepatic toxicity (p-value=0.03) with sustained odds over time. In univariate analysis, the odds of hepatic toxicity were reduced in male sex (HR: 0.28, 95%CI:0.08 -0.95), and increased among pregnant women (HR: 2.64, 95%CI:1.18-5.88). However, neither patients' sex, age nor pregnancy status were significantly associated with hepatic toxicity in a multivariable Cox regression.

Conclusion: While hepatic toxicity was low, pregnant women were at higher risk of increased toxicity. While routine LFT monitoring is likely not required for general populations, pregnant women on EFV based regimens may benefit from closer clinical or laboratory monitoring for adverse reactions and complications.

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VIRAL LOAD ACCESS FOR KEY POPULATION IMPLEMENTED AT COMMUNITY-BASED CLINIC IN MALI

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Background: In Mali, to improve efficiency of national HIV program, LINKAGES project developed a program focused on HIV case finding, linkage to clinic and support access to viral load (VL) to ensure viremia suppression. In January 2019, collaborating with national reference laboratory (INSP) and National HIV coordination program (CSLS), LINKAGES team implemented a community-based VL approach. We conducted an analysis of program data to identify population profiles associated with unsuppressed viremia among KPs subgroups.

Methods: KPs under ART treatment at least 6 month ago were selected from dataset directly managed by INSP team. National guidelines consider > 1,000 copies/ml an unsuppressed VL. This was the study outcome variable. Bivariate and multivariable analyses were performed to examine the relationship between an unsuppressed status and four factors [KP subgroups, Age, WHO stage, and distance as implied by blood sample type (DBS, plasma or whole blood)]. We also assessed differences based on a combination of these factors using interaction terms in the model.

Results: A total of 235 VL were performed and 24% were unsuppressed. Of the 233 with KP identification, 35% were FSWs and 65% were MSM. Bivariate analysis did not show a significant difference by KP, with 26% of FSW and 22% of MSM unsuppressed. Of 232 VL samples received for which we know the type, 75% were DBS and 25% were plasma/whole blood with respectively 27% and 12% unsuppressed. Bivariate analysis showed this difference to be significant (p=0.02). The age range was from 18 to 71. Bivariate analysis showed age to be significantly associated with being unsuppressed (p=005), with the lowest unsuppressed prevalence (10%) in the oldest group, and the highest (42%) in the 35-39 age group. With adjusted odds ratios, age remained significant with 0.30 [95% CI, 0.09-0.95] (p=.041), and distance was borderline significant with 2.54 [95% CI, 0.99-6.47] (p=.051).

Conclusions: VL implementation in Mali KPs' program even when access to clinic remains difficult was conducted, as shown with high use of DBS sample. Identified factors associated to unsuppressed, such age and distance to clinic, will be used to support HIV case management at community level with healthcare team.

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The Abbott Alinity m HIV-1 viral assay verified for testing PPT specimens in a centralised laboratory setting in South Africa

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Background: As many tools as possible are required in the viral load testing kit if the third 95 of the UNAIDS Fast Track targets that were set to end the AIDS epidemic by 2030 are to be reached. One of these tools is the fully automated medium to high throughput testing platform capable of testing different specimen types and liquid specimen volumes. Plasma preparation tubes (PPT) enable centrifuged plasma to be transported and stored in a primary tube for longer periods than ethylenediaminetetraacetic acid (EDTA) tubes and is, therefore, a preferred sample type for some programmes experiencing challenges providing efficient sample transportation. We verified the use of plasma collected in the PPT tubes for use on the newly introduced medium to high throughput Abbott Alinity m HIV-1 viral assay in Johannesburg, South Africa.

Materials & Methods: A total 249 samples were enrolled in this study. Residual EDTA plasma from whole blood collected in PPT tubes was aliquoted and frozen after routine HIV VL processing on the cobas® 6800/8800 system (cobas) using the cobas® HIV-1 assay. Frozen aliquots underwent one freeze thaw cycle prior to testing with the Alinity m HIV -1 assay 0.6 mL protocol performed in secondary tubes. Bland-Altman analysis and Deming Regression were used to assess agreement and correlation, respectively. Samples with result >0.5 log10 difference between the two assays were considered discordant. Sensitivity, specificity and rate of misclassification were measured at 1000 copies/mL according to the current WHO definition of treatment failure.

Results: The bias between the two assays was 0.23 log10. Bland-Altman analysis showed good agreement. Deming Regression produced a slope 0.97 [95% CI: 0,9294 to 1,016]. Thirty samples were discordant; the average bias of the discordant samples was 0.63 log10. Sensitivity at 1000 copies/mL was 98.29% [95% CI: 95.69 to 99.33] and specificity was 100% [95% CI:79.61 to 100.00]. Four samples were misclassified. These samples obtained results >1000 copies/mL when tested with the cobas assay but obtained results <1000 copies/mL when tested with the Alinity m HIV-1 assay.

Conclusions: Clinical evaluation of the Alinity m HIV-1 assay produced acceptable results when compared to the cobas assay. PPT plasma is verified as a suitable sample type for testing on the Alinity m HIV-1 assay. Laboratories transitioning to the Alinity m HIV-1 assay should consider using PPT if transport logistics are a challenge.

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Accessibility of Point-of-Care Diagnostics in Rural and Remote Primary Health Care Facilities in Zambia: A Cross-Sectional Survey

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Background: Point-of-care (POC) technology is an important innovation with the potential to alleviate some of the barriers to timely detection and rapid treatment of diseases. Accessibility is critical to the success of POC diagnostic technologies. The aim of this study was to determine accessibility of POC diagnostics in rural Primary Heath Care facilities (PHCs) in Zambia. In this study, accessibility is defined as the availability of human resource for POC testing, availability of POC diagnostics and utilization

Materials & Methods: The survey was conducted in 100 rural PHCs of Central province in Zambia using a multi-stage sampling method. Data was collected from HCWs stationed in PHCs using a pretested-structured questionnaire. Microsoft Excel was used for data entry and SPSS was used to perform descriptive and multiple regression analysis.

Results: Out of (54%) health posts (HPs) and (46%) rural health centres (RHCs) surveyed, our findings reveal that the majority (60%) of the respondents were nurses. Our study found an average of 6.2 HCWs per 10 000 persons which was significantly lower than the WHO recommended staffing threshold of 22.8 HCWs per 10 000 persons. Out of the 18 WHO recommended essential in vitro tests per facility, we found that there was low (<5 tests) availability of tests in 36% (95% CI: 26.6 – 46.2) of facilities, moderate to high (6-10 tests) in 58% (95% CI: 47.7 – 67.8) and high (>10 tests) in only 6% (95% CI: 2.2 – 12.6) of the surveyed facilities. Regarding utilization, the most frequently used POC tests on a daily basis were for: malaria in 99% (95% CI: 94.6 – 99.9), HIV RDT in 98% (95% CI: 92.9 – 99.7) and syphilis in 53% (95% CI: 42.8 – 63.1) of facilities surveyed. There was a significant correlation between availability and daily usage, r = 0. 829**, p < 0.01 level. Multiple linear regression model showed the availability of POC diagnostics was significantly associated (p-value < 0.05) with number of health personnel and the catchment population, R^2 of 0.189. Daily utilization of POC diagnostics was also positively associated (p-value <0.05) with health personnel and working hours, R^2 =0.234.

Conclusions: Our results show there is inadequate staffing levels, un-even distribution and utilization of POC in rural health care facilities in Zambia. Overall our study found that accessibility to POC diagnostic services differs among PHCs in Central province of Zambia. These findings may inform policy to improve distribution and utilization of POC diagnostics in rural health care facilities of Zambia.

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The performance of the cobas® plasma separation card for HIV viral load testing using the Abbott m2000 platform

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Background: Plasma-based viral load (VL) testing is used globally to monitor response to antiretroviral therapy, but is challenging in remote settings. The cobas® plasma separation card (PSC), launched in 2018 to stabilise whole-blood specimens for transport prior to centralised VL quantitation on CAP/CTM or cobas®68/8800 (Roche) platforms, overcomes the limitations of plasma (cold-chain, time constraints, phlebotomy) and removes cell-associated nucleic acid, a known limitation of dried blood spots (DBS). However, VL programmes use multiple suppliers and the feasibility of the PSC on platforms beyond cobas® must be examined.

Methods: Plasma (800µl), DBS (70µl) and PSC (140µl) were prepared from 128 residual EDTA-whole-blood specimens and stored at -20°C until testing by RealTime HIV-1 on the Abbott m2000. Plasma and DBS specimens were tested according to existing manufacturer instructions, while PSC specimens were eluted using RealTime DBS elution protocols and quantified using RealTime plasma protocols. A dilution correction factor was applied to the PSC results, before comparison to the reference plasma VL and DBS to determine concordance correlation and clinical misclassification.

Results: To date, 53 plasma (median VL: log3.9cp/mL) and PSC, and 37 DBS have been evaluated. The concordance correlation coefficients for PSC and DBS were 0.596 (95%CI: 0.428;0.724) and 0.715 (95%CI: 0.556; 0.823) respectively, with PSC showing improved percentage similarity (98%) over DBS (105%). PSC misclassified 2 specimens; DBS processing at the clinically relevant range is outstanding. Specimen processing complexity was similar to DBS, but requires manual conversion.

Conclusions: While specimen numbers are low, initial results indicate PSC processing on the m2000 platform, which supports 50% South Africa's VL program, is feasible. Further evaluations of PSC by RealTime HIV-1 are ongoing, and the new Abbott Alinity platform must also be considered. If comprehensive evaluations prove the use of the PSC on the Abbott platforms, standard operating procedures and inbuilt conversion factors should be considered.

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Performance Characteristics of a Modified HIV-1 Drug Resistance Genotyping Method for use in Resource Limited Settings

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Background: HIV-1 drug resistance (HIVDR) assays are critical components of clinical management of the infection in the face of emerging drug resistance to available drugs. Monitoring drug resistance among HIV patients on treatment helps to determine regimen switching pattern. Furthermore, determining baseline HIV drug resistance prior to treatment initiation can inform clinicians on the choice of drugs to include in the initiation regimen. The availability of HIV drug resistance information helps to optimize treatment and increase the chances of attaining viral suppression (last 90 goal), hence reducing new infections. However, despite the indispensable role of HIV drug resistance testing, patients in resource-limited settings are rarely tested for drug resistance as part of treatment monitoring. The prohibitive costs associated with these tests limits access to drug resistance testing in resource limited settings. Therefore, we present the performance characteristics of a modified, low-cost HIVDR testing assay.

Methods: The performance characteristics of the modified assay were assessed using the WHO/HIV ResNet guidelines. Twenty-six plasma samples were used to validate and assess the accuracy, precision, reproducibility and amplification sensitivity of a modified HIVDR assay by HIV genotyping. Accuracy, precision, and reproducibility were tested by determining nucleotide sequence identity between the original and modified assay while amplification sensitivity was tested by the percentage of successful genotyping tests amongst specimens with a specific viral load range. The cost of the modified assay was compared to the original assay cost using the ingredient costing approach.

Results: The performance characteristics of the modified assay were in agreement with the original assay. Accuracy, precision and reproducibility showed nucleotide sequence identity of 98.5% (CI, 97.9 – 99.1%), 98.67% (CI, 98.1 – 99.23) and 98.7% (CI, 98.1 – 99.3), respectively. There was no difference in the type of mutations detected by the two assays ($\chi2$ = 2.36, p> 0.26). Precision and reproducibility showed significant mutation agreement between replicates (kappa = 0.79 and 0.78), respectively (p < 0.05). The amplification sensitivity of the modified assay was 100% and 62.5% for viremia ≥1000 copies/ml and <1000 copies/ml respectively. Our assay modification translated to a 39.2% reduction in the reagent cost.

Conclusion: Our findings underscore the potential for modifying commercially available HIVDR testing assays into cost-effective assays. The performance characteristics of the modified assay met the WHO recommended criteria. Assay modification approaches can help to increase access to routing HIV drug resistance testing in resource- limited settings.

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Verification of the BD FACSPresto™ machine for haemoglobin and CD4 cell counts testing in Kenya

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Background: Haemoglobin levels and CD4 cell count are important factors in HIV infection. Decline of the two is often associated with disease progression. Therefore, accurate and reliable monitoring is required. In this study, we evaluated the performance of the new BD FACSPresto point-of care device for its suitability in measuring CD4+ T-cells and haemoglobin (Hb) among HIV-infected individuals.

Methodology: Fresh venous and capillary blood samples (n=103) from HIV-infected individuals attending a care and treatment clinic in Nairobi were analysed on BD FACSPresto and test results compared to those of the reference equipment (BD FACSCalibur for CD4 and Mindray hematology analyzer for Hb). The two methods were compared for accuracy (Pearson's correlation) and bias (Bland Altman analysis)

Results: Data for absolute and percentage CD4 readings showed high correlations (R^2=0.97 and R^2=0.82, respectively) between the test and reference equipment. Using venous blood, haemoglobin results from reference and test equipment had a correlation of R^2=0.94. When haemoglobin results were compared for venous and capillary blood on the BD FACSPresto™ the correlation was R^2= 0.97. Bland Altman analysis revealed a mean difference in absolute cell counts of 77cells/ml between the two platforms.

Conclusion: The results obtained from the BD FACSPresto™ machine were comparable to FACSCalibur and Mindray Hematology analyzer reference equipment. Moreover the BD FACSPresto™ machine can utilize both venous and capillary blood thus is a suitable point of care device for use especially in limited resource settings and hard-to-reach populations to expand access and uptake of laboratory services

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Ease of use, acceptability and diagnostic characteristics of Atomo HIV self-test kits among HIV Testing Services clients in Kenya

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Background: With an approximate adult HIV prevalence of 4.9%, Kenya remains one of the countries in sub-Saharan Africa to be worst hit by the HIV epidemic. Out of the estimated 1.6 million people living with the virus, about 76% are aware of their HIV status. This represents significant strides made by HIV testing programs in identifying infected individuals in the last few decades. Despite these successes, the last segment of the HIV-infected population remains untested. HIV self-testing is an innovative strategy with potential to increase access and uptake of HIV testing especially among the difficult-to-reach and high risk populations. The aim of this study was therefore to examine the performance and usability of the Atomo HIV self-test kits.

Methods: This cross-sectional study employed mixed-methods approach. Performance characteristics for Atomo HIV self-test were compared to the WHO validated national HIV testing algorithm comprising of Alere Determine and First Response. A questionnaire was completed by a trained counselor observer. Kit sensitivity, specificity, positive and negative predictive values were then calculated in reference to the national algorithm, and descriptive statistics also analysed.

Results: A sensitivity of 97% (95% CI 90.8%-99.2%) with a perfect specificity of 100% (95% CI 95.4%-100%) was observed for Atomo HIV self-test. Positive and negative predictive values were 100% and 99.8% respectively when a population prevalence of 4.9% was applied to reflect field performance. Out of the 111 participants who consented to the study, 101(91%) found the instructions for use (IFU) easy to follow, 88.3% found it easy to draw blood and perform the test correctly, 110 (99%) interpreted test results correctly and within the recommended time, while 100 (90.1%) expressed confidence in performing the test. One hundred and five (105, 94.6%) were readily willing to use the kit and 106 (95.5%) would recommend it to their partners. Further, 99 (89.2%) expressed their satisfaction with the kit usability.

Conclusion: The Atomo HIV self-test kit reported an acceptable diagnostic performance and usability score making it a viable option for HIV testing in the race towards the UNAIDS 90-90-90 targets.

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CD4/CD8 RATIO IS A STRONG PREDICTOR OF FAILURE TO ANTIRETROVIRAL THERAPY AMONG ADOLESCENTS: EVIDENCE FROM THE EDCTP-STUDY IN CAMEROON

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Background: In Sub-Saharan Africa, monitoring of response to antiretroviral therapy (ART) is based on plasma viral load (PVL) measurement. However, other markers such as CD4 and CD8 remain useful in assessing the immune status of patients, and may also serve as predictors of ART response in a context where access to PVL is still challenging. Since Immuno-virological monitoring is less well described in paediatric populations in our context, we sought to ascertain correlation between immunological markers and PVL among adolescents leaving with HIV (ALHIV) and their associated with ART failure.

Materials and Methods: A cross-sectional study was conducted February-June 2018 at the Chantal BIYA International Reference Center (CIRCB) amongst 283 ALHIV from rural and urban health facilities of the center region of Cameroon. Enumeration of T lymphocytes (CD4, CD8, CD4/CD8 ratio) and HIV-1 PVL was performed using BD Facs Calibur and Abbott m200rt RT-PCR respectively. Statistical analyses were performed using Rv3.6.1 software, with $r=0.4-0.8$ considered as a strong correlation and $p<0.05$ as statistically significant.

Results: Globally, mean age was 14±3 years and 53.35% (151/283) were female. Following immunological parameters, 42.75% had CD4 <500 cells/mm3 and 25.08% had CD4% <14%; 6.71% had CD8 >1664 cells/mm3 and 40.28% had CD4/CD8 ratio<0.5. Following PVL, 35.68% had <40 copies/ml, 24.73% had 40-1000 copies/ml, and 39.57% had >1000 RNA copies/ml (42.1% female vs. 36.6% male, p=0.39). Except for CD8, all other immunological markers showed strong negative correlations with PVL: CD4/CD8 ratio (r= -0.62, p< 0.0001); CD4% (r= -0.56, p<0.0001); CD4 absolute value (r= -0.55; p<0.0001); CD8 (r= 0.15, p= 0.01). Following regression analysis, only CD4/CD8 ratio showed a significant correlation with PVL (p<0.0001). Of clinical relevance, mean CD4/CD8 ratio ≥1.05 and ≤0.59 correlated with undetectable PVL (<40) and virological failure (≥1000 RNA copies/ml), respectively.

Conclusions: Though immunological markers are mainly recommended for preventing opportunistic infections among severe immuno-compromised HIV-infected patients, CD4/CD8 ratio is the most suitable surrogate marker of virological response on ART among ALHIV. Interestingly, in the absence of PVL for routine clinical monitoring, CD4/CD8 ratio ≥1 and <0.6 could be used as thresholds to depict cases of good ART response (undetectable PVL) and treatment failure respectively.

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Increasing Knowledge of Pre-Exposure Prophylaxis among Key Populations Led to Increased Uptake in Botswana

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Background: The use of pre-exposure prophylaxis (PrEP) is vital to attaining HIV epidemic control among key populations (KPs) and their sexual partners. The second Behavioral and Biological Surveillance Survey (BBSS2) showed awareness of PrEP is low among KPs (6.6% FSWs; 13.4% MSM). However, there was an increase in HIV prevalence 13.1% in 2012 to 19.1% in 2017 amongst MSM. We implemented PrEP for KPs in a community-based setting.

Description: From October 2018 to September 2019, the PEPFAR/USAID-funded LINKAGES project provided PrEP to KPs using differentiated service delivery models including mobile outreach, drop-in centers, and community-based clinics in Maun, Kasane, Gaborone, Selibe-Phikwe, Palapye-Serowe, and Francistown. PrEP, provided as part of a combined prevention strategy, was offered to all eligible KPs. Peer outreach workers (POWs) were trained on explaining PrEP to KPs and provided information, education, and communication (IEC) materials about PrEP during demand creation activities. They also applied a risk-assessment tool to all KP individuals accessing services through the program and referred those at high-risk with a recent HIV negative or unknown result for further screening and assessment for PrEP eligibility. Eligible KPs were offered and started on PrEP, then linked to a peer navigator (PN) for support.

Lessons Learned: PrEP uptake was slow at first; only 26 MSM enrolled in the first three months. At six months, uptake increased fivefold to 125. At 12 months, 334 had enrolled . After one year, a cumulative total of 576 KP members had been initiated on PrEP. Of the 1,085 KP members screened for PrEP , 76% (826) were eligible. Of these, 70% (576) were started on PrEP. At year-end, 94% (541/576) were on PrEP.

Conclusion/Next Steps: Scaling up demand for PrEP, particularly among FSWs, by improving knowledge, training POWs and peer navigators, distributing IEC material, and accompanying referrals for those who did not enroll the first time helped improve PrEP uptake among KPs.

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An Innovative Strategy for Increasing Demand for Oral Pre-exposure Prophylaxis among Female Sex Workers in Malawi

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Background: In 2018, the Ministry of Health (MoH) in Malawi approved the use of oral pre-exposure prophylaxis (PrEP) for HIV prevention as part of an implementation science project led by FHI 360 and Pakachere Institute for Health and Development with support from the USAID/PEPFAR-funded LINKAGES project. We present the results of efforts to generate demand for PrEP among female sex workers (FSWs).

Methods: PrEP was delivered as part of a prospective cohort study among FSWs in drop-in-centres (DICs) at Naperi, Chirimba and Bangwe, in Blantyre from February-November 2019. The study intended to enroll 575 HIV-negative FSWs. To facilitate recruitment for PrEP, two peer-led demand generation models were employed. The passive model involved peer-to-peer interpersonal communication (IPC) that was routinely conducted through community outreaches for six months. In the active model, the routine demand generation model was enhanced with peer-to-peer IPC through day and night campaigns at hotspots staggered at two-week intervals over four months. During campaigns-where PrEP messaging merits were discussed, flyers and leaflets distributed, FSWs willing to enroll in the study consented and were provided with HIV prevention services including transportation reimbursement. Those unwilling were offered the MoH core package of HIV services and no monetary incentive was provided.

Results: During the 10-month study period, a total of 460 FSWs were newly initiated on PrEP. Of these, 38% (154/406) were enrolled during the 6-months where the passive demand generation model was used while 62% (252/406) were recruited during the four months of intensified campaigns. The passive model recruited an average of 19 FSWs/month, while in September alone we saw a fourfold jump to 96 FSWs recruited through the active model. There were no differences in demographic, socioeconomic and behavioral characteristics between FSWs recruited during passive and active demand generation models.

Conclusions: Multiple peer-led demand generation strategies including campaigns increased uptake of PrEP among FSWs, compared to routine passive demand generation strategies only. Campaigns provided opportunity for PrEP messaging to get closer to FSWs preferred settings at hotspots. PrEP programs should consider the use of multiple demand generation strategies tailored to the target populations to increase uptake of PrEP.

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HIGH INCONSISTENT CONDOM USE AMONG RECENT PREP INITIATORS IN KENYA

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Background: HIV pre-exposure prophylaxis (PrEP), a potent HIV prevention tool, is being rolled out rapidly for persons at high HIV risk in Kenya. However, PrEP unlike condoms does not protect against other sexually transmitted infections (STIs). Understanding condom use among PrEP users can inform the wider reproductive health programming in Kenya.

Methods: From May 2018 to December 2019, we enrolled 474 participants (162 men and 130 women in a HIV serodiscordant couple, 182 women at HIV risk but not in known HIV serodiscordant relationships) in a randomized trial testing if HIV self-testing could support PrEP delivery. Participants were eligible for enrollment if they were ≥18 years, HIV uninfected (biologically confirmed), and had used PrEP for 1 month. At enrollment, participants completed a survey that assessed their recent sexual behaviors, including the number of times they had sex in the past month, and the number of times a condom was used. If participants did not report using a condom every time they had sex, we categorized their condom use as inconsistent. We reported descriptive statistics for all participants and each sub-population. We used univariate Poisson (sex acts) and logistic (condom use) regression models to determine differences in outcomes between study sub-populations.

Results: The median age of participants was 33 years (IQR 28-40). Participants reported a median of 8 sex acts (IQR 4-12) in the past month, and 82% (n=385) of participants reported inconsistent condom use. Women in serodiscordant couples reported more sex in the past month (median 12 acts, IQR 5-12) than women not in known serodiscordant relationships (median 8 acts, IQR 3-12, p<0.001) and men in serodiscordant couples (median 8 acts, IQR 6-12, p<0.001). However, inconsistent condom use was greater among men in serodiscordant couples (88%, n=142) compared to women in serodiscordant couples (75%, n=97, p=0.003) and women not in known serodiscordant relationships (81%, n=146, p=0.06).

Conclusions: Inconsistent condom use was high among recent PrEP initiators in Kenya. Imperfect condom use has been seen in other populations using PrEP and reinforces the need for PrEP as well as complementary interventions to maximize PrEP adherence and reduce concurrent STIs.

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It takes a village… of tactics to successfully drive demand creation for HIV prevention

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Background: South Africa (SA) introduced Pre-Exposure Prophylaxis (PrEP) in 2016 as an additional HIV-prevention method. Project PrEP (Unitaid-funded, WITSRHI implemented, in close collaboration with the National Department of Health) targets adolescent girls and young women (AGYW) via combination prevention within comprehensive sexual and reproductive health (SRH) services in four priority clusters in SA. The project aims to reach 90% (328517) of AGYW within its catchment populations through focused demand creation.

Methods: Resulting from youth engagement, the project developed a comprehensive demand creation strategy to create awareness and drive PrEP uptake, couched within existing SRH services. The strategy includes various tactics across channels aiming to reach youth and their communities with engaging messaging in convenient locations, including:

•   Printed information, education and communication materials for AGYW, parents, community members and other gatekeepers, and provider job aids.
•   www.myprep.co.za website and online marketing including Google Adwords.
•   Targeted social media reach and engagement through Facebook and Twitter, including cost-efficient boosted posts.
•   Free media streaming devices in facilities featuring youth-relevant content.
•   Documentaries on HIV/SRH (including MTV Shuga Down South) screened on local television channels.
•   Mobile application support for PrEP continuation.
•   Radio content in all SA's official languages.
•   Youth-friendly spaces in clinics.
•   Ongoing meaningful youth engagement with representative youth from implementation clusters.
•   Social mobilisation activities within communities.
•   Daily mobile clinics at youth hotspots.

These tactics can be tailored for use, as the audience and situation necessitates.

Results: Results include reach by demographic group and channel for the period November 2018 to 2019. Channels are grouped into three categories: online/digital; radio; and social mobilisation. Audiences comprise five groups: AGYW; women 25 years+; adolescent boys and young men; men 25 years+, and other (individuals without demographic data). Total reach for this period is 3.275 million (with some reached multiple times or through multiple channels).

Online/digital reach includes groups reached through Facebook, Twitter and www.myprep.co.za, measured through Facebook/Twitter metrics and Google analytics. Facebook was the most effective channel, reaching 917041 AGYW of a total reach of 1718422. All channels are complementary, with Facebook directing engaged users to the website for specific information, while Twitter reaches a smaller, otherwise unengaged audience. Online engagement on Facebook posts only, measured at 30828, excluding private messaging interactions.

Radio reach was 1513665 across all audiences and is calculated through Radio Audience Measurement.

Social mobilisation focusses on face-to-face reach through stakeholder engagements, community dialogues, youth parties/events, mobile clinic outreach and in-facility health talks by peers and is measured through

registers. Health talks reached more AGYW than any other tactic (13144). Noteworthy is that youth parties and mobile clinic outreach better engage and link individual AGYW to direct service delivery. Stakeholder engagements (645) and dialogues (3365) have a smaller reach but drive community buy-in. Mobile clinic outreach (8592) and youth parties (6375) combine to a total social mobilisation reach at 37428. A targeted social media approach created awareness and demand for on-the-ground activities.

Since inception in January 2018, Project PrEP has initiated 5736 individuals on PrEP, of which 3075 are AGYW.

Conclusion: The holistic demand creation strategy demonstrated success in its ability to reach a diverse audience and successfully engage young people and their communities while driving demand for PrEP. Combining online/digital and face-to-face communication ensures demand creation results in linkage to care and service delivery.

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Adherence among Adolescent Girls and Young Women Sex Workers on HIV Oral Pre-Exposure Prophylaxis in Mukono District, Uganda

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Background: Adolescent girls and young women (AGYW) sex workers are vulnerable to HIV infection as sex work and transactional sex are among the key drivers of HIV infections in this age group. Pre-exposure prophylaxis (PrEP) is an HIV prevention method that uses a daily regimen of Tenofovir (TDF) alone or in combination with other antiretrovirals for HIV negative individuals. Adherence to PrEP is considered optimal if over 95% of doses are taken as scheduled.

Methods: This prospective cohort study enrolled consenting female sex workers aged 18 to 24 years in Mukono District, Uganda, to assess the feasibility of implementing PrEP in this population. Participants were enrolled between December 2017 and March 2019 and follow-up ended July 2019. Eligible participants were initiated on daily oral PrEP (Tenofovir/Lamivudine) and were expected to complete seven visits over 12 months. At every clinic visit, participants' health status was assessed, and they completed a brief structured questionnaire and provided specimens for HIV, STIs and biochemistry analysis. Adherence was estimated through pill count at follow-up visits, while a subset of randomly selected participants provided blood samples for plasma Tenofovir testing. Plasma Tenofovir ≥ 40ng/mL was considered to be adequate adherence. Descriptive and bivariate statistics were performed in SAS 9.4 for categorical and composite variables. Fisher's exact test was used to look at the relationship between pill count and blood Tenofovir levels. Chi-squared tests and Fisher's exact tests were used to evaluate baseline sociodemographic and behavioral factors as potential predictors of adherence.

Results: Among the 846 participants enrolled in the study, pill count-based adherence was high (>95%) in 65.7%, moderate (80-95%) in 17.9% and low (<80%) in 16.3% of participants. Pill count-based adherence was lowest at visit 2 (first refill, one month after enrollment), at 66.1%, and highest at visits 5 and 6 (6 months and 9 months after enrollment), at 80.7% and 81.0%, respectively. Main reasons given for not taking pills were: being away from home (52%), busy with other things (27.1%), sick with unrelated illness (28%), having forgotten to take their pills (24.5%), and change in daily routine (21.8%). Among the 235 participants selected for plasma Tenofovir testing, 7.2% had TDF ≥ 40 ng/ml. There was no association between pill count and blood Tenofovir levels (p=0.60). Only 7.6% of those with >80% pill-count based adherence had optimal TDF drug levels. In the adjusted analyses, no factors were found to be significantly associated with either pill count- or TDF-based adherence.

Discussion: Adherence to oral PrEP among AGYW sex workers from Mukono, Uganda was low, based on the very low TDF blood levels. Pill count proved to be an unreliable method of assessing adherence. Programs rolling out PrEP should implement enhanced adherence counseling, reminders such as SMS messages, and peer support systems, to improve adherence. Our findings also reinforce the need to systematically promote consistent condom use among PrEP users. Future PrEP adherence implementation research should include reliable measures of adherence based on drug levels in blood, urine, or hair.

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Male Sex Workers Discontinuation of PrEP Use? Client Thoughts as Captured in the Exit and Feedback Interviews

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Background: In May 2017, Kenya became the first African country to rollout Pre-exposure prophylaxis (PrEP) as a national program to further enhance its combination HIV prevention strategies targeting specific populations. Evidence show that PrEP implementation among populations at high risk remains a challenge due to slow uptake, poor adherence to PrEP and discontinuation of oral PrEP use. PrEP implementation targeting male sex workers faces rampant challenges because potential users have low risk perception, fear of side effects, daily pill burden, and other misconceptions. However, significant number of male sex workers also stop using PrEP after starting it as a strategy for HIV prevention.

Methods: Health Options for Young Men on HIV/AIDS and STIs (HOYMAS) implements Jilinde funded PrEP pilot project through its community led clinic. We conducted a cross sectional analysis of the PrEP implementation clinic data on PrEP uptake, utilization, continuation, and discontinuation and restarts for the period January – December 2019. We also analyzed client exit and feedback forms filled by clients who stopped taking PrEP to find out why they were discontinuing oral PrEP use.

Results: The analysis shows that 374 male sex workers were enrolled into oral PrEP. Young male sex workers aged 20 – 24 formed the majority (45.45%) of those enrolled followed by those 25 – 30 (24.59%), over 30 (19.51%), and lastly 15 – 19 (10.42%). During the same period, a total of 290 male sex workers (77.54%) stopped using oral PrEP. Young male sex workers aged 20 – 24 formed the majority (47.93%) of those discontinuing oral PrEP use, followed by those aged 25 – 30 (23.79%), 15 – 19 (14.13%), and over 30 (14.13%). In addition, of those who discontinued oral PrEP use, only 101 (34.82%) male sex workers restarted using oral PrEP after stopping. Young male sex workers aged 20 – 24 formed the majority (40.59%) of those restarting followed by those over 30 (27.22%), 25 – 30 (25.74%) and 15 – 19 (5.94%).
Among male sex workers (290) who discontinued oral PrEP use, the main reasons for stopping oral PrEP use were (i) uncertainty over the long term side effects (38.6%), cumbersome daily drug burden (19.6%), use of other prevention strategies (23.44%) and partner refusal (18.27%).

Conclusion: There is need to design effective outreach strategies that can prevent male sex workers from stopping their oral PrEP use in a timely manner.

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Perspectives and preferences of user/stakeholders for a microarray patch (MAP) for HIV PrEP and as a multipurpose prevention technology (MPT) in Uganda

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Background: Existing HIV prevention products do not sufficiently meet the needs of all target groups, particularly adolescent girls and young women (AGYW) in sub-Saharan Africa who continue to experience high rates of infection. Innovative products and strategies are needed to expand HIV prevention options and to address the unmet need.
The microarray patch (MAP) is an innovative system being developed for delivery of an ARV HIV PrEP and as a multipurpose prevention technology (MPT). To inform its further development, it is critical to assess its hypothetical acceptability and user preferences, paying attention to design considerations, application and programmatic fit. User/stakeholder assessments of MAP were conducted in Uganda to explore overall perceptions of MAP technology and potential programmatic fit of MAPs for HIV prevention and as an MPT. Hypothetical acceptability and preferences for MAP features and characteristics that will influence usability and acceptability among various groups were also assessed.

Materials and Methods: We conducted key informant interviews with 10 health care providers, and 8 key policy makers at the ministry of health. In addition, we conducted mock use exercises using prototypes of the MAPs with 18 women and 9 men, aged 18-25+ years, purposively selected to represent different risk populations: AGYW, men who have sex with men and female sex workers. Follow-up interviews were conducted with them to assess their views and preferences on the product features and applications. Each participant was given a prototype of a MAP and asked to try it on themselves following the written instructions, while the researcher carefully observed what worked and what did not. In addition, we conducted 10 focus group discussions with young people of varied social economic status (5 with females; 5 with males), to explore their views about the MAPs as a PrEP delivery option and as an MPT. Data were analyzed using thematic content analysis.

Results: Participants' views regarding the MAP product information and characteristics highlighted a critical need for better clarity of instructions. The majority preferred a smaller sized MAP because of discreetness and a PREP MAP with longer (1-3 month) duration of protection. However, when considering design trade-offs, some participants particularly women were willing to use a larger sized MAP if it offered longer protection. Participants were comfortable applying the MAP themselves after being trained to do so. They preferred a feedback mechanism that changed color to give the users confidence that they had applied it correctly. User needs and preferences for MAP size, duration of protection, wear time, site of application, feasibility of self-administration, the feedback mechanism, instructions for use, and packaging considerations differed by gender, education and by the nature of work that the users were engaged in.

Conclusions: Participants recognized the need for additional alternative HIV prevention strategies and saw potential value for MAP for HIV PrEP over current products. Among AGYW, interest in MAP for MPT was greater than MAP for HIV PrEP. User feedback will be used to refine the MAP prototype for future testing in preparation for Phase I clinical study.

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End-user perspectives on their ability, motivation and opportunity to use the vaginal ring

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Background: In preparation for the potential launch of the dapivirine ring in Africa, the OPTIONS Consortium, in collaboration with the International Partnership for Microbicides, consolidated existing end user insights from relevant dapivirine ring research. The objective was to create a comprehensive compendium of insights to inform demand creation efforts post-approval and identify areas for further exploration needed to support ring introduction.

Methods: From September- November 2019, we reviewed published and grey literature to identify insights which may influence women's uptake and continued use of the dapivirine ring. Thirty-five resources across 20 studies were reviewed, including results from clinical trials, qualitative or market research, discrete choice experiments and human centered design studies published between January 1, 2014 and November 30, 2019 focused on women of any age in sub-Saharan Africa.

Key insights across the resources were summarized thematically and categorized according to the ability, motivation, and opportunity (A-M-O) framework. Specific factors contributing toward product uptake and continued use included: knowledge, self-efficacy, social support (categorized as Ability); Risk perception, willingness, norms (Motivation); and availability, accessibility, and affordability (Opportunity).

Results: A total of 29 end-user insights were identified from the literature. There was high coverage in the Ability category, with 45% of insights falling into this area. Eleven factors (38%) had moderate coverage - risk perception, willingness, and accessibility. Only five insights (17%) were related to norms, availability, and affordability. Examples of insights garnered from this analysis include:
•   Effective use and replacement of the ring improves with experience (self-efficacy)
•   Young women may consider their personal HIV risk low, even while recognizing high levels of general risk (risk perception)
•   Stigma against sexual activity, especially for young people, has significant influence on product choice (norms)
•   Women largely seek to access the ring in clinical settings at the outset (accessibility)

Conclusions: The A-M-O Framework provides a helpful structure for organizing end-user research in a way that contributes to demand creation efforts for HIV prevention products. This analysis shows a paucity of known end-user perspectives on norms, availability, and affordability. Using this compendium, program managers, researchers, and communications/marketing teams can determine what information exists and what areas need further exploration.

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Mobile Health approaches to support follow-Up, retention and information dissemination among sero-discordant partners on Pre-Exposure Prophylaxis (PrEP) in Uganda

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Background: HIV transmission between sero-discordant partners is a major contributor to new HIV infections particularly in sub-Saharan Africa. A study by R. Gray et al in Rakai, Uganda showed that the incidence of HIV infections was 18.3% among sero-discordant partners. PrEP, an anti-retroviral medicine combined with other strategies, is a safe and reliable HIV prevention intervention among high-risk persons (CDC, 2019). However, client misconceptions and low appointment keeping remain major barriers to PrEP adoption and retention. We set out to assess the feasibility of using mobile health (mHealth) to support information dissemination and follow-up for enhanced retention among 203 sero-discordant partners from two pilot health facilities (Dokolo Health centre iv and Lira regional referral hospital) in the Lango region of northern Uganda from October 2018 to September 2019.

Description: Sero-discordant clients who consented for mHealth follow-up participated in 10-question pre-test to assess baseline knowledge on PrEP. They received weekly SMS comprising appointment reminders, directions to use PrEP, toll free hotline access to doctors, information to clear PrEP related misconceptions and additional HIV risk reduction interventions including Voluntary Medical Male Circumcision and correct condom use. Doctors from The Medical Concierge Group (TMCG) call centre, the mobile health partner under the John Snow Incorporation (JSI) led Regional Health Integration to Enhance Services project, followed-up PrEP beneficiaries with quarterly telephone calls to encourage adherence, identified challenges, provided information on HIV prevention and addressed misconceptions. A standard questionnaire similar to the pre-test was followed to assess knowledge levels on PrEP.

Lessons Learned: 203 of 253 (80.2%) sero-discordant clients consented for mHealth follow-up. 131 completed both baseline and follow-up assessments. Baseline performance was 58.2%. 72% of respondents were unaware of the duration to use PrEP, 60% were unaware of the need for other HIV prevention interventions, 24% were not sure of safety of PrEP in pregnancy and 19% were unaware of need for routine HIV testing Services (HTS). Average performance during follow-up assessments was 81.3% indicating 23.1% increment in knowledge levels. During follow-up, an average of 65% of the beneficiaries were reached; 35% were unreachable. Of those reached, 67.1% didn't report any challenges to adherence. 8.4% requested detailed information on PrEP were supported through mHealth platforms. 6.9% who had stopped taking PrEP resumed after mHealth counselling. 10.7% who reported PrEP related side effects were supported with self-care tips and 6.9% who had missed refills returned to care. All clients (100%) reached through phone-call follow up were retained on PrEP.

Conclusions: Although PrEP uptake remains promising among sero-discordant couples, numerous barriers limit utilization and retention. Integrating mHealth with health facility management improves knowledge levels, retention and follow-up outcomes.

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I am the generation that will end HIV: documenting my PrEP journey through a daily video diary.

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Background: In 2016, South Africa (SA) introduced PrEP as an additional HIV prevention method. In 2017, the SA Human Sciences Research Council reported 38% of new infections were among adolescent girls and young women (AGYW). Some of them are my friends, and I realized my HIV infection risk. I learned about PrEP in 2019 and decided to initiate and join the generation that ends HIV*. I wanted to play my part in removing the fear of using a new prevention method, eliminating stigma and creating demand for PrEP.

Methods: I documented my PrEP experience using my smartphone, recording every pill I took for my first 28 days, every side effect and how I navigated it, every high and low, negative comments and empowering steps. On 17 October 2019, I shared my video diary on my Facebook account and the national @myPrEPSouthAfrica page. The video was boosted using Facebook advertising for a one-month period to increase views, reactions and engagements; targeting South African females aged 18-24 at a cost of R3631.

Results: My video organically reached 772 people, with 612 views, 18 shares, 37 reactions and 84 comments over the one-month period. The boosted video reached over 103000 people, had 173543 views, 81 comments, 114 shares and 810 reactions. The video was promoted to @myPrEPSouthAfrica's followers and its lookalike audiences – people that have similar personas as the existing followers on Facebook, 87% aged 18-24 and 13% aged 25-34, all female. Comments on the post included congratulatory and empowerment messages, PrEP questions, debates around an HIV cure, and other AGYW sharing their PrEP experiences.

Conclusion: New prevention technologies, like PrEP, are revolutionary in our fight against new infections. They can also be daunting for young people. The approach to utilise a relatively cheap intervention by creating a user-led video, rooted in honest experience, has stimulated interest in PrEP, increased awareness and ignited an open conversation as a first step to increasing PrEP knowledge, acceptability and limiting fear and stigma associated with new HIV prevention methods.

*SA's national PrEP campaign used the creative concept, We Are The Generation That Will End HIV, on all their communication materials.

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Barriers to Uptake and Use of Oral PrEP among FSW in Blantyre, Malawi

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Background: Ministry of Health in Malawi approved the delivery of oral pre-exposure prophylaxis (PrEP) for HIV prevention in 2018. This was followed by the roll-out of the PrEP implementation science project under the USAID/PEPFAR-funded LINKAGES project in February 2019 which aimed to assess acceptability, feasibility and uptake of oral PrEP among female sex workers (FSWs). We present barriers affecting uptake and use of PrEP among FSWs from a qualitative study conducted in Blantyre.

Methods: Qualitative study using in-depth interviews (IDIs) explored perceptions about PrEP among FSWs unwilling to take PrEP. Participants were recruited from drop in centres at Chirimba, Naperi and Bangwe PrEP study sites in Blantyre. Seven IDIs were conducted among recruited study participants who self-identified as FSW; aged 18 and above; tested HIV negative; and eligible but unwilling to enroll in PrEP. Consent was obtained from all participants and ethical approval obtained from relevant authorities. Data were digitally recorded, transcribed and analyzed thematically to identify barriers of uptake.

Results: Between February and November 2019, 841FSW were screened for PrEP. Out of these, 474 FSW were eligible and enrolled in the study. Of those enrolled, 24 FSW were unwilling to initiate PrEP while 450 FSW initiated on PrEP. Of those initiated, 210 discontinued PrEP. Several factors affected uptake and continuation. These include; myths and misconceptions regarding PrEP; perception that PrEP negatively affects sexual drive as well as fear that HIV treatment will be ineffective if they seroconvert while on PrEP. Other factors included anticipated stigma from sexual partners and peers in case of PrEP being mistaken for HIV treatment, lack of motivation to take PrEP, perceived pill-burden and fear of blood draws for associated tests. One of the recurring reasons for default for those who discontinued PrEP was mobility. This affected follow-up visits and adherence. Despite the barriers, all participants acknowledged the risk of HIV in their personal lives due to indulgence in unprotected sex and multiple concurrent sexual partners.

Conclusions: Understanding barriers to PrEP uptake is critical in supporting the development of communication and demand creation interventions that address specific reasons that affect decision to initiate on PrEP.

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The role of voluntary savings and loaning activities in promoting uptake of prep among youths in Kisumu, Kenya

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Background: Of the total number of people living with HIV by 2018 in Kenya, 184,719 (12%) were among youth 15-24 years of age. There is an approximated 5200 new infections annually in this cohort in Kenya according to a national report released by National Aids Control Council (NACC) in 2019. HIV spread among young people is among the greatest barriers towards achieving universal health care for Kenya. HIV pre exposure prophylaxis (PrEP) was introduced in 2015 to help curb HIV spread across all populations. However, recent data on PrEP use at the national level indicate that young people are underserved by PrEP relative to their epidemic need. We sought to review possible reasons for inequitable uptake of PrEP among young people in Kisumu County.

Methods: Purposive sampling was used to select 30 young people among 115 receiving PrEP under the project between April and June 2019. Questionnaires were administered to the selected group with questions targeted to establish their motivation for PrEP uptake and the forums through which they acquired information regarding PrEP. Descriptive statistics were used to summarize the specified reasons and identified forums.

Results: Among those interviewed 19 (63.3%) belonged to voluntary savings and lending activities (VSLA) which are a component of the structural interventions provided by the projects. The remaining group (36.7%) were either under age 2(18.2%) disqualifying them from joining a VSLA group, 5 (45.5%) were not interested in joining VSLA while others indicated that their spouses did not allow them to join such groups. All respondents participating in VSLAs indicated that their groups constituted of peers with whom they took time to candidly discuss their health issues together during VSLA group meetings.

Conclusions: Participation of young people in voluntary savings and lending activities exposes them to opportunities and conducive environment to discuss their health concerns with their peers. This has contributed to increased uptake and continuation rate of PrEP.

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Archived HIV-1 Drug-Resistance Variants in Cellular Reservoirs and Determinants among Vertically-Infected Adolescents failing Antiretroviral Therapy

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Introduction: Adolescents with vertical HIV infection (AVHI) have the highest risk of mortality due to failure to antiretroviral treatment (ART), likely favoured by accumulation of drug resistance mutations (DRMs) in cellular reservoirs as children grow-up. Our study objectives were to evaluate HIV-1 genotypic profile between circulating-RNA compared to proviral-DNA of APHI failing ART, and determine factors associated with archived of DRMs in cellular reservoirs.

Methods: Within the scope of the EDCTP READY-Study, we conducted a study amongst AVHI (10-19 years) receiving ART in health facilities of Centre-Cameroon in 2019. WHO-clinical staging, CD4-count and plasma viral load (PVL) were performed. For those experiencing virological failure (VF), defined as PVL≥1000 copies/mL, HIV-1 polymerase gene was sequenced from both plasma (circulating-RNA) and buffy-coat (proviral-DNA) using a validated in-house genotyping assay at the Chantal BIYA International Reference Centre (CIRCB) in Yaoundé, Cameroon. Patterns of HIV-1 DRMs and molecular phylogeny were compared between circulating-RNA and proviral-DNA using Stanford HIVdb and MEGAv.10 respectively; with p-value<0.05 was considered significant.

Results: Out the 296 eligible AVHI enrolled, 30% (89) experienced VF, from whom 81 pairs of sequences were successfully generated from both circulating-RNA and proviral-DNA samples of each participant. HIV-1 subtyping concordance was 100% between circulating-RNA and proviral-DNA, CRF02_AG was the predominant viral clade (65%) and 2 potential novel viral recombinants were identified (F2/A1 and F1/G clades). DRMs were significantly detected in circulating-RNA compared to cellular proviral-DNA (93% vs. 85%, p=0.001); and only 34.2% (27/79) concordant DRMs profile was found between circulating-RNA and proviral-DNA. Importantly, 27.0% (21/79) had archived DRMs that were identified solely in proviral-DNA. Factors associated with archived DRMs in cellular reservoirs were the WHO clinical-stage 3/4 (OR: 7.1; p<0.001) and lower/moderate concentrations of PVL, between 3-5 log copies/mL, (OR: 4.9; p=0.01).

Conclusion: ART failure is concerning amongst AVHI (i.e. about one-third) in Cameroon, thus confirming their vulnerability. Events of VF are consistent with circulating DRMs (plasma). Though plasma sample remains the standard biomarker for detecting DRMs in clinical settings, approximately one quarter of those AVHI failing ART have resistant mutations archived in cellular reservoirs. Predictors of archived DRMs in reservoirs are poor clinical status and moderate PVL.

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A Neglected conflict in the North West and South West Regions of Cameroon and its Consequences on Early Infant Diagnosis Indicators.

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Background: Adherence to antiretroviral therapy (ART) and retention in care are essential for viral suppression and thus key to the prevention of Mother To Child Transmission (MTCT) of HIV. In a crisis context like in the North West (NWR) and South West Regions (SWR) of Cameroon populations are displaced and clients on ART may discontinue treatment including pregnant and breastfeeding mothers not having adequate access to essential services to prevent mother to child transmission (PMTCT). We evaluated the impact of this break in the continuum of care for HIV infected pregnant and breastfeeding women on the early infant diagnosis (EID) uptake and the risk of MTCT of HIV.

Methods: This study was a retrospective comparative analysis of EID uptake and MTCT rates during two time periods as the crisis intensified in these regions. During the first three quarters of FY18 (October 2017 to June 2018) and similarly in FY19 (October 2018 to June 2019) the HIV Free NW/SW Project supported a total of 114 sites in which this comparative analysis was undertaken. The project supported a comprehensive service package for mother-infant-pair with all HIV exposed infants (HEIs) having their PCR collected as per the national algorithm. All HEIs who had their PCR collected within 12 months of birth were included in the study.

Results: In FY18 at all project supported sites a total of 2,063 (1,175 in NWR and 888 in SWR) HEIs had their PCR collected and 59 (33 in NWR and 26 in SWR) were positive giving a MTCT rate of 2.9% (2.8% in NW and 2.9% in SWR). In FY19 a total of 1,443 (772 in NWR and 671 in SWR) HEIs had their PCR collected with 52 (26 in each region) positive giving a MTCT rate of 3.6% (3.4% in NWR and 3.9% in SWR). The two regions witnessed a significant drop in EID uptake [P-value < 0.01 (95%CI=0.759-0.995)] accompanied by an increase in the MTCT rate. Reasons advanced by some mothers who had babies with positive PCR included; running out of medications during pregnancy, never attended ANC or delivered their babies without medical care because they were either displaced or living in the bushes due to the crisis.

Conclusion and Recommendation: In conflict situations like that in Cameroon provision of essential services like PMTCT can be interrupted leading to poor uptake and increase risk of MTCT of HIV. Measures need to be put in place to ensure essential medical services including PMTCT are provided to pregnant and breastfeeding mothers during conflict situations.
Key words: EID uptake, MTCT, North West and South West region, conflict.

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"Bring back mother-baby pair" campaign Initiative to improve retention in care: Experience from the Uganda program for Prevention of Mother to child transmission of HIV

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Background: Although maternal antiretroviral therapy (ART) uptake in Uganda is high, retention in care is suboptimal: More than 25% of mothers initiated on ART are lost-to-follow up at 6 months. Low retention of HIV-positive pregnant and breastfeeding mothers increases the risk of HIV transmission to their babies and ART treatment failure. In 2018, the Ministry of Health with support from PEPFAR and other partners launched a national campaign to identify and "Bring Back Mother-Baby Pairs" (BBMB) who had missed their clinic appointments within the last two years.

Methods: A total of 1,085 facilities with high rates of loss to follow up across the country participated in the campaign. Facilities implemented a series of standardized interventions that included mobilization of district PMTCT focal persons, health facility staffs, Village Health Teams and peer mothers at community level to trace lost mothers and their babies. At each facility, retention improvement teams were established to conduct program data reviews to identify retention gaps and line-list all clients who missed appointments. Onsite mentorship for health workers and peer mothers were conducted to provide guidance on patient tracking and documentation, use of phone calls and home visits. Integrated immunization and early infant diagnosis outreaches were conducted in lower health facilities to identify mothers who might have relocated to those facilities. An SMS-based platform was established to facilitate real-time reporting.

Results: Overall, 64.5% (34,301) mothers and 41.1% (23,413) HIV-exposed infants (HEI) lost were brought back into HIV care within 9 months. The proportion of mothers and HEIs brought back varied considerably by health facility level, with the highest registered at National referral and general hospitals (68.2%). The lowest proportion of mother brought back was at Health Centre IIs (58.6%). Regional referral hospitals brought back the highest proportion of babies (75.1%). The lowest proportion of HEIs brought back into care was at Health Centre IIIs (30%). Thus, interventions for BBMB may need to be different at lower level facilities.

Conclusions: Nationally driven interventions coupled with district and facility-based innovations are effective in improving retention of mothers and babies in care. There is need to scale-up these interventions to all HIV service outlets.

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"Right under our nose": a simple screening tool to identify HIV-positive children outside of the PMTCT program at outpatient departments in Malawi

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Background: In Malawi, only 67% of HIV-infected children have been linked to treatment. Linkage of known infected children is high but there is a persistent challenge of identifying children who have dropped out of the PMTCT cascade or were infected postnatally. These children likely account for a large proportion of the remaining gap in pediatric treatment coverage. There are insufficient resources to conduct universal testing in high-volume entry points like facility outpatient departments (OPDs) and a lack of guidance for screening. Therefore, these children often remain undiagnosed until they have progressed to advanced disease, despite having frequent contact with the health facility. With systematic screening at the health facility, there is a unique opportunity to identify these "missed" children earlier and link them to life-saving care.

Methods: Through a national taskforce, a screening tool was developed for use in facility OPDs. The tool was formatted as a simple checklist and screened children 2-12 years old, focusing on their mother's testing history instead of risk factors. Mothers without a documented HIV negative result at the end of breastfeeding were referred for HIV testing and, if positive, their children were also referred for testing. If the mother was not available, the child was screened in directly. The tool was piloted at 32 health facilities in Malawi from July-September 2019 and implemented by existing lay cadres.

Results: 8811 screening slips were collected during the pilot period. The median age of children screened was 5.3 years (IQR: 3—7). 22.0% of available mothers were referred for testing (1827/8288) based on screening. Of those tested, 1.9% tested newly positive (28/1474). Overall, 8.3% of children were screened in for testing (658/7897). Of those who accepted testing, 3.9% tested newly positive (17/437). Screening was found to be feasible in OPDs through task-shifting to lay cadres.

Conclusions: Systematic screening of mothers and children leads to earlier identification of HIV infected children and more efficient testing within resource constraints, allowing for earlier linkage to care which is proven to improve children's health outcomes and chances of survival. These results will inform revisions to the screening tool for national adoption.

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Long-term survival of HIV-infected children treated with antiretroviral therapy in Eastern and Southern Africa: 2006-2017

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Introduction: Despite providing antiretroviral therapy (ART) for >10 years, data on long-term survival of children living with HIV (CLHIV) receiving ART in resource-limited settings are limited. Such data, along with risk factors for death are essential to inform clinical care and policy. We describe 10-year survival and risk factors for early mortality among CLHIV receiving ART.

Methods: We conducted a retrospective cohort study of CLHIV (0-14 years) who initiated ART between 2006-2017 at seven Baylor centers of excellence in Botswana, Eswatini, Lesotho, Malawi, Tanzania(2 clinics), and Uganda. Time to death was measured from ART initiation date, and right-censored at the earliest of either loss to follow-up (≥90 days late for last clinic appointment), transfer out, 10-years follow-up or database closure date (Dec 31, 2017). Kaplan-Meier analysis was used to compute 10-year survival and Cox proportional hazard regression to identify independent risk factors for mortality. We imputed missing data using multiple imputation by chained equations.

Results: Data from 18,010 CLHIV (50% girls; median age, 4.5 years) contributed over 85,140 person-years (PY) of follow-up. Median follow-up was 4.34(IQR: 1.69-7.47) years. Half of the deaths occurred within 6-months of ART (mortality rate=9.17, 95% CI: 8.55-9.84 per 100 PY). At 10-years, survival (95%CI) was 83.7%(82.5%-84.8%) in children aged <2 years; 91.9%(90.7%-93.0%) in 2-4 years, 92.6%(91.5%-93.6%) in 5-9 years and 88.8%(87.2%-90.2%) in 10-14 years(p<0.01). By country,10-year survival was 91.7%(89.1%-93.7%) in Botswana; 90.7%(89.6%-91.6%) in Uganda; 89.8%(88.1%-91.2%) in Eswatini; 86.9%(85.2%-88.4%) in Lesotho; 86.5%(84.9%-88.0%) in Malawi, and 5-year survival in Tanzania(COEs started in 2012) was 89.5%(88.0%-90.9%) (p<0.01). Age<2 years, WHO stage 3 or 4, mod/severe immune suppression, and severe underweight (-3sd WAZ) were independently associated with mortality in the 1st 6 months, and after 6 months of therapy. The independent risk factors of mortality at 6 months of ART were: baseline age <2 years [Adjusted Hazard ratio (aHR=1.41; 95%CI 1.11, 1.79)] compared to 10-14 years; WHO stage 4(aHR=2.95; 95%CI 2.33, 3.73) and stage 3(aHR=1.36; 1.06, 1.73) compared to stage 1 and 2 disease; severe(aHR=6.71; 95%CI 5.29,8.52) and moderate(aHR 2.64; 95% CI 1.90,3.66) immune suppression compared to no/mild immune suppression; and severe underweight t(aHR 1.84; 95% CI 1.48,2.29) compared to normal weight-for-age. Factors associated with better survival were Hb (mg/dl) aHR=0.75, 95%CI 0.72, 0.78); starting ART between 2014-2017(aHR=0.77; 95%CI 0.62-0.96) compared to starting in 2006-2009; starting ART in Botswana (aHR=0.62; 95%CI 0.41, 0.94), Malawi (aHR=0.72; 95%CI 0.58, 0.90), Tanzania (aHR 0.63; 95%CI 0.49, 080) compared to Uganda. After 6-months of ART, the associations were maintained except there was no more difference in survival between countries, Children initiating ART with PI-based regimen had better survival (aHR=0.67; 95%CI 0.49, 0.91) compared to those initiated on NNRTI-based regimen.

Conclusion: Long-term survival among CLHIV receiving ART is good; however, mortality is highest in the first 6-months of therapy and the risk of death is higher in younger children and those with advanced disease at ART start. Our findings re-emphasize the need for early infant diagnosis and treatment and close monitoring at therapy start as measures to reduce mortality in CLHIV receiving ART.

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The last mile of PMTCT: A simple screening tool for targeted re-testing of postnatal mothers at outpatient departments in Malawi

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Background: Mother to child transmission (MTCT) of HIV is the primary means of infection among infants in Malawi. Currently, the national strategy focuses on identifying HIV-positive women at ANC and enrolling them and their exposed infants into follow-up through the end of breastfeeding. However, there is no systematic guidance for identifying mothers who are infected between ANC and the end of breastfeeding or mothers who drop out of the PMTCT cascade. As such, postnatal infection is the primary driver of MTCT, accounting for over 70% of new childhood infections in Malawi. In lieu of costly universal postnatal maternal retesting, systematic screening could more efficiently identify mothers for targeted retesting.

Methods: Through a national taskforce, a tool was developed to screen breastfeeding mothers at outpatient departments. The tool was formatted as a simple checklist. All mothers who had not been HIV tested at delivery, had not been tested within the last 6 months, or had defaulted from the PMTCT program were referred for HIV testing. Infants of HIV-positive mothers were also screened for adherence to EID testing milestones. The tool was piloted at 32 health facilities in Malawi from July-September 2019.

Results: Of the 10515 mothers screened using the tool, 44% (4584/10515) were referred for testing, 81% tested (3720/4584) and 0.7% tested newly positive (26/3720). Of the 95 infants screened in, 24% (23/95) were newly identified as exposed, 47% (45/95) were previously known as exposed but had missed a testing milestone and 27% (26/95) had unknown exposure but were screened in because the mother was deceased or had an inconclusive HIV result. 11.8% (2/17) of the exposed infants have been confirmed infected via DNA-PCR.

Conclusions: The tool effectively identified mothers who had defaulted from PMTCT, missed a testing milestone or seroconverted during breastfeeding, and linked them and their exposed infants into care. While a 44% referral rate may seem high, it is significantly more efficient than universal retesting. If this posed a strain on testing volumes, the retesting interval could be extended (e.g. test every 12 months, rather than every 6). Further, saturating delivery ward testing could reduce the referral rate by upwards of 45%.

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Improving family-centered HIV care during pregnancy in Zambia: men's sexual and reproductive health needs

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Background: Across sub-Saharan Africa (SSA), male partner involvement during antenatal care (ANC) is associated with improved maternal and child health outcomes, including the prevention of mother to child transmission (PMTCT). There is limited understanding, however, of men's sexual and reproductive health needs in couples affected by HIV (both sero-concordant and discordant) and whether male involvement in ANC can extend to improvements in men's health. Despite lower HIV rates compared to women, men are diagnosed with HIV at later stages and have greater HIV-related mortality in SSA. The aim of this study was to understand how HIV services around the time of pregnancy could better meet the sexual and reproductive health needs of men with HIV and at high risk of HIV in Zambia.

Methods: This study implored a qualitative research design using in-depth interviews with 18 male partners of pregnant women living with HIV in Lusaka. Atlas.ti was used to code, categorize, classify, store and manage data. Thematic analysis highlighted men's perspectives on their sexual and reproductive health needs.

Results: Most men understood and endorsed the importance of escorting their pregnant female partners for ANC and the need to be aware about PMTCT. Yet, they believed that they lacked information about promoting their own sexual and reproductive health needs and regarded ANC as a woman's space where their health needs were generally neglected. There was a strong desire for more education that was specific to men's sexual and reproductive health, especially because all the couples were affected by HIV. Men especially requested education on safe sex, the use of condoms in sero-concordant and sero-discordant relationships and general health information. Although men stated they were the main decision-makers regarding sexual and reproductive issues such as pregnancy, most men were not confident in their ability to promote sexual and reproductive health in the family because of limited knowledge in this area.

Conclusions: Unique approaches to engage men are needed if the fight towards HIV is to be won. With the emphasis on PMTCT in many SSA settings, men's sexual and reproductive health needs have been neglected. Male involvement in ANC offers one strategy to promote both PMTCT efforts and male engagement in health care. There is need for programs that address the specific health needs and concerns of men and that focus on improving service delivery to accommodate men's sexual and reproductive health, especially in couples affected by HIV.

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Immunodeficiency Among HIV-positive Children in the Setting of Evolving Antiretroviral Therapy Initiation Policies: 5 Years of Pediatric CD4 Data from Zambézia Province, Mozambique

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Background: Historically, antiretroviral therapy (ART) initiation was primarily based on immunologic (i.e., CD4 count) criteria, but this approach has been replaced with "Test and Start", wherein all HIV-positive persons are offered ART regardless of immune status. Evolving pediatric ART initiation policies have been gradually implemented in Zambézia Province, Mozambique. This evaluation aims to describe the degree of immunodeficiency among children at time of enrollment into HIV care and at ART start relative to evolving ART initiation policies.

Materials & Methods: This retrospective evaluation used routinely collected data from electronic medical records of HIV-positive children enrolled in HIV services in Zambézia from 2012-2018. All children (5-14 years) with known enrollment and ART initiation dates and CD4 data were included. Children <5 years of age were excluded due to a paucity of CD4 data (>90% missing). ART initiation policy periods correspond to implementation of evolving guidelines: in Period 1 (2012-2013), ART was recommended for those having a CD4 count <350 cells/mm3; during Period 2 (2013-2017), the CD4 threshold increased to <500 cells/mm3, and implementation of Test and Start began in selected districts; in Period 3 (2017-2018), Test and Start was implemented province-wide. CD4 count at enrollment was defined as the first CD4 obtained from enrollment to ART initiation. CD4 count at ART initiation was defined as the CD4 nearest the ART initiation date within the range from 6 months prior to 2 months after ART initiation. These definitions were not mutually exclusive; CD4 count at enrollment and at ART initiation could be the same. Severe immunodeficiency was defined as CD4 <200 cells/mm3. Descriptive statistics were used to summarize temporal trends in CD4 counts (median and interquartile range [IQR] and mean and standard error [SE]) and the proportion of children with severe immunodeficiency. T-tests and Chi-square tests were used to compare mean CD4 counts and proportions with severe immunodeficiency, respectively.

Results: Among 3,137 eligible HIV-positive children, 1,091 (35%) had CD4 data at enrollment and 1,991 (69%) out of 2,873 eligible children had CD4 data at ART initiation. At HIV care enrollment, median CD4 count in Period 1 was 414 cells/mm3 (IQR: 177-601) and increased to 527 cells/mm3 (IQR: 303-758) in Period 3, with a mean difference of 145 cells/mm3 (SE: 40) (p<0.001). The proportion of children with severe immunodeficiency at enrollment decreased from 29% in Period 1 to 14% in Period 3 (p=0.002). At ART initiation, median CD4 count in Period 1 was 295 cells/mm3 (IQR: 131-464) and increased to 510 cells/mm3 (IQR: 284-813) in Period 3, with a mean difference of 211 cells/mm3 (SE: 38) (p<0.001). Those with severe immunodeficiency at ART initiation decreased from 36% in Period 1 to 17% in Period 3 (p<0.001).

Conclusions: In the setting of progressively more permissive pediatric ART initiation guidelines, there were reassuring trends in increasing CD4 counts and decreasing proportions of children with severe immunodeficiency at enrollment into HIV care and at ART initiation.

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Effective Community Engagement and Participation, key to Nigeria achieving the elimination of Mother to Child Transmission (eMTCT) by 2021.

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Background: Nigeria contributes 30% world burden of Mother to Child Transmission of HIV (MTCT). 2017 Nigeria eMTCT programme data showed that, of the estimated nine million yearly pregnancies, only 60% accessed HTS at health facility; 165,474 (2% of pregnant women) estimated mothers needing PMTCT, only 64.811 (39.2) have been identified and of those identified, only 24,026 (47.2%) delivered at facility offering PMTCT; Nigerian body of Obstetrics and Gynecology are opposed to any interface with community providers of ANC services e.g. Traditional Birth Attendants (TBA). This intervention was aimed at finding sustainable solution to challenges of pregnant women not accessing HIV services at health facility and to cub the attritions along the eMTCT cascade.

Method: A draft framework to strengthen interface between the community actors and health service providers for PMTCT was designed by National stakeholders coordinated by National Agency for the control of AIDS and FMoH. 21 districts with high burden of HIV were selected for test run. A high level advocacy to state, and community stakeholders and technical sessions ensured understanding of staff of SMoH of the need to interface with TBAs on the provision of PMTCT services. TBAs were identified, trained on HIV basics and referrals; their facilities mapped and linked to formal health facilities for referrals. Baseline PMTCT data were collected from 42 PHC that received referrals from the TBAs. Testing was provided at the mapped TBA shops by health facility personal for 9 months. Identified positives were referred to health facilities for HIV care. Members of HIV networks ensured follow up and enrollment of any identified positive. Data set have been validated by National M&E system.

Result: A total of 104,576 pregnant women were reached within 9 months across the 42 PHCs of which 789 were HIV positive (0.75 positivity). This represents 40% increase of access to HTS by pregnant women across the districts; 95% facility delivery by identified positives was also recorded. The number of infants who accessed HIV prophylaxes also increased by 5% indicating community deliveries that were referred by TBAs. The TBAs engaged in this exercise now have sustainable interface with personnel from facilities. This also popularized the existence of network groups with resultant reduction in stigmatization and discrimination and improved uptake of PMTCT services.

Conclusions: This intervention demonstrated clearly that pregnant women patronize TBAs. It also shows clearly that strengthening the interface between community and health service providers improved uptake of PMTCT services. The next step is the adoption and dissemination of the framework as policy in Nigeria.

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Third-Line Compromise: Characterization of Drug Resistance in Ugandan Children and Adolescents Failing Second-Line Antiretroviral Therapy

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Development of drug resistant mutations (DRM) presents a significant hurdle to epidemic control, particularly for children and adolescents living with HIV. These groups have high risk of virologic failure due to adherence difficulties, subtherapeutic drug levels, pre-treatment drug resistance, and the necessity for lifelong antiretroviral therapy (ART). Resistance patterns in these populations failing second-line ART in resource-limited settings is sparse. Here, we characterize resistance patterns of children and adolescents failing second-line ART in an urban Ugandan clinic.

In a retrospective cross-sectional study, patients aged ≤ 20 years with drug resistance testing (DRT) after failing second-line ART between January 2010 and September 2019 were analyzed. Second-line failure was defined as a viral load >1000 copies/mL at least 6 months after initiating PI-based ART with documented failure on a NNRTI-based 1st-line regimen. One patient with major PI mutations after 3 months of second-line ART was included in the analysis. Stanford University HIVdb Program version 8.9-1 was used for mutation reporting and interpretation. Genotype susceptibility scoring (GSS) was calculated by assigning each drug a resistance score as indicated by the HIVdb interpretation: (1) susceptible, (0.75) potential low-level resistance, (0.5) low-level resistance, (0.25) intermediate resistance, and (0) high-level resistance. For each ART class, a composite genotype susceptibility score (GSS) was calculated. Composite GSS scores ≤1, ≤2.5, and ≤5 indicated significant ART class resistance for NRTI, NNRTI and PI, respectively.

Sixty-two patients were included in the study: 51% female, median age 16 years, median time on 2nd-line therapy 34 months, and median CD4 count 166 cells/mm3. The most common DRM per class was M184V (49%; 31/63), K103N (24%; 15/63) and M46I/L (16%; 10/63). Sixty-nine percent of patients (43/62) had significant resistance to at least one ART class. Of these, 16% (7/43) had significant dual-class resistance and 26% (11/43) had significant resistance to all three classes. Intermediate and high-level resistance was observed in 19% (12/62) of patients to ATV/r and 19% (12/62) to LPV/r. At least low-level resistance was present in 29% (18/62) of patients to ETR and 10% (6/62) to DRV/r.

Our study reveals that a moderate proportion of Ugandan children and adolescents failing second-line ART have significant dual-class resistance as well as compromised susceptibility of available third-line regimens. There is a need for further investigation regarding optimal timing of DRT of second-line failures for children and adolescents in resource-limited settings in order to achieve epidemic control.

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Predictors of HIV Infection Among HIV Exposed Infants Receiving PMTCT services in Nigerian Military Hospitals

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Background: Multiple factors continue to challenge the attainment of zero HIV transmission among HIV exposed infants (HEIs) in Nigeria. In 2017-2019, the Nigerian Ministry of Defence-Health Implementation Programme, in collaboration with the U.S. Military HIV Research Program, implemented an active, systematic tracking effort for mother-infant pairs as part of prevention of mother to child transmission (PMTCT) services to address this challenge. We explored factors associated with HIV transmission in mother-infant pairs in this closely tracked PMTCT setting, to inform areas for targeted intervention and improvement.

Materials and Methods: We used a cross-sectional design to explore factors associated with HIV transmission in 1,651 HEIs who received PMTCT services in 13 military hospitals between October 2017 and September 2019. Data was collected during routine service provision by trained health workers and entered into the HIV Infant Tracking System (HITS©). HITS© is an electronic, web-based data management system for tracking HIV-positive mothers and their exposed infants. We explored maternal and infant factors potentially associated with mother to child transmission using unadjusted and multiple logistic regression using a cut-off of $p=0.05$. Maternal factors were whether mother received ART prenatally and/or during pregnancy, delivery location (hospital versus home delivery), disclosure to partner (yes/no) and educational status (tertiary versus below tertiary). Infant factors evaluated were age at first test (< 8weeks versus > 9 weeks), whether infant received ARV prophylaxis or not and feeding practice (exclusive breastfeeding or mixed feeding).

Results: Overall, 1.23% (n=22) infants tested HIV positive at first test out of 1,651 total HEI receiving PMTCT services. Mean age at first test was 7 weeks. After adjustment, maternal factors associated with higher relative odds of mother to child transmission of HIV were no ART prior to or during pregnancy [AOR: 8.23, 95% CI: (3.35, 20.24)], no disclosure of status to partner [OR: 3.14 95% CI: (1.24, 7.95)], and delivery outside a health facility [AOR: 6.26 95% CI: (2.37, 16.53). Education below tertiary level was also positively associated but was not significant [OR: 1.91, 95%CI: (0.7, 5.25)]. Infant factors associated with higher odds of transmission after adjustment were late age (>9 weeks) of HEI at first test [AOR 4.43, 95% CI: (1.87, 10.50)], infants who were not exclusively breastfed [AOR 2.72, 95% CI: (1.04, 7.112] and infants who did not receive any prophylaxis [AOR: 12.08, 95% CI: (2.54, 57.54)].

Conclusions: In our carefully monitored setting, modifiable factors associated with increased likelihood of mother to child HIV transmission continue to persist and drive transmission Early, targeted messaging for mothers about healthy pregnancy and ways to reduce HIV transmission via ART, facility-based delivery, ensuring early, repeat testing for their babies and prophylaxis is warranted. Near zero transmission of infection from HIV infected mothers to their babies during pregnancy and the breast-feeding period may be feasible in a lower-middle income country setting when direct and indirect factors known to impede PMTCT service delivery according to standard of care are eliminated.

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IMPROVING THE QUALITY OF PMTCT SERVICES IN MITYANA DISTRICT

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Background: Mityana District which is located in central Uganda has a high HIV prevalence of 12.5% among pregnant women which is higher than the national average of 7.6%. A baseline study conducted in 2017 showed sub optimal quality of PMTCT services: HIV Testing of mothers was done at only 50% of the health facilities; only 64% of HIV-infected mothers were enrolled on ART and only 43% of these were retained in care; viral load monitoring was done for only 45% of the eligible mothers and only 6% of HIV Exposed infants (HEI) had their 1st PCR outcomes documented. This project was intended to improve the quality of PMTCT services in the district.

Methodology: We purposively selected 21 Health Facilities with high antenatal care attendances. A focal person to spear head the PMTCT activities at the facilities was selected. With support from Mild may Uganda, A mentor ship of 80 midwives in PMTCT at the facilities was conducted. In addition, 12 professional counselors and 21 linkage facilitators were recruited. HIV testing and counselling were strengthened to ensure no missed opportunities. HMIS tools were distributed to all facilities to ensure efficient data capture. Locator forms were introduced at the sites to facilitate tracing of mothers who miss their clinic appointments. A separate register was introduced to capture all the scheduled appointment dates and phone call reminders were made to mothers three days prior to their appointment date. Intensive support supervisions to ensure adherence to the National PMTCT guidelines were done regularly. A follow-up assessment to measure improvements in the quality of PMTCT at the sites was conducted in 2019.

Results: HIV testing of mothers increased from 50% to 89%; ART initiation increased from 64% to 95%; retention of mothers improved from 43% to 77%; viral load monitoring increased from 45% to 92% and documentation of HEI outcomes at 1st PCR improved from 6% to 30%. In addition, documentation and the quality of PMTCT data improved at most of the health facilities.

Conclusion: Tailored interventions are effective in improving the quality of PMTCT services. These should be adopted for scaled-up to the rest of the health facilities in the district

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Do Fathers play a role in care for HIV+ children? Observations from Burkina Faso

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Background: Fathers do not have an important role in PMTCT because health centres are turned towards women. At the same time, men are blamed for it. What exactly are they doing for their child's health in the context of HIV? The many initiatives and sensitization activities that aim to attract fathers to PMTCT (using the term PPTCT (Prevention of Parent-To-Child Transmission of HIV) fail to mobilize them on issues considered as falling under women's knowledge and choice. Knowledge about their role in child care may help define strategies to better engage fathers.

Objective: The objective of this study is to describe and analyze the role of fathers in care for infants exposed to or living with HIV in a West African semi-urban context.

Method: As part of ANRS 12271 qualitative research project on ART social impact on women and children exposed to HIV in low-income countries, we did interviews and observation with 67 women with a small child and 12 community workers in Bobo-Dioulasso, Burkina Faso, in 2013 and 2016. Father's role and experience in care was discussed with these mothers. A multi-ethnic city, Bobo-Dioulasso counts few nuclear families; most infants live with their two parents in extended families or households, with limited resources.

Results: Despite the PMTCT awareness campaigns conducted for more than two decades, mainly in public health care facilities, fathers rarely intervene in care besides mothers who face their children's illnesses. Most men help their wives only with the payment of prescriptions and hospitalization of children. This support is provided intermittently, on a limited scale, and only by some fathers. Almost only mothers accompany their children to health facilities. Fathers prefer to remain a little hidden, in contrast to the mothers who are seen in high numbers in Primary Care Centers and in the places connoted "Mother-and-Child" or, worse, connoted "Mother, Child and HIV". The Primary Care Centers and programmes that include PMTCT are a women's affair, and it is considered very devaluing for men to remain there, after accompanying their wives and infants. More broadly, they let the mothers manage ARVs and other treatments, as well as other care practices related to HIV. Besides, fathers are usually the ones who bring their infants to alternative and traditional therapists. When infants show signs that mothers do not know, particularly in the case of first-born babies in nuclear families, they seek care in small private clinics in their neighbourhood, with traditional practictioners and in divinatory consultations.

Conclusion: Fathers in Bobo-Dioulasso play their role mostly outside the field of visibility of health workers. They take infants to traditional medicine, informal care or divinatory consultation. Most fathers avoid practice sthat may result in a breach of confidentiality about their HIV+ status or their infant's status. They do not try to adapt to HIV care services due to their will to keep their social status.

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HIGH COMMUNITY-BASED HIV TESTING YIELD AMONG PREGNANT WOMEN WHO NEVER ATTENDED ANTENATAL CLINIC

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Introduction: Among antiretroviral therapy (ART) naïve patients, vertical HIV transmission is estimated to be between 21 to 43% in sub-Saharan Africa. HIV Testing Services (HTS), coupled with early ART initiation for those testing HIV-positive are essential in preventing maternal-to-child HIV transmission (MTCT). Namibia has achieved tremendous progress in controlling MTCT with a total transmission rate of 4.2%. However, at two hospitals in the Khomas region, approximately 6% of women still deliver with an unknown HIV status.

Methods: We conducted a community-led intervention to improve early HIV-testing and linkage to ante-natal care (ANC) for pregnant women. This intervention involved: 1) identification during community household visits of pregnant women who never attended ANC and offering HTS to those with either an unknown HIV status or whose latest HIV test was older than three months, 2) actively linking the HIV positive women to ANC and/or ART clinics, 3) providing continuous health education. Between February 2018 and July 2019 program data were collected to assess the outcomes of this intervention.

Results: 182 pregnant women not registered with any ANC site and with unknown HIV status were identified. Acceptance rate and yield for HIV testing were 98.9% (n=180) and 20.5% (n=37) respectively. The mean duration of pregnancy among those who tested HIV positive was 14 weeks. All individuals were referred to ANC and 91.8% (n=34) of those who tested HIV positive were actively linked to ART clinics, 97% (n= 33) of which had same day ART initiation. Only three HIV positive patients (8.1%) did not reach the ART site for initiation.

Conclusion: We identified HIV positive mothers who never attended ANC and linked them to ART early in the second trimester through active community-based testing. The testing yield of 20.5% surpassed the 17.2% at routine ANC facilities. These results highlight the potential high impact of community-led interventions on achieving eMTCT and early linkage to ANC services.

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Index testing finds many previously undiagnosed HIV positive infants and pregnant and breastfeeding women in Zambia

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Background: Although Zambia has nearly eliminated mother-to-child HIV transmission, some pregnant and breastfeeding women (PBFW) and their children remain at risk. Targeted strategies are needed to reach these priority populations. We present results from the Community Impact to Reach Key and Underserved Individuals (CIRKUITS) project on index testing for PBFW and their children.

Description: CIRKUITS is a five-year PEPFAR CDC grant awarded to the University of Maryland Baltimore to support HIV case-finding and antiretroviral (ART) linkage for key and priority populations in five districts in Zambia. CIRKUITS community health workers collaborate with health facilities to implement community index testing by tracing all sexual contacts of newly diagnosed HIV persons, including PBFW and their children. PBFW identified as sexual contacts are offered HIV testing, and all children <15 years with an HIV+ biological mother are also tested. All HIV+ persons are supported in linkage to care. We conducted a cross-sectional analysis of aggregated routinely collected program data; outcomes of interest were positivity rates and linkage to ART initiation among women and children aged <15 years.

Lessons Learned: From October 2018 to September 2019, CIRKUITS tested 50,931 adults and children in Zambia. HIV positivity rates were 8% among children <15 years and 26% among adults. Of the 18,309 women aged >15 years who were tested, 6,261 (34%) were HIV-positive, and 5,570 (89%) were linked to care.

Among the women with new HIV diagnoses, 328 were previously undiagnosed PBFW; of these, 324 (99%) were linked to ART. Of the 146 children aged <1 year with mothers with a new HIV diagnosis, 28 were HIV positive, for a positivity yield of 19%. Of these, 24 (86%) were linked to ART. The positivity rate among children aged 1–14 years was much lower (7.8%), but linkage was higher (93%).

Conclusions: Community index testing targeting PBFW and their children identified previously undiagnosed women and children and linked them to care. HIV positivity among infants was high compared to older children, suggesting that many infants are being missed by standard facility-based screening. Further efforts are needed to strengthen HIV services for PBFW and their children.

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Nigeria's game changer for eMTCT Response: Integration of eMTCT into Reproductive Maternal New Born Care Adolescent Health and Nutrition (RMNCAH+N)

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Background: Nigeria accounts for 32% of global Mother to Child Transmission of HIV (MTCT). 2.4% of pregnant women are estimated to be HIV+ and MTCT transmission rate stands at 22%. Despite this, 2017 showed lot of missed opportunities; of the estimated nine million pregnancies in a year, only 41.2% (4,025,074) visited facility, 66% (2,682,337) had an HIV test. of 64.811 (39.2%) identified to be positive only 24,026 (47.2%) delivered at facility offering PMTCT. EID test for infants 68% (19,927). eMTCT-RMNCAH+N Integration was designed to optimize HIV service provision across the eMTCT prongs and to minimize missed opportunities.

Methods: With funding from the Global Fund, a framework for integration was developed. Diagnostics and programme intelligence was done to select 90 facilities across 9 districts in three states for implementation. Baseline PMTCT-RMNCAH+N data were documented by abstracting service provision from facility register over six months. HCWs and community volunteers were trained using guideline, SOP, and Job aids developed. The community volunteers were tasked with creating demand for eMTCT-RMNCAH+N services while HCWs confirm referrals and provide services. Coordination and mentoring were provided by National and state team comprising technical officer across programmes. Achievements were checked quarterly.

Result: Within one year of implementation (July 2018 to June 2019), the 90 facilities engaged recorded average of 40% improvement in access across the various thematic. HIV testing was offered to 95% of pregnant women who visited facility and 98% of identified positives delivered in the facility. 110% EID testing was achieved indicating that infants who presented for immunization were assessed and offered HIV services. Notably, 70% of women of child bearing age who presented at the clinics were offered both HIV and contraceptive services. Commodities at facilities are better utilized reducing expiries as HCWs now offer integrated services to clients.

Conclusions: PMTCT-RMNCAH + N integration improved uptake of services across the four prongs of PMTCT. There is better understanding of the concept of integration by healthcare workers and community volunteers. The next phase is the adoption of this strategy as national integration standard with it's attendant minimum package.

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Optimizing treatment outcomes for adolescents and young people living with HIV in western Kenya through Operation Triple Zero.

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Background: Adolescents and young people (AYP) aged 10-24 years bear a disproportionate burden of HIV in Kenya, with AYPs accounting for half of new HIV infections in 2016 and only 61% of AYPs living with HIV achieving viral suppression. NASCOP initiated Operation Triple Zero (OTZ) an initiative aimed at improving treatment outcomes among AYPLHIV, by empowering AYPs to commit to the "triple zero outcomes" defined as zero appointments missed; zero pills missed and zero AYPLHIV with undetectable viral loads. OTZ focusses on providing adequate ART treatment literacy to adolescents to ensure they adhere to their scheduled clinic appointments and to taking their drugs consistently, with an aim of achieving viral load suppression while on OTZ.

Methods: The OTZ package includes treatment literacy; peer support through social groups; counseling to mitigate self-stigma; support transitioning to adult care; and life skills building. PATH initiated implementation of OTZ in western Kenya in January 2018, introducing the approach to 78 facilities across 5 counties. A consent form was administered to the AYP to confirm commitment to the OTZ club. Service providers these facilities were sensitized on OTZ methodology; they then took lead in offering the OTZ package to the AYP during their clinical visits. We conducted a review of programmatic data to analyze viral load suppression at baseline, three months and 12 months for AYPs enrolled in OTZ.

Results: A total 1777 AYPs were enrolled in OTZ from January to December 2018. 50% of AYPs enrolled in OTZ were 10-14 years old, 37% were 15-19 years old, and 13% were 20-24 years old. Majority were female (59% 1048). At baseline viral load uptake was 75% (1332), with 68%(905) viral load suppression rate. At 3 months 32% (452) had a re-suppression rate of 66%(298). At 12 months the viral load suppression rate was 86% (778)

Conclusions: The OTZ initiative led to increased viral load suppression rates among AYP enrolled in the program, thus leading to improved treatment outcomes for AYP. To help Kenya attain and maintain epidemic control, expansion of OTZ is critical to support AYPLHIV achieve viral suppression and cultivate positive health-seeking behaviors as they transition into adulthood

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Determinants of Treatment Adherence and Retention in Care among HIV Positive Pregnant and Breastfeeding Women in a Rural District in Zimbabwe

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Background: A preliminary review of St Albert's Mission Hospital data in Centenary District of Zimbabwe showed 15% of HIV positive pregnant and breastfeeding women (PPBW) missed drug pick-up appointments and 10% were lost to follow up. This affects Zimbabwe reaching 90% viral suppression target among those on antiretroviral therapy and increases HIV transmission risk to unborn foetus or breastfeeding infant. We determined factors associated with treatment adherence and retention in care among PPBW.

Methods: We conducted a cross-sectional analytic study among PPBW receiving HIV treatment and care at the hospital. HIV positive pregnant and breastfeeding women were sampled consecutively on presenting for antenatal or postnatal care. We used interviewer administered questionnaire to elicit information from consenting PPBW. We obtained ethical approval from Medical Research Council of Zimbabwe and written informed consent from participating PPBW.

Results: We interviewed 120 PPBW. The majority were breastfeeding women (60.0%). Over 95% PPBW disclosed their HIV status to someone. Reasons for disclosure included getting social and emotional support, food assistance and to avoid hiding the taking of medication. Over 90% reported the use of reminders and treatment buddies to avoid forgetting taking medication. The majority used this hospital because the health workers treated them with respect (66.7%), maintained client confidentiality (75.0%) and had good relations with their clients (70.8%). Skipping medication because of travel (adjusted odds ratio (AOR) 95% confidence interval (CI) 0.06 (0.005-0.79 and having an unpleasant experience while seeking care AOR (95% CI) 0.05 (0.002-0.93) were independently associated with lower medication adherence. Disclosure to avoid hiding taking medication AOR (95% CI) 22.07 (1.64-297.66 and attending this hospital because the health workers maintain confidentiality AOR (95% CI) 22.07 (1.64-297.66) were independently associated with higher retention in care.

Conclusion: Health system factors play an important role in adherence and retention of pregnant and breastfeeding women attending care at this facility.

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Audit of HIV PCR follow-up requests for confirmation of early infant diagnosis in the Western Cape, South Africa (2017-2019)

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Background: The earliest possible diagnosis of Human Immunodeficiency Virus (HIV) infection in infants is very important clinically. The South African National Health Laboratory Service (NHLS) aims to perform at least 80% of tests for early infant diagnosis of HIV (EID) tests within a 96-hour turnaround time (TAT). Guidelines furthermore recommend that a follow-up sample be collected as soon as possible from all children with a non-negative EID result for confirmatory testing.

Aim and objectives: We aimed to establish whether our laboratory meets the required TAT, and whether non-negative EID results triggered the prescribed follow-up testing. We also aimed to assess the pattern and trends of EID requests that were rejected by the laboratory.

Methods: This study is a retrospective audit using NHLS routine laboratory data for the 2017 to 2019 period. We examined all EID test request data, the rejected requests, the 10-week follow up tests, the follow up trends and patterns of the non-negative PCR tests, and individual TAT of each test. A final total of 43,346 samples were used in the study, extracted from the laboratory information.

Results: A total of 42,399 (97.82%) of the EID results were negative. Of 947 (2.18%) non-negative results, 775 (1.79%) were positive while 172 (0.40%) were indeterminate. An average of 5.49% of infant PCR requests was rejected for various reasons. Of the 520 non-negative test results on initial samples, just about half received follow up tests. 74.67% of the follow up results of patient with initial indeterminate samples became negative, while 93% of those with positive results for their first sample again tested positive. Less than half of the follow up tests were performed within the first 7 days of life.

Conclusion: There was a high proportion of EID requests that were rejected. Slightly more than half of infants who required follow up EID testing received it. Our TAT meets current targets. Most positive results were reproducible on follow up samples; however, many indeterminate initial EID results were irreproducible.

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Feasibility and PMTCT outcomes of an integrated Early Childhood Development and PMTCT intervention in Malawi: Preliminary Results

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Introduction: Integrated services may improve service coverage, adherence, client satisfaction, and therefor impact. Integrated early childhood development (ECD) services may be particularly beneficial within Prevention of Mother to Child Transmission (PMTCT) programs for HIV-positive women who face dual challenges of an HIV-positive status and approaching motherhood. However, little is known about the feasibility of integrated ECD/PMTCT interventions, and their impact on mothers' engagement in PMTCT services.

Methods: An integrated ECD/PMTCT intervention was implemented in Central Malawi at 6 health facilities using the WHO/UNICEF Care for Child Development (CCD) curriculum. At 6-months into program implementation, we conducted a medical chart review with HIV-positive mothers who had participated in the program for at least 6-months. Descriptive statistics were conducted to examine women's engagement in PMTCT and ECD services over the course of enrollment (6-months).

Results: 224 mothers were enrolled in the integrated ECD/PMTCT intervention for at least 6-months. 148 (66%) never missed an ECD session, 36 (16%) missed 1 session, and 40 (18%) missed ≥2 session (mean 1.23 missed sessions among those who missed at least 1 appointment) . Among the 76 women who missed ECD sessions, 30% of women did not have an ART appointment that same month, 26% missed their ART appointment, and 44% attended ART but not ECD. Most women who attended ART appointments but missed ECD appointments arrived at the facility after ECD sessions had already begun. For ART appointments, 50 (22%) of women were ≥14 days late for ≥1 ART appointment (mean 1.34 late appointments among these women) and 8 (4%) defaulted (defined as >60 days late for an ART visit). For both ECD and ART services, more missed appointments occurred in months 5 and 6 (ECD:~33%; ART:~18%) compared to months 2 and 3 (ECD:~15%; ART:~12%). Women who were younger and recently diagnosed with HIV (<6 months) were more likely to miss both ECD and ART appointments.

Conclusion: An integrated ECD/PMTCT intervention was feasible in busy health facilities in Malawi. Participants regularly attended ECD and showed promising engagement in PMTCT services, with low rates of default.

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Low Hanging Fruit!: High Uptake and Yield On Offering HIV Testing To Untested Children Accompanying HIV positive Adults During Their HIV Clinic visit

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Introduction: Gaps in pediatric HIV diagnosis persist, particularly among older children born before the expansion of prevention of mother-to-child transmission of HIV (PMTCT) programs. The Counseling and Testing for Children at Home (CATCH) study evaluated index case pediatric HIV testing. This is a promising approach to reach children before they are ill and present to hospital.

Methods: Caregivers receiving HIV care at 7 health facilities in Kenya between 2013 and 2016, with children of unknown HIV status ages 0-12 years were enrolled. They provided socio-demographic information, and chose to test their children either through home based testing [HBT] or clinic based testing [CBT] on the same day, or CBT at a later date. The uptake and yield of testing in each group was calculated, and a description of linkage to care for the children who tested HIV positive was completed.

Results: CATCH study screened 69,053 adults with 2,126 (3%) caregivers with children of unknown status ages 0-12 years, and among them 493 (23%) enrolled for the study. Of 493 caregivers, 115 (23%) caregivers initially preferred HBT, 105 (21%) CBT on the same day, 272 (55%) CBT at a later date, while 1 preferred not to test. All (100%) of the 105 who initially preferred CBT on the same day completed testing for at least one child, while 166 (61%) of the 272 who initially preferred CBT at a later date, and 78 (68%) of 115 who initially preferred HBT, completed testing for at least one child.
Overall, 349/492 (71%) caregivers completed testing for 520/850 (61%) eligible children. Most (80%) caregivers who tested children elected CBT, of whom 103/349 (30%) had their children with them for their (adult) clinic visit and tested the children immediately after enrollment. The children who were tested on the same day in clinic were younger than those tested at home (5.9 vs 7.2, p value=0.0008), and in clinic at a later date (5.9 vs 7.2, p value<0.0001).
Thirty of the 520 children tested were HIV positive, a prevalence of 5.8% (95%CI: 3.9-8.1). HIV prevalence was 6.9% (95%CI: 3.4-12.3) among children who received CBT on the same day, 6.7% (95%CI: 4-10.6) among those who received CBT at a later date, and 2.4% (95%CI: 0.5-7) among children who received HBT. All 30 HIV positive children linked to care within 6 months (88% within a month), and 14 (54%) started ART within a month.

Conclusion: Index-based pediatric testing was acceptable, with higher uptake and yield in CBT than HBT. The study demonstrated an easy but often missed opportunity for pediatric index case testing- 30% of caregivers who completed testing for their children had an untested accompanying child at their HIV care visit, and agreed to same-day testing. Testing children accompanying adults during their HIV clinic visits could feasibly be scaled with little additional infrastructure or staffing.

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Impact de la dynamique familiale dans le suivi des enfants infectes par le VIH : Exemple de la cohorte suivie au Centre Hospitalier National pour Enfants de Diamniadio (CHNED)

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La découverte de la séropositivité chez un enfant demeurera toujours pour les parents un traumatisme important et inévitable pouvant générer de multiples conséquences : forte charge d'angoisse, instabilité, tensions et ruptures familiales, insécurité psycho-affective…
Dans ce contexte de déséquilibre où le cadre familial peine à assurer correctement ses fonctions traditionnelles de protection et d'épanouissement de ses membres, les enfants surtout infectés ne risquent-ils pas d'en être les victimes désignées ?
L'objectif de notre étude est justement d'explorer l'impact de cette dynamique familiale (positif et négatif) dans le processus de suivi des enfants infectés. Ceci, pour nous aider à mieux comprendre l'importance de la dimension familiale de l'infection à VIH relativement à ses implications psychologique, économique et sociale.

Méthodes: Entretiens psychologiques auprès de huit (08) mères séropositives, une (01) grand-mère et trois (03) tantes répondantes (dont l'une est séropositive) rencontrées avec leurs enfants lors des consultations de suivi et autres séances de renforcement thérapeutique. Aussi, à partir des données concernant l'enfant et sa famille recueillies dans leur dossier médical, nous avons cherché à établir les incidences des interactions familiales sur la survie, l'équilibre psychique et l'état de santé de ces enfants suivis.

Résultats: Le profil sociodémographique des enfants révèle un effectif de 07 filles et 06 garçons ainsi réparti selon la tranche d'âges : (0-4 ans) = 08 ; (5-9 ans) = 03 ; (10-14 ans) = 02. Sur cet effectif, on relève 07 enfants orphelins (de mère : 04 ; de père : 03) vivants donc avec l'un des parents biologiques, 02 enfants dont les deux parents biologiques infectés sont vivants, 03 enfants vivant avec les deux parents dont un seul est infecté et 01 enfant dont les deux parents ne sont pas infectés.
Les premières tendances recueillies montrent deux (02) catégories d'enfants :
-La première (au nombre de 07) évoluant dans des familles plus ou moins fonctionnelles, structurantes et équilibrées va plutôt bien avec de bons résultats en termes de suivi, d'observance de traitement (bonne charge virale) et de respect des rendez-vous ;
-La seconde (avec un effectif de 06) dans la situation inverse (difficultés familiales, manque d'implication, défaut de répondant, non partage de statut…) se signale par son score négatif (charge virale élevée, 02 Perdus de vue et 02 décès).

Conclusion: La plupart des enfants évolue dans une famille qui à son tour, exerce une influence marquée sur leur survie, leur état de santé et leur épanouissement. C'est dire combien la qualité et la sécurité apportées par le cadre familial jouent un rôle considérable dans l'accompagnement des enfants infectés.

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Where are the Children? A Geo-Spatial Look at Children Living with HIV and on Treatment in Nigeria.

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Background: About 1.7 million children were estimated to be living with HIV globally in 2018. In West and Central Africa, there were 58,000 new infections of which Nigeria accounted for about 41%. As at December 2018, Nigeria has an estimated 140,000 Children Living with HIV (CLHIV) with about 36% identified and were on ART. We describe the spatial pattern of HIV burden and ART coverage among children aged 0 -14 years in all the states in Nigeria.

Materials and Methods: The 2019 Spectrum-generated estimates for the 36 states plus FCT in Nigeria were triangulated with the 2018 National HIV routine programme data and the projected population of children from the 2006 census were used to map the burden of CLHIV and ART coverage sub-nationally. Dorling cartogram was developed using the children population, CLHIV and ART coverage as a percent to show a comprehensive view of paediatric populations by state. With a spatial weight of 407Km, local indicator spatial autocorrelation analyses were performed to identify hot and cold-spots.

Results: The median paediatric population living with HIV was 2,703 (IQR: 1,747-5,037) and paediatric ART coverage was 32.1% (IQR: 20.6%-52.4%). There was significant clustering of paediatric ART (PART) coverage in Nigeria (Moran's I index=0.1, p-value=0.023). The hot-spots (clusters of states with significantly higher paediatric ART coverage, compared to their adjacent states) comprised of four states, located in North-Central region (FCT and Nasarawa state), and North-East region (Bauchi and Taraba states). Lagos and Bayelsa states formed cold-spot clusters for PART. However, there was no significant spatial autocorrelation for burden of paediatric HIV children (Moran's I index=0.05, p-value=0.087). The multivariate Dorling cartogram shows that ART coverage of CLHIV is not determined by the population size or the burden of CLHIV.

Conclusion: Paediatric ART coverage is still sub-optimal in Nigeria. This study offers evidence for a wide geographic variations in paediatric ART coverage in the country, therefore, there is an urgent need for a programming shift, focusing on the geographical inequity and putting in place geographically sensitive programmatic actions on to prevent, find cases, initiate treatment and ensure retention in order to reach 95-95-95 UNAIDS target for CLHIV by 2030.

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Correlates of Malnutrition in Perinatally Acquired HIV-Positive Children on cART: The Role of Caregiver Depression and Quality of Home-Environment in Settings with High HIV Prevalence

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Background: Childhood malnutrition is a global health problem in low-and-middle income countries (LMIC), especially among children with perinatally acquired HIV (PHIV). The risk for malnutrition is not only due to the direct effects of HIV on the brain and in utero ART exposure but also due to factors associated with the primary caregiving environment. Maternal depression has been linked to poor child socioemotional, cognitive and physical development. Understanding the role of the caregiving environment on PHIV+ children is critical as they are at greater risk for poor neurodevelopmental outcomes.

Materials & Methods: The current cross-sectional, quantitative study sought to examine the association between caregiver depression, quality of home environment and malnutrition in 152 purposively recruited perinatally HIV-positive children on cART, aged 3 years to 7 years 6 months (mean age 63.13 months). The primary caregivers (n=152) completed the Beck Depression Inventory and the Home Screening Questionnaire. Length-for-age, weight-for-age and weight-for-length Z-scores were calculated for each child as per the WHO anthropometric method. Multiple regression analysis was used to determine the relationship.

Results: The prevalence of malnutrition, particularly stunting (36.2%) was high in the overall sample of PHIV+ children on cART and the majority of them were living in an unfavourable home environment. Of all the primary caregivers, 48% reported low to mild depressive symptoms, while biological caregivers reported higher depressive symptoms (M= 5.00, SD = 6.88) compared to non-biological caregivers (M= 4.10, SD = 6.60). Only young depressed, biological primary caregivers, and an unfavourable home environment were independent predictors for malnutrition among PHIV+ children (β=0.53; t=3.50; p<0.01).

Conclusions: The findings from this study underscores the importance of an integrative package of care that incorporates the mental health of primary caregivers, home-based assisted psychosocial stimulation and nutritional rehabilitation interventions to optimise the neurodevelopment and health outcomes of PHIV+ children; especially, given the double burden of HIV and poverty in LMIC.

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Humoral responses to tetanus immunization in HIV exposed uninfected (HEU) infants

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Background: HIV exposed but uninfected (HEU) infants have been affected with higher morbidity rates than their HIV unexposed (HU) counterparts. Additionally, there is evidence that HEU infants do not respond optimally to pediatric vaccinations, which further puts them at risks.

Materials and methods: We selected 300 plasma samples of HEU and HU infants from a previous mother-infant cohort form Nigeria and South Africa, to determine the specific IgG titers to Tetanus using an ELISA based kit, testing at two time points, baseline (pre-vaccination) and at Week 15 (post booster vaccination).

Results: So far, a total of 50 HEU and 45 HU infant samples at baseline and Week 15 have been tested and analyzed. Protective titers are set at 0.1 UI/ml, titers <0.1 IU/ml are considered as sero-negative. Our preliminary data showed higher baseline titers among Nigerian infants especially in HEU (p<0.0001). This may be due to passively transferred maternal anti-tetanus IgG antibodies. While 87 infants had protective titers following booster DPT shot at week 15, a number of infants (8.4%) did not.

Conclusion: Lower titers in HEU infants after their second booster DPT shots suggest that responses to vaccines are altered by HIV exposure. We plan to investigate further the differences observed in responses to this pediatric vaccine. Possible role of maternal antibodies passively transferred through the placental or breast milk and infant microbiome will be assessed.

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Long term renal tolerance in HIV-infected children treated early with combined antiretroviral therapy : results from the ANRS-Pediacam study in Cameroon

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Background: Access to cART has drastically improved survival paving way for long term HIV complications including renal involvement which is reported to be related to HIV infection or antiretroviral therapy. We aimed to retrospectively describe renal function of HIV-infected children treated early with combined antiretroviral therapy (cART) in the ANRS 12225-Pediacam cohort and its relation with the duration of cART exposure.

Materials and Methods: The Pediacam is a prospective ongoing cohort launched in Cameroon which included from 2007 to 2011, HIV-infected children identified before 7 months of age. All infants were offered free cART early after diagnosis and followed till date with immunovirological, haematological and biochemistry measurements realized every 3 months till 2 years, then every 6 months till 6 years of age, and annually thereafter. All children with duration of cART exposure >5 years and at least two serum creatinine measurements (at initiation and after 5 years cART exposure) were selected for this study. Of the 210 included in the ANRS 12225-Pediacam cohort, 136 children were considered for this analysis. Their last serum creatinine measured by enzymatic method from 17/06/2018 to 20/12/2019 were collected together with sociodemographic and anthropometric characteristics. Based on them, estimated glomerular filtration rate (eGFR) was calculated using the original Schwartz formula. Children's characteristics were described using medians (with interquartile range (IQR) for quantitative data and percentages for qualitative data. Then, we studied the relation between the duration of cART exposure and other collected variables on creatinine clearance as dependent variable using linear-regression analysis. Data analysis was performed using R Studio-Version 1.1.463. P value of < 0.05 was considered statistically significant.

Results: One hundred and thirty six children (median age : 10.0 years [9.0-11.0] ; 61 (44.9%) male) initiated cART at a median age of 4.0 months [3.0-5.0]. Of them, 69.9% (95/136) were currently on boosted protease inhibitors based-regimens and 30.1% (41/136) on nonnucleoside Reverse-Transcriptase Inhibitor-Based regimens. No child was taken tenofovir. The median duration of cART exposure was 9.7 years [8.8-10.6]. The median weight and height were 28.5 Kg [25.8-32.8] and 134 cm [128-140] respectively, with a body mass index of 16.3 [14.9-17.8]. Nine (7.0%) children had immunosuppression (CD4 <25 %). Median creatinine clearance was 156.2 mL/min /1.73 m2 [141.9-181.6]. No child had an eGFR <90 ml/min/m2 which could be consistent with renal dysfunction. The duration of cART exposure had no effect on creatinine clearance (β=-5.1(95% Confidence interval : -11.3 ;1.1) ; p=0.106). Also, none of the above mentioned variables were associated with creatinine clearance.

Conclusions: This study shows a remarkable stability of renal function in a cohort of HIV-infected children early treated indicating good long term tolerance to currently available antiretrovirals. This result needs to be further explored using other markers of renal function as the outcome could lead to decisions concerning routine follow-up of HIV-infected children and adolescents on cART.

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Factors associated with vertical transmission of HIV among exposed infants during the era of PMTCT option B+ in Kyegegwa district: a cross-sectional study.

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Background: Despite high anti-retroviral treatment (ART) coverage (93%) for prevention of mother to child HIV transmission (PMTCT), vertical transmission of HIV in Uganda remains high (7.4 %). District PMTCT program data showed a higher level of HIV positivity among HIV exposed infants in Kyegegwa district compared to the regional average (3.1% vs. 2%). We examined factors associated with vertical transmission of HIV in the era of PMTCT option B+ in Kyegegwa district.

Materials and Methods: We conducted a cross-sectional study targeting HIV exposed infants who were alive and receiving clinical care at three health facilities in Kyegegwa district between July and September 2018. Data on infant age, infant gender, infant HIV status and most recent maternal viral load results were abstracted from patient clinic records while data on non-routinely collected data was obtained through interviewing mothers to exposed infants. The study outcome was level of HIV positivity among HIV-exposed infants and the independent variables were maternal attendance of antenatal care, maternal ART status during pregnancy, maternal HIV status during pregnancy, presence of sexually transmitted infections during pregnancy, place of birth, timing of infant HIV test, status of infant nevirapine prophylaxis at birth and adherence to infant nevirapine syrup. We analysed descriptive statistics and examined factors associated with vertical transmission of HIV using mixed effects logistic regression. We used the purposive model building approach to select the most parsimonious model.

Results: A total of 208 HIV exposed infants were included in the study; their median age was 17 months [IQR=14-25 months] and majority (57.7%) were male. Eighty six percent (179/208) were tested for HIV within the recommended 6-8 weeks of age. The level of HIV positivity among exposed infants was 3.8% (2.6%-4.2%). At multivariate analysis and application of mixed effects logistic regression, being on ART during pregnancy (aOR 0.02, 95% CI 0.01-0.65; p-value=0.027) was associated with lower odds of vertical transmission of HIV while missed infant nevirapine prophylaxis was associated with higher odds of vertical transmission of HIV (aOR 102, 95% CI 2.60-4087; p-value=0.014).

Conclusions: Not being on ART during pregnancy and missed infant nevirapine prophylaxis drive vertical transmission of HIV in Kyegegwa therefore access to and timely initiation of ART during pregnancy and infant nevirapine syrup at birth should be strengthened.

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FAILURE TO SUPPRESS VIRUS PREDICTS SUBSEQUENT FAILURE IN HIV-INFECTED CHILDREN IN TANZANIA

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Background: Low level viremia (LLV) in adults has been shown to lead to virologic failure and worse clinical outcomes. However, large scale studies have not been conducted to show similar outcomes in children.

Materials & Methods: A retrospective chart review was performed at a large pediatric HIV clinic in Mbeya, Tanzania. Records were examined for clients who had viral load (VL) samples drawn between 2015 and 2018. Comparisons were made between clients with suppressed VL (<50) and those with LLV separated out into <200, <500 and <1000 cells/ml. Additionally, the groups were compared for VL status over time, examining the proportion that was able to suppress by the end of 2018.

Results: A total of 1845 clients had viral load (VL) samples drawn between 2015 and 2018; 1447 of those had VL < 1000 on their last sampling. Of those 1447 clients, 1361 (94%) had VL < 500, 1226 (85%) had VL < 200, and 950 (66%) had VL < 50. When compared to VL < 50, the higher VL groups only differed in significantly higher numbers on protease inhibitor-based (PI) therapy. There was no difference between the groups in terms of gender, average age, antiretroviral therapy (ART) regimen, CD4 count or percentage, malnutrition or TB status, adherence, or clinic status as of the end of 2018. When looking at viral load changes over time, the VL < 50 group had a significantly higher proportion that remained VL < 50 (P < .00001) over the 2015 to 2018 time period. Moreover, VL < 200 category had a higher proportion at VL < 50 by the last time point versus VL < 500 (P = .01966) but VL < 500 did not have a greater proportion < 50 than VL < 1000 (P = .122452).

Conclusions: In this large study of pediatric VLs, no significant difference was found when comparing clinical criteria among different categories of VL except that higher VL categories had greater PI use. However, when looking at VL progression, clients with VL < 50 were more likely to stay suppressed compared to clients with higher VL – clients with LLV were less likely to suppress over time.

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ADOLESCENTS' PERSPECTIVE ON THE USE OF NOVEL ANTIRETROVIRAL FORMULATIONS FOR THE TREATMENT OF HIV INFECTION IN MBEYA, TANZANIA

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Background: There is a strong desire among patients and providers alike for novel strategies in the administration of antiretroviral therapy (ART), as has been shown in the developed world. Any pediatric HIV provider will be familiar with the struggles associated with pediatric formulations of ART, namely poor tasting syrups, syrups that require refrigeration, regimens that require multiple pills taken multiple times per day, large pill size, etc. Adolescents living with HIV (ALHIV) are a particularly fragile population, vulnerable to the issues listed above as well as stigma and the need for acceptance within their communities and peer groups. It is imperative to involve ALHIV in providing perspective on what is acceptable concerning their care, respecting the "nothing about us without us"-approach.

Materials & Methods: This study was a descriptive survey of all participants at Teen Club (weekend day-camp for ALHIV), present at a single session in January 2020. Each adolescent was provided with a copy of a simple five question survey written in the local language of Kiswahili. The adolescent coordinator and study author were present to explain each question before the participants responded. All surveys were completed anonymously.

Results: Of the participants, 52% (64/124) were female. They ranged in age from 11 to 19 years with an average age of 15.5 years. Concerning daily oral ART use, 98% (120/124) of participants liked taking medicines everyday and 77% (96/124) mentioned that they rarely or never forget to take their pills. When asked about considering a novel method for taking their medication, 58% (72/124) would surely or probably try, while 39% (47/124) preferred not to try a new method.
When comparing different novel methods of ART administration to daily pills, taking daily pills remained the most preferred method of administration at 44% (53/120), followed by patch at 26% (31/120), then pills taken on a monthly basis 16% (16/120), monthly injections at 8% (10/120), and last was an implant device placed under the skin at 6% (7/120).
When aggregated by age group, responses where similar between the 11 to 15-year-olds and the 16 to 19-year-olds for liking daily medications (98% vs. 97%, P = .568485), rarely or never missing medication (77% vs. 73%, P = .197507), and wanting to try new medications (58% vs. 61%, P = .466643). When comparing different possible methods for ART, the older and younger ALHIV choose daily pills, monthly pills, monthly injections and implants as their top two choices a similar number of times. However, the two groups differed in their selection of the patch with a significantly greater proportion of younger ALHIV choosing it among their top two methods of ART (60% vs. 36%, P = .010875).

Conclusions: This survey demonstrated that ALHIV responded positively to daily pill swallowing and their self-reported adherence was good. Of the novel methods of administering ART, the patch was the highest ranked method followed by monthly pills. Older versus younger ALHIV were similar in their preferences of ART administration except for the patch, which younger ALHIV found to be more favorable.

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Plausible Strategy to Eliminate Mother to Child Transmission(MTCT) of HIV in Resource Limited settings: The Case of Regional Hospital L.imbe (RHL)

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Background: Mother to child transmission (MTCT) of HIV contributes to more than 90% of Paediatric HIV infection. Several strategies like interrupted ART prophylaxis options and exclusive breast feeding have been implemented to eliminate MTCT to no avail in resource limited setting. The interruption of ART prophylaxis out of non -pregnancy and breastfeeding period disposes to poor adherence and potential resistance to Nevirapine containing regimen thus favouring Pediatric HIV transmission, a threat to epidemic control in vulnerable population. The aim of this study is to determine the effect of life -long ART for pregnant or breastfeeding mothers upon HIV diagnosis in preventing MTCT.

Method: This is a prospective longitudinal cohort study of two periods; October 2015 to September, 2016 and October 2016 to September, 2017 cohorts following implementation of life long antiretroviral therapy to all HIV positive pregnant women in RHL. A total of 280 and 121 HIV exposed babies were selected through convenient sampling method in the respective cohorts. We obtained consent from the mothers and their babies followed for 18-24 months. The babies were given weight –based Nevirapine syrup daily for six to twelve weeks depending on duration on ART before delivery. The infants were on Cotrimoxazole 240mg daily from six weeks till final HIV status determined at 18-24 months. The first PCR was done within six to eight weeks and a rapid HIV test at 18 -24 months to determine HIV status at six weeks and 18 months. Children who had positive PCR test or rapid test at 18 months were placed on life-long ART.

Results: Of the 280 babies monitored in the Oct, 2015 to September, 2016 cohort, 199 (71.1%) had their PCR test done and 3 (1.5%) had a positive PCR. Four babies died before PCR at six and 71 babies did not do PCR.
Of the 199 babies who had PCR, 150 (75.4%) were done within six to eight weeks with 1 (0.7%) positive PCR, 45 (22.6%) between two to twelve months with 2 (4.5%) Positive PCR identified and 4 (2.0%) PCR after 12months of age.
Of the 199 babies who did PCR, 64 (32.2%) of them did rapid HIV test at 18 -24 months with 1 (1.6%) HIV positive and two dead recorded. The over mother to child transmission among the 199 babies monitored and screened in this cohort was 4/199 (2.0%).
Of the 121 babies in Oct, 2016 to September, 2017 cohort monitored for 24 months, 91/121 (75.1%) did PCR and none was HIV positive. Of the 91 PCR done, 64/91 (70.3%) was done within six to eight weeks while 26/91 (28.6%) was done within two to twelve months and 1/91 9 (1.1%) after twelve months.
Of the 91 HIV exposed infants who did PCR, 49/91 (53.8%) did rapid test for HIV within 18-24 months and none was HIV positive.

Conclusion: In conclusion, we observed that mother to child transmission of HIV rate is on track to elimination or epidemic control in with effective implementation of life long ART for every pregnant and breast feeding mother in Regional Hospital Limbe.

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Assessment of Population level Impact of Prevention of Mother to Child Transmission Program in Manhiça district, Mozambique

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Background: There are limited data on population level PMTCT program coverage and outcomes in Mozambique including the mother-to-child HIV transmission (MTCT) prevalence at the end of breastfeeding

Methods: We conducted a cross-sectional survey (October 2017–June 2018) that randomly selected children born alive in the last 48 months in the Manhiça district; only the first selected child in each household was included. Mother's HIV-positive status was verified using her clinical records or by testing if unknown, and all children of HIV-positive mothers were tested. Structured interview data were merged with available clinical records for analysis. We estimated ART uptake, viral suppression, breastfeeding, and maternal and infant HIV positivity and mortality. We also estimated the HIV-free survival rate in children using the Kaplan-Meier estimator.

Results: Of 4826 households with a live childbirth, 3486 caregivers (72.2%) were interviewed. HIV prevalence in mothers was 30.8% (967/3136; 95% confidence interval: 29.2%–32.5%). Median age of the HIV-positive mothers at time of delivery was 28.7 (IQR, 23.4–33.4) years. Antiretroviral therapy (ART) data were available for 72.3% (699/967) mothers: 92.7% were receiving TDF+3TC+EFV, 5.9% were on AZT+3TC+NVP, and 1.4% were on second-line or other regimens. Only 47.1% (329/699) of HIV-positive mothers on ART had received a viral load: 86.0% (283/329) had viral suppression. Mean duration of breastfeeding was 12.7 months HIV-exposed children compared to 17.9 months for non-exposed children (p < 0.01). Overall, 31 maternal deaths occurred among all 4826 survey participants; 11 were among HIV infected mothers. Of 967 HIV-exposed children, 49 (5.1%, 95% CI: 3.8%–6.6%) were HIV-positive, and 33 had died (HIV-related, 6; non-HIV related, 22; unknown cause, 5). The HIV-free survival rate in HIV-exposed children at 48 months was 92.3% (95% CI: 88.2%–95.0%).

Conclusions: There is a high HIV prevalence among women of reproductive age in Manhiça with a high coverage of ART but a low coverage of viral load testing. National infant feeding policy was well implemented. MTCT prevalence is still above desired (5.1%) with substantial child and maternal deaths. The PMTCT program could consider strategies to prevent new infections, increase viral load testing coverage, and decrease maternal and child mortality rates.

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The SP1 Domain of HIV-1 Gag Can be the Best Target for Inhibiting the Assembly of HIV-1 Virus Like Particles (VLPs) as Determined by Site Directed Mutagenesis Experimental Approach

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Background: Expression of a retroviral protein, Gag, in mammalian cells is sufficient enough for the assembly of immature virus-like particles (VLPs). VLP assembly is mediated largely by interactions between the capsid (CA) domains of Gag molecules but is facilitated by binding of the nucleocapsid (NC) domain to nucleic acid. The role of SP1, a spacer between CA and NC was investigated in VLP assembly and as the potential target for inhibiting the assembly and formation of HIV-1 virus particles.

Method: Site directed mutagenesis experimental approach was applied to create various mutations on SP1of HIV-1Gag following the Quick Change protocol of Invitrogen. Transfection of 293T cells was done to study the expression of the mutated gene and the morphology of the VLPs was analyzed using Transmission Electronmicroscopy(TEM). The amount of the VLPs formed was determined by Western Blot (WB). The conformation of the CA-SP1 junction region in solution was studied using both Molecular Dynamics Simulation (MDS) and Circular Dichroism (CD).

Result: Mutational analysis showed that even subtle changes in the first 4 residues of SP1 destroy the ability of Gag to assemble correctly, frequently leading to formation of tubes or other misassembled structures rather than proper VLPs. Consonant with nuclear magnetic resonance (NMR) studies by other investigators, it was found that SP1 is nearly unstructured in aqueous solution but undergoes a concerted change to an α-helical conformation when the polarity of the environment is reduced by addition of dimethyl sulfoxide (DMSO), trifluoroethanol, or ethanol. Remarkably, such a coil-to-helix transition is also recapitulated in an aqueous medium at high peptide concentrations.

Conclusion: The exquisite sensitivity of SP1 to mutational changes and its ability to undergo a concentration-dependent structural transition raise the possibility that SP1 could act as a molecular switch to prime HIV-1 Gag for VLP assembly. We suggest that changes in the local environment of SP1 when Gag oligomerizes on nucleic acid might trigger this switch. We recommend that this junction should be explored further for the purpose of anti-retroviral discovery that will be suitable for the disruption of the assembly and formation of HIV-1

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Effectiveness of Prevention of Mother-to-Child Transmission (PMTCT) of HIV Programme in Nnewi, Anambra State, Nigeria

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Background: Early infant diagnosis (EID) of HIV provides an opportunity for the follow up of HIV exposed infants (HEIs) for early detection of infection and early access to antiretroviral treatment. The study aimed to determine the effectiveness of the PMTCT of HIV Programme in Nnewi, Anambra State, Nigeria.

Method: Dried Blood Spot (DBS) specimens were received from over 120 facilities in the NAUTH PCR laboratory between January 2017 and December 2018. Demographic, ARVs, infant's feeding choice and the age at DBS sample collection were retrieved from the laboratory request forms and entered into the Laboratory Information Management System (LIMS). DBS samples were analyzed using the Roche COBAS Molecular Systems. The outcome of Infant Virologic Testing (IVT) in HIV Exposed Infants (HEI) was analyzed using SPSS version 21.

Results: The rate of MTCT of HIV was 3.4%. The positivity rate was higher in females (4.2%) than in males (2.5%) (x2=8.03, P< =0.003). About 2,196 (60.1%) of the babies were tested at six weeks to two months, while 1,460 (39.9%) were tested at 3 to 18 months of age. The positivity rate was lower (2.4%) for HEI, who tested 6weeks to 2 Months than those who tested after 2Months (4.9%) (X2=16.84, P-< 0.001).About 2999/3697 (81.1%) babies were exclusively breastfed (EBF), while 698/3,697 (18.9%) received Exclusive Replacement Feeding (ERF). EBF was associated with higher MTCT (3.4 %) than ERF (3.2%). MTCT rate was lower if the mother started ART before pregnancy (2.4%) than during pregnancy (2.9%) and 19.0% without intervention. MTCT was 18.5% when neither mother nor baby received pharmaceutical interventions, but when either mother or baby received the intervention, MTCT decreased to 6.0%. MTCT was further decreased to 2.4% when both mother and baby received chemotherapy (X2=41.9, P< 0.001). The proportion of HEI (60.1%) who received a virological test within the first two months of life in our study is below the 80% target recommended by the World Health Organization

Conclusion: IVT provides the opportunity for early detection of HIV in HEI and early access to antiretroviral treatment. However, Only 2,196 (60.1%) of the infants received a virological test within the first two months of life, which is below the 80% target recommended by the World Health Organization. MTCT rate of 3.4% underpins the fact that PMTCT interventions are effective. To achieve the zero new HIV infections target, pregnant women should receive PMTCT interventions and HEIs post-delivery ARV prophylaxis.

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Prévalence de l'infection à VIH chez les enfants nés des mères séropositives : Cas de l'hôpital de District de New-Bell, Douala, Cameroun

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Introduction: L'infection à VIH pédiatrique est un problème majeur de santé publique du fait de l'augmentation des cas d'infection à VIH chez les femmes en âge de procréer mais aussi de la possibilité d'une transmission verticale de la mère à l'enfant, mode de contamination prépondérant de l'enfant. Notre travail contribuera à une meilleure connaissance sur la maladie et ainsi à une amélioration de la prise en charge de cette infection d'où son intitulé « infection à VIH chez les enfants nés de mères séropositives : cas de l'hôpital de district de new-Bell ».

Méthodologie: Nous avons mené une étude rétrospective transversale qui s'est déroulée sur une période de 24 mois allant de Janvier 2017 à Décembre 2018. Les informations nécessaires à notre étude ont été recueillies dans les registres de PCR préalablement réalisée à partir du sang du talon. Les données recueillies ont été analysées en utilisant Microsoft Excel et XLStat 7.5 pour la comparaison du variable via le calcul de Chi2 et la probabilité P considéré significatif au seuil 5%.

Résultats: Sur 195 patients 113 (58%) étaient de sexe masculin et 82 (42%) de sexe féminin et nous ont révélé que la tranche d'âge la plus représentée était de [0-17 mois] soit 194 (99%) contre 1 (1%) sur la tranche d'âge ≥18 mois. Globalement 7 enfants étaient infectée soit (3,6%). Malgré un lien statistiquement non significatif, les enfants de sexe féminin dont 5 (2,6%) étaient plus infectés. De même et la tranche d'âge [0-17 mois] étaient la seule infecté par le virus du VIH

Conclusion: Nous déduisons ainsi par ces résultats que malgré les efforts du gouvernement camerounais dans ces programmes dont celui de la protection mère enfant (PTME), la transmission verticale mère-enfant dans le cadre du VIH, demeure un problème majeur voire prépondérant qui nécessite encore plus d'attention ainsi qu'un suivi régulier de tous et en particulier les femmes VIH positif gravide pour l'atteinte de l'objectif de Zéro enfant infecté par le VIH de mère séropositive.

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Predictors of Exclusive Breastfeeding Practice among HIV-positive and HIV-negative Mothers Attending Tertiary Health Facilities in Gombe State, Nigeria: A Comparative Study – 2019

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Background: Breastfeeding is widely practiced in Nigeria, as in many African countries. Exclusive breastfeeding (EBF) during the first six months of life has been universally recognized as a best-buy intervention for prevention-of-mother-to-child-transmission, as well as for a high survival rate among HIV-exposed children. However, the general population EBF rate in Nigeria has been sub-optimal at 29%. In 2010, the infant feeding policy in Nigeria was revised, currently recommending EBF by all HIV-infected mothers, aimed at optimizing the HIV-free survival rate of their children. That revision brought these mothers under the same recommendation with their non-infected counterparts. This study aimed to compare EBF practices between the two groups and identify its predictors in either group.

Materials & Methods: We conducted a hospital-based comparative cross-sectional study among 254 mother-child pairs. Only children aged 6 -12 months were included in the study. The study participants were recruited using a systematic sampling technique at a ratio of 1:2 for HIV-positive to HIV-negative mothers, respectively. Using a pretested interviewer-administered questionnaire we collected data on socio-demographic characteristics of the participants; their knowledge and attitude towards the key infant feeding recommendations, and; their infant feeding patterns during the first six months of infant age. We determined factors associated with EBF practice using chi-square tests and logistic regression models with α = 0.05 considered as the level of significance.

Results: The mean ages of mothers in the two groups were similar (p=0.39): 31.0 ± 5.25 years and 31.7 ± 6.18 years for the HIV-positive and HIV-negative mothers respectively. The two groups were comparable in most of the socio-demographic characteristics assessed. Overall, 71.7% of all mothers practiced EBF with 79.8% (95% CI: 73.0-86.7) among HIV-positive and 67.7% (95% CI: 62.9-72.5) among the HIV-negative. HIV-positive mothers that delivered at the hospital were more likely to practice EBF than those who delivered at home [Adjusted odds ratio [(aOR)= 5.2; 95%CI: 1.1-25.4]. Among the HIV-negative mothers, the predictors of EBF practice were immediate post-delivery infant feeding counseling (aOR= 3.5; 95%CI: 1.1-11.4) and favorable attitude towards breastfeeding (aOR= 8.4; 95%CI: 3.3-20.0).

Conclusion: This study demonstrated that EBF practice is more prevalent among HIV-positive mothers, compared to the HIV-negative mothers, and the difference between the two groups is significant. Hospital delivery was the only significant predictor of EBF practice among HIV-positive mothers; while among their HIV-negative counterparts, positive attitude towards breastfeeding and immediate post-delivery feeding counseling were the predictors of EBF practice. We, therefore, recommended that the on-going intervention programs by government and partners should aim at ensuring hospital delivery by all HIV-positive mothers and promoting immediate post-delivery infant feeding counseling to HIV-negative mothers.

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INCIDENCE OF HIV INFECTIONS AMONG CHILDREN AGED LESS THAN 2 YEARS BORN FROM HIV INFECTED MOTHERS ATTENDING KCMC HOSPITAL IN MOSHI TANZANIA FROM JANUARY 2014 TO DECEMBER 2015.

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Introduction: By 2014 approximately 36.9 million people worldwide were HIV positive. With majority residing in SSA (71%). Due to increased ART coverage and services, global prevalence have increased while new cases decreased by 33% from 2001 to 2012. In 2012 children accounted for about 230000 new cases in SSA due to improved PMTCT services the incidence in children decreased by 38% between years 2009 to 2012. In Tanzania by 2012 approximately 1.5 million people were HIV positive, vertical transmission accounted for about 18% of new infections. This study looked at incidence of HIV infection in children aged < 24 months born from HIV infected mothers and risk factors for HIV infection in children.

Methodology: This was a hospital based retrospective cohort study conducted using data from January 2014 to December 2015 for children aged < 24 months attending the Child Centered and Family Care Clinic at KCMC hospital in Moshi in Kilimanjaro region. Data were extracted from the Preventive of mother to child (PMTCT) follow up attendance books for mother characteristics and the exposed baby follow up clinic where the results of DBS was extracted and child growth record. A questionnaire for data extraction was prepared and the data was analyzed using SPPS version 20.

Results: A total of 141 children born to seropositive mothers were enrolled, females were 55.3% (n=78) and majority 86.5 %(n=122) aged 0-20 weeks. The incidence of HIV infection was 14.2 %(n=20).
In multivariate logistic regression the risk of HIV infection in children less than 2 years old was higher in children delivered by C-section (OR=7.19, 95%CI 2.14- 24.20) Children who didn't receive nevirapine syrup(OR=19.5, 95%CI 5.67- 67.09), and children on mixed feeding(OR=4.86, 95%CI 1.72-13.69). Also not using ART during pregnancy was associated with HIV infection in the newborn by (OR=28.75, 95%CI 8.54- 96.81).

Conclusion: comprehensive care including highly active antiretroviral therapy to HIV infected women during pregnancy could reduce the risk of HIV in children. Programmes for PMTCT of HIV and extensive education to the sero converted mothers and the society in general could improve children survival and hence protect them from contracting HIV during infancy period.

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Perceived impact of an integrated program for Early Childhood Development and PMTCT in Malawi among mothers with exposed infants: a qualitative study

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Background: Early childhood development (ECD) interventions targeting caregivers within the first years of their child's life can improve ECD for children. They are particularly beneficial for HIV-positive mothers who face the dual burden of HIV-positive status and motherhood. Such interventions can be integrated into routine Prevention-of-Mother-to-Child-Transmission (PMTCT) programs. However, little is known about the acceptability and impact of integrated ECD/PMTCT interventions for mothers and their children.

Methods: We implemented an integrated ECD/PMTCT intervention in 6 health facilities in Malawi for HIV-positive mothers and their infants. WHO/UNICEF Care for Child Development (CCD) training sessions were offered during routine PMTCT visits between infant age 1.5 – 24 months. Between June-July 2019, we conducted in-depth interviews with 29 mothers enrolled in the intervention for ≥6 months across 4 health facilities. Interviews were stratified by site. The interview guide focused on perceived impact of the intervention on mothers' ECD and PMTCT practices, including barriers and facilitators, and unmet needs related to the program. Data were coded and analyzed using constant comparison methods in Atlas ti.8.

Results: Vast majority of mothers believed ECD/PMTCT intervention improved their overall experience with the PMTCT program. Mothers reported that facility staff became more friendly and approachable to mothers. Mothers felt more welcome at the health facility, and looked forward to the next visit in order to interact with other mothers and learn new ECD skills; unlike previous visits before the intervention. Mothers supported each other emotionally and financially, and encouraged each other regarding ART adherence and helped to reduce internalized HIV stigma.
Mothers believed their infants reached developmental milestones faster compared to children they observed at the same age. Facilitators to practicing ECD activities included being motivated by their infants' enjoyment and engagement in interactions, and support from family and friends. Barriers included work, illness, social commitments, and stress/depression. Women requested additional information and support in stress management, how to keep spouses happy, and income generating activities.

Conclusion: This integrated ECD/PMTCT intervention improved mother's experiences with PMTCT programs and health care providers, increased ECD practices such as responsive and stimulating parenting, and created social support networks for women with other PMTCT clients.

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HIGH LEVEL OF IMMUNOSUPPRESSION FOUND IN HIV-INFECTED ADOLESCENTS FAILING ANTIRETROVIRAL THERAPY IN TANZANIA

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Background: Adolescents living with HIV (ALHIV) have emerged as one of the most vulnerable populations in the HIV epidemic. Not only are mortality rates rising among ALHIV despite an overall decrease in the number of deaths due to HIV, but there is a lack of understanding of the major issues HIV-infected adolescents face and how to address them.

Materials & Methods: A retrospective chart review was performed examining ALHIV failing antiretroviral therapy (ART) at a pediatric HIV treatment center in Mbeya, Tanzania. All visits involving a viral load (VL) lab draw were examined between 2015 and 2018. Comparisons were made between children 0-9 years of age and ALHIV, 10-19 years of age.

Results: A total of 398 patients failing ART were examined; the average age was 12.4 years. Among those, 265 (67%) were between 10-19 years of age at the time of lab draw and 51% (201/399) were female. Compared to children aged 0-9 years, ALHIV were significantly more immunocompromised with an average CD4 count of 415 cells/mm3 vs. 1197 cells/mm3 (P < .00001). Moreover, significantly more ALHIV had CD4 counts less than 100 cells/mm3 (2/86 vs. 31/179; P = 0.000064), less than 500 cells/mm3 (19/86 vs. 120/179; P < .00001), and CD4% < 15% (9/86 vs. 69/179; P < .00001). Using the WHO classification for immunosuppression, significantly more ALHIV classified as severe (18/113 vs. 103/238; P < .00001) or moderate to severe (27/113 vs. 118/238; P < .00001). ALHIV were not found to have higher VLs (average 128,643 vs. 155,821 copies/ml; P = .531307 or median 11,429 vs. 15,145 copies/ml; P = .32708). They were on ART for a significantly longer period of time (41 months vs. 72 months; P < .00001) but other parameters including severe malnutrition, active tuberculosis, advanced WHO stage, protease inhibitor (PI) use, adherence listed as "poor", and outcome of lost to follow-up or death were similar between the groups.

Conclusions: ALHIV failing ART have significantly higher levels of immunosuppression than their younger counterparts including greater numbers with CD4 counts of less than 100cells/mm3 or classified as severely immunosuppressed. Interestingly, adolescents do not exhibit greater elevations in their VL.

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A comparative analysis of HIV-1 infant positivity rates between infants born of Adolescents or young mothers and adult mothers in Kenya.

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Background: Adolescents and young adults are defined as individuals aged 10-24 years of age according to WHO. From literature, this group is known to be at an elevated risk of HIV, since this is a time for exploring and navigating peer relationships, gender norms, sexuality, and economic responsibility. This also results in increased teenage and adolescent pregnancies. HIV testing and treatment services have put in place many strategies to take into account the special needs of this category of people. However, there are still a lot of challenges being experienced since many young people feel shy and may be anxious about being in the clinic or generally seeking HIV services. This could result in sub-optimal treatment outcome including slowing down the efforts being made towards PMTCT hence, increasing chances of vertical transmission of HIV from mother to infant through the various transmission methods. Adult mothers are presumed to be more enlightened and are therefore more likely to take responsibility for their health and that of their new-borns. The objective of this study was to compare HIV infant positivity rates between infants born of adolescents or young mothers and adult mothers living with HIV.

Methods: This was a retrospective cross-sectional study conducted using Early Infant diagnosis data abstracted from the NASCOP database in July 2019. Data for infants whose samples were sent to the laboratory for testing and whose mother's age data were available were included in the analysis. Odds ratio (OR) was calculated to determine the odds of the occurrence of a positive outcome in infants born of adolescents or young mothers compared to those born of adult mothers. Data analysis was conducted using Stata v13 for windows.

Results: A total of 10,226 infant samples were tested. 3,849 were excluded from the analysis since the mothers' age data or infant results were missing. 2,243 (21.93%) were born of adolescent and young mothers while the rest were born of adult mothers. The mean age of adolescent and young mothers was 21.57 years whereas that of adult mothers was 31.68 years. The positivity rate for infants born of adolescents and young mothers was 0.92% (n=2,243) whereas, for adult mothers, it was 1.40% (n=7,982). The odds of getting a positive outcome were 2.40 (95% CI 1.84-3.12) times higher in adolescent and young mothers compared to adult mothers and were statistically significant (p-value of 0.000).

Conclusion: This study shows higher positivity rates and higher odds of a positive outcome in adolescents and young mothers compared to their adult counterparts. This, therefore, indicates that the challenges being experienced in HIV treatment and management of this group haven't been dealt with completely and therefore waters down the efforts being made towards PMTCT. HIV program stakeholders should, therefore, put more effort to ensure optimal treatment outcomes in this group if MTCT of HIV is to be eradicated in the near future.

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How Do We Reach MSM at High Risk if We Can't Find Them? Challenges of Mapping MSM Hotspots in Eswatini

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Background: The World Health Organization recommends that key population (KP) programs conduct hot spot mapping, size estimation, and validation (MSV). We present our experience conducting MSV to guide program implementation for KPs, with a particular focus on experiences in mapping men who have sex with men (MSM) in the USAID/PEPFAR-funded LINKAGES Eswatini project led by FHI 360.

Methods: We used snowball sampling for MSV for KPs throughout the country in 2018 to identify female sex worker (FSW) and MSM participants for semi-structured interviews. Interviewing teams were comprised of KP trained interviewers. Participants were asked to identify existing and new hot spots and to estimate the number of FSWs and MSM at the hot spots. The identified hot spots were then independently validated. Quantitative data, mainly population size estimates, was collected using LINKAGES program tools.

Results: Whereas a total of 281 sites were identified and validated for FSWs countrywide, only 80 sites for MSM were identified and validated. Fifty-one percent (41/80) of MSM sites were bars that were not exclusively for MSM, and 34% (27/80) consisted of MSM homes. Sites were most active on Fridays and Saturdays, and 78% were not active during the week. Accessing some hot spots during the mapping was a challenge, as MSM tended to meet in private homes. As a result, such hot spots/safe spaces could not be mapped physically or located on maps. Of the 80 sites identified for MSM, only 34% (27/80) were accessible for GPS mapping.

Conclusions: Mapping and validation of hot spots are essential for KP programming. However, for MSM, privacy issues create barriers to knowing where to provide key services such as testing, condoms, and lubricant. In small communities, this is further compounded by stigma. Considerations of privacy need to be integrated into MSV in Eswatini to address the current challenges of finding hard-to-reach MSM.

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When 'something else' happens: rich data or inconvenient findings? Ethical and methodological challenges in research with adolescent boys and young men living with HIV

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Background: Novel qualitative and participatory methods have demonstrated potential to generate new knowledge about hard-to-reach populations in the HIV response. This abstract reflects on the use of participatory methods engaged to generate insights into the health practices of perinatally HIV-infected adolescent boys and young men growing up in the Eastern Cape Province of South Africa.

Despite being less likely to contract HIV, men are more likely to die of AIDS-related illness, less likely to adhere to ART, and less likely to be retained in the HIV cascade of care. The adolescent HIV epidemic presents further challenges, and AIDS-related illness is the leading cause of death among adolescents in sub-Saharan Africa.

Methods: Art-based life history narratives, multiple 'deep hanging out' interactions and in-depth semi-structured interviews with 35 adolescent boys and young men (ages 13-22) living with HIV over a period of 16 months. This research was designed with the aim to make participants comfortable and allow them to direct the content of interviews and express themselves in modes of their choice. Interviewers were young men themselves and were selected based on interpersonal characteristics of being non-judgemental, friendly and good with young people.

Findings: As hoped, participants engaged actively with interviewers, resulting in rich data. However, this approach also had unforeseen consequences. Participants spoke in-depth about traditional initiation/circumcision, a highly secretive topic taboo to outsiders and women. Their inputs suggested that this time poses a considerable challenge to medicines-taking and clinic attendance for initiates living with HIV. The lead researcher faced an ethical dilemma as a foreign woman in engaging with this data and sharing findings.

Another unexpected outcome of the research design was that many participants asked that researchers act outside of their research roll, requesting support on a variety of issues from fixing televisions to accessing grants, food and counselling for drug addictions. Approximately 25% of participants requested help, as opposed to 5% in the quantitative arm of the study. Such requests posed ethical and methodological dilemmas, with researchers wanting to support participants but avoid skewing findings and create unsustainable support structures. Limited resources and researcher vicarious trauma complicated these challenges.

Conclusion: The imperative to engage multiple, and novel methods to generate evidence to support the well-being of hard-to-reach (and research) populations is clear. However, the use of such approaches may come with unintended consequences. Strong protocols, planning and adequate resources are required to be prepared to respond quickly and ethically when 'something else' happens.

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Evaluating the Relationship Between Depression and Cognitive Function Among Children and Adolescents with HIV in Zambia

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Background: Multiple studies demonstrate a link between depression and cognitive dysfunction in adults, but the association has been minimally investigated in children and adolescents with HIV in Africa. This study evaluated the relationship between depression and cognitive function among children and adolescents with HIV at the Paediatric HIV Center of excellence in Lusaka, Zambia.

Methods: We conducted a prospective cohort study including 208 perinatally-infected children with HIV ages 8-17 taking antiretroviral therapy (ART) and 208 HIV-exposed uninfected controls. Cognition was assessed with a comprehensive neuropsychological battery. Depressive symptoms were evaluated using self-report and parent-report versions of the NIH Toolbox Sadness module and the Patient Health Questionnaire-9 (PHQ-9). Risk factors for depression and associations between depressive symptoms and cognition were evaluated in univariable and multivariable regression models.

Results: Subjects with HIV were more likely to have clinically significant depression than controls (22% vs. 9%, p=0.03), and were more likely to have cognitive impairment (45% vs. 15%, p<0.001). Risk factors for depression included self-reported poor health (OR 4.9, p<0.001) and negative life events (OR 1.3, p<0.001.) Depression was strongly associated with cognitive impairment (Unadjusted OR=2.3, 95% CI 1.2-4.4, p=0.01).

Conclusion: Depression is common among youth with HIV in Zambia, and is associated with cognitive impairment. The causal relationship between depression and cognitive impairment is unclear and should be evaluated in longitudinal studies.

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Amphetamine-type stimulant use and HIV risks among transgender women in Cambodia: a national survey using respondent driven sampling method

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Background: Globally, transgender women are among the most vulnerable to HIV. The use of amphetamine-type stimulants (ATS) is prevalent and associated with increases in HIV infections and several other negative health outcomes in HIV key populations. However, studies on ATS use among transgender women, particularly in low- and middle-income countries have been scant. In this study, we identified the prevalence and factors associated with ATS use among transgender women in Cambodia.

Materials & Methods: In 2016, we collected data from 1375 transgender women recruited from 13 provinces for the National Integrated Biological and Behavioral Survey using the Respondent-Driven Sampling method. We collected information on demographic characteristics, sexual behaviors, substance use, depressive symptoms, stigmatization and social support, gender-based violence, and adverse childhood experiences. Weighted multivariable logistic regression analysis was conducted to identify independent correlates of recent ATS use. This study was approved by the National Ethics Committee for Health Research (No. 420 NECHR).

Results: Overall, 10.4% of the survey participants reported ATS use in the past three months. After controlling for potential confounders, recent ATS use remained negatively associated with living in rural areas (AOR= 0.47, 95% CI= 0.26-0.84) and having higher level of formal education (AOR= 0.34, 95% CI= 0.13-0.88). For HIV risks, recent ATS use remained positively associated with involvement in transactional sex in the past three months (AOR= 2.70, 95% CI= 1.83-3.98). Recent ATS use also remained positively associated with other substance use including higher frequency of binge drinking (AOR= 5.37, 95% CI= 2.77-10.42) in the past three months. Regarding mental health problems, recent ATS use remained negatively associated with a feeling that co-workers or classmates were supportive regarding their transgender identity (AOR= 0.49, 95% CI= 0.30-0.78) and positively associated with having depressive symptoms (AOR= 1.80, 95% CI= 1.21-2.66) and experiences of emotional abuse during childhood (AOR= 2.12, 95% CI= 1.33-3.39).

Conclusions: ATS was the most common illicit drugs among transgender women in Cambodia. Our findings suggest that developing and implementing additional harm reduction strategies tailored to ATS use among transgender women are needed. Integration of HIV and mental health interventions into harm reduction programs should be more focused.

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Side effects, life transitions, and disclosure: Reasons for oral pre-exposure prophylaxis (PrEP) discontinuation among young women engaged in sex work in Uganda.

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Background: Uptake of PrEP remains far short of global targets and many studies in sub-Saharan Africa report high levels of dropout. Understanding why individuals may intentionally stop using an effective HIV prevention methodology could orient future programming around PrEP. This study examined the reasons for PrEP discontinuation among young women engaged in sex work.

Methods: In-depth exit interviews (n=15) and focus group discussions (n=4, 40 respondents) were conducted in Mukono district in Uganda with women who were enrolled in a PrEP demonstration project between December 2017 – July 2019. Thematic data analysis was conducted to identify perceived and experienced challenges around PrEP use and reasons for PrEP discontinuation.

Results: PrEP experience among respondents ranged from 1 - 12 months. Three key themes emerged as reasons for PrEP discontinuation, regardless of time on PrEP: side effects, life transitions, and disclosure. Respondents reported experiencing side effects including headaches, dizziness, blurred vision, nausea, and diarrhea. Most side effects subsided as soon as respondents stopped taking PrEP, but while on PrEP the severity of these side effects interfered with their daily lives and livelihoods. Second, key life transitions such as stopping sex work, settling down with one main partner, and becoming pregnant were also a motivation for PrEP discontinuation. These life transitions shifted the HIV risk perception among respondents and they no longer felt the need for PrEP. Finally, disclosure of PrEP use led to discontinuation. In a few instances, accidental disclosure of PrEP use resulted in rebuke from peers, partners, and family members. Among some participants, the similarity of the PrEP packaging to ART medication for HIV treatment caused persistent fear of being labeled as HIV-positive or revealing their engagement in sex work.

Conclusions: To enhance uptake of PrEP in similar populations, programs need to provide more supportive counseling to help manage the side effects associated with PrEP. Counseling sessions need to address how to maintain HIV risk reduction strategies during key life transitions. Further, PrEP packaging needs to be de-linked from HIV treatment, and PrEP messaging should aim to create broader awareness to reduce stigma.

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Optimizing uptake of Index testing services and partner elicitation by Index clients in 7 States in Nigeria: Effect of Integrated health messaging strategy

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Background: Index Testing (IT) is known to be an effective strategy for HIV case finding and assurance of an Index client's anonymity is fundamental to the success of IT services. Despite efforts made in scaling up IT in Nigeria, acceptance and sub optimal elicitation remains a challenge. The objective of this study was to assess the outcome of using an integrated health message approach to improve service uptake and partner elicitation during Index testing services offered to Index clients in a CDC funded HIV program in Nigeria.

Materials and Methods: IT service providers were trained on the use of integrated health message script (IHMS) for contacting sexual partners elicited by index clients. The script encouraged partners of index clients to take up free health checks supported by the government which included vital signs check, Hepatitis B, syphilis, malaria and HIV. Providers discussed this approach with index clients during IT initiation to encourage acceptance. An analysis of IT program data before and after the deployment of the IHMS was conducted to determine the rates of acceptance of Index testing services and partner elicitation rates using data from 165 health facilities across 7 states in Nigeria

Results: Prior to the application of the IHMS 15,941 (5,970 Male and 9,971 Female) HIV positive persons were offered index testing; 14,234(5407 Male and 8,827 Female) (89%) accepted the service; and elicited 24637 (14,231 Males, 10,406 Females) partners -1:1.7 partner elicitation ratio.
After the application of IHMS, 14,460(5,428 Males; 9,032 Females) were offered IT; 14,144 (5,329 Males; 8,815 Females) accepted the service and they elicited 36,119(21,360 Males and 14,759 Females) - 1:2.6 elicitation ratio. The acceptance rate before the application of IHMS was 89% (14,234/15,941) and 98% (14,144/14,460) after.

Conclusion: The use of an integrated health messaging and services approach for index testing services improves acceptance of the service by index clients and improves elicitation of more partners. This strategy eliminates the fear of intimate partner violence and stigma associated with disclosure and should be scaled up.

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A community-based intervention (Men's Spaces) to engage men in HIV and sexual health services in Malawi: a pilot study

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Background: Men continue to have worse health outcomes than women, including greater HIV-related morbidity and mortality. Gender disparities are, in part, due to men's underutilization of health services. Further, men have inadequate knowledge or perceived importance of their own health. We developed and piloted a community-based intervention, "Men's Spaces", for men to discuss their health concerns, gain information about their own sexual health risks and needs, and develop strategies to overcome barriers to men's use of health services.

Methods: We conducted formative study to inform the intervention design: in-depth interviews with men (n=20) and focus group discussions with married women and Health Advisory Committees (n=46) across four communities in Southern Malawi. The Men's Spaces intervention was piloted in the same villages and included a one-time interactive session with men aged 25-40 years regarding their sexual health, healthy intimate relationships, strategies to overcome facility-level barriers to care, and blood-pressure screening and HIV testing/treatment. Exit surveys and medical chart reviews were conducted following Men's Spaces. Data were collected between October 2018 – June 2019.

Results: Formative data show that men desired interventions focused on improving their own sexual health, strengthening romantic relationships, and promoting health seeking behaviour to facilitate income generation activities in the future. Men desired interventions with their peers in informal settings rather than formal, class-room style interventions. Men's Spaces was implemented with 183 men across four villages. The intervention lasted for an average of 3 hours with ~45 men per session. Attendees were mid-age (median 30yrs, IQR: xx, xx), 70% working, 61% had >2partners in past 12months, and 62% had not tested within 12months. All attendees reported they would attend Men's Spaces again and would encourage their peers to attend. 75% of attendees received HIV self-test (HIVST) kits and 44.3% used HIVST and immediately reported their test results to intervention staff. Six (7.4%) men were newly diagnosed as HIV-positive and five (83%) initiated ART that same day.

Conclusions: Men were ready and willing to engage in health services and desired interventions focused on their own sexual health, strengthening romantic relationships, and income generation. A community, peer-based intervention was feasible and acceptable for men.

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PrEP as a potential solution in Yangon, Myanmar to address high behavioral risk for HIV acquisition among men who have sex with men and transgender women: A mixed-methods assessment

_Oo A[1]_

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Back ground: The HIV epidemic is concentrated among men who have sex with men (MSM) and transgender women (TG) in Myanmar. Though included in the Myanmar National Strategic Plan on HIV and AIDS, PrEP is unavailable and research on key populations' readiness and willingness for PrEP remains limited.

Methods: A mixed-methods, explanatory sequential assessment was conducted among MSM and TG (N=573), recruited via respondent-driven sampling in Yangon between November 2016-June 2018. Participants completed sociobehavioral surveys and HIV testing. Measures of PrEP knowledge and acceptability were later added to the survey and completed by 397 participants. Qualitative interviews among a maximum variable sample (n=20) of survey participants were conducted in May-June 2018 to further explore perceptions of PrEP

Results: Among 501 HIV-uninfected MSM and TG participants, 33.9% reported ever exchanging sex for money, 79.1% of those with regular male partners did not know their partner's HIV status, and only 4.2% reported condom during last receptive anal sex with a regular male partner. Among 72 participants with laboratory-confirmed HIV infection, 43.1% reported being in a stable sexual relationship and 73.3% did not know the HIV status of their regular male partner. Among 397 participants who completed the PrEP survey, 12.6% had ever heard of PrEP. Among self-reported HIVinfected participants, 98.2% wanted their partner(s) to take PrEP. 94.0% of self-reported HIV-uninfected participants indicated interest in taking PrEP themselves. Qualitative interviews corroborated high perceived benefits of PrEP among these populations. Increased risk behaviors, medication side effects, daily regimen, and low perceived risk of HIV were anticipated barriers to PrEP.

Conclusions: High behavioral risk among HIV uninfected prevent HIV acquisition in this context. Sexual partnership structures among HIVinfected participants highlight an opportunity to prevent serodiscordant transmission. These findings substantiate the addition of PrEP to a comprehensive package for HIV prevention among priority populations in Myanmar.

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Treatment outcomes of HIV infected children, adolescents and young adults failing second line antiretroviral treatment at Newlands Clinic, Zimbabwe from 2014-2019

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Background: To address challenges of adherence in children, adolescent and young adults failing second line antiretroviral therapy (ART), Newlands Clinic introduced adherence intervention for these patients as either group therapy or individual counselling by nurses. We report treatment outcomes as at 31 December 2019 for patients who received adherence support between January 2014 and December 2019.

Methods: We retrospectively reviewed electronic clinic records for all children, adolescents and young adults failing second-line ART. Treatment failure was defined by a viral load greater than 200copies/ml. The patients underwent adherence support in groups averaging eight to twelve members or as individuals by a nurse. The group intervention involved is a 12-week adherence counselling program of one and a half hour long sessions. It is part of routine care at Newlands Clinic, where young people presenting with a high viral load and/or require treatment switch to an effective regimen are referred for adherence support. This aims to facilitate readiness to switch treatment and improved adherence that translates to positive treatment outcomes. Each participant has a baseline viral load done pre and post therapy. Additionally, routine follow-up VL is measured at 3, 6, 9 and 12 monthly intervals to assess virologic re-suppression, maintenance and progress. The intervention includes formulated individual plans which include continued enhanced monitoring by the respective nurse, who will also focus on both biomedical and psychosocial factors. Peer counselor follow-up sessions, individual psychotherapy. We used descriptive statistics to characterize patients' demographic and clinical parameters.

Results: A total of 111 children, adolescents and young adults failed second line between 2014-2019 and received adherence support. The median age at time of treatment failure was 18 years (IQR:16-20). 61 (55%) patients were male, and 50(45%) patients were females. As of 31 December 2019, there were 93 patients in care, 9 patients had transferred out, 7 had died and 2 had been lost to follow up. 45(48.4%) re-suppressed (VL<200 copies/ml) on second line. 23 (24.7%) patients were switched to 3rd line. 21 patients of those who had been switched to 3rd line had viral load loads less than 200 copies/ml. 25 (26.9%) patients with unsuppressed VL are still on second line ART because they have not met eligibility criteria for third line ART. Of these 6 patients had a viral load <1000 copies/ml and 19 have viral loads greater than 10000 copies/ml.

Conclusion: Adherence support plays a crucial role in achieving and maintaining viral suppression in children, adolescents and young adults. Young people can achieve good treatment outcomes after second-line ART failure.

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Cervical Cancer Knowledge and Attitudes among HIV-Positive Men in Malawi: A qualitative study

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Background: Malawi has the highest burden of cervical cancer. Studies show that engaging men in women's reproductive health services improves women's use of services and health outcomes. However, little is known about men's knowledge and opinions of cervical cancer disease, screening and treatment services. We explored HIV-positive men views of cervical cancer to inform strategies to increase women's uptake of screening and treatment.

Methods: In-depth interviews were conducted with HIV-positive men who reported having a female partner at a large, free antiretroviral therapy (ART) clinic in Lilongwe, Malawi to assess their knowledge and opinions about cervical cancer, screening, and treatment. Data were collected between June – July 2019. Qualitative data were analyzed via thematic coding, and compared by respondent age and whether his partner has ever been screened for cervical cancer or not.

Results: We interviewed 109 men, median age 44 years (IQR 40,50). Men had a general knowledge about cervical cancer and transmission, with most correctly identifying sexual risk factors, particularly younger men. However, the majority of respondents – those with screened partners and those without -- were unable to describe screening procedures. Most men nonetheless believed it was important for their partners to screen for cervical cancer, and that they should support their partners through encouragement and accompanying their partners for screening. Men were generally not concerned about safety or discomfort associated with screening, but some older men expressed concerns about service provision by male providers and worried about sexually inappropriate behavior from male providers during a screening. Among strategies for male engagement, some respondents suggested working with community leaders and through community outreach meetings to improve men's knowledge to better assist their partners.

Conclusions: Men have limited knowledge about cervical cancer screening, but high stated willingness to support screening and treatment. Programs should aim to educate men about cervical cancer, and promote partner involvement in screening and treatment. Strategies should also consider men's concerns around provider gender

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Becoming men: Health practices of adolescent boys and young men living with HIV in the Eastern Cape Province of South Africa

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Background: Men are less vulnerable to HIV acquisition than women, but have poorer HIV-related outcomes. They access HIV services less often and later, and are more likely to die while on antiretroviral therapy (ART). The adolescent HIV epidemic presents further challenges, and AIDS-related illness is the leading cause of death among adolescents in sub-Saharan Africa. Such deaths have tripled since 2000, while declining in all other age groups. There is a clear need to better understand health practices for adolescent boys and young men living with HIV, and the processes through which these practices are formed and sustained.

This study explores the biosocial lives of adolescent boys and young men living with HIV in the Eastern Cape Province of South Africa.

Methods: The Ezobudoda ('manhood things') study was conducted with vertically infected adolescent boys and young men (ages 13-24) living with HIV (n=35). Methods including art-based life history narratives (n=35), in-depth, semi-structured interviews (n=38) and analysis of healthy facility files (n=41) with adolescent boys and young men. Semi-structured in-depth interviews with traditional and biomedical health practitioners (n=14) were also conducted. Ezobudoda is a sub-study of a mixed-methods study on the medicines-taking of adolescents living with HIV (n=1059) in South Africa's Eastern Cape province.

Results: Norms of masculinity created challenges for adherence to ART and health facility attendance as participants became older. This was most apparent during and following traditional initiation/circumcision, where societal norms made it difficult to engage with biomedical treatment and care.

Although most participants accessed traditional health products and services, none did so for HIV-related issues, a finding that deviates from much of the literature. This suggests that participants developed different health practices as a result of having grown up deeply embedded in the health system, demonstrating that health practices are mediated not only by gender and culture but also childhood experiences of illness.

Conclusion: ART adherence and clinic attendance for adolescent boys and young men living with HIV are strongly shaped by masculine norms and childhood experiences. Understanding these norms is crucial to improving policy and programming. Triangulating across participatory and more traditional methods can generate new knowledge of health practices among hard-to-research populations.

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Factors Associated with Condom Use among Fishing Communities on Koome and Buvuma Islands, Uganda

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Background: Fishing communities, described as residents of a geographic area whose primary economic activities are tied to fishing, have high risk of acquiring HIV and other sexually transmitted infections. The Ugandan Ministry of Health identifies them as priority populations for intensified provision of HIV prevention, care and treatment services. As part of a PEPFAR-funded, multi-phase study exploring optimized ways to deliver HIV services on Koome and Buvuma Islands, we described condom use and explored associated factors in this population.

Methods: This prospective cohort study enrolled consenting adult residents at 3008 randomly selected households on Koome and Buvuma Islands to monitor new HIV infections and sexual behavior. The second round of data collection took place between March - November 2018. Participants were interviewed using a structured questionnaire and donated blood for HIV, syphilis, and Hepatitis B testing. Consistent condom use was defined as always using condoms with every type of sexual partner. We estimated HIV prevalence and described independent variable frequencies and means. We explored unadjusted and adjusted associations with consistent condom use. Bivariate analyses (chi-square for categorical predictors and t-tests for continuous predictors) were conducted and robust Poisson regression models were used to evaluate associations between select predictors and condom use. Variables were chosen based on a priori knowledge and significant bivariate associations (p<0.05). The study was approved by the Makerere University and Walter Reed Army Institute of Research institutional review boards and the Uganda National Council for Science and Technology.

Results: Among the 2262 participants interviewed in the second round, 3.4% reported consistent condom use with any type of sexual partner. Consistent condom use with steady partners was 3.2%, 41.8% with casual partners, 52.0% with commercial sex clients, and 60.8% with sex workers. Among those with a known serodiscordant relationship, 34% reported always using condoms. The following factors were independently associated with consistent condom use with all partners: residence on Koome Island [aPR:1.76; 95% CI:1.07-2.90]; being divorced or widowed [aPR:4.91; 95% CI:2.85-8.47]; engagement in sex work [aPR:2.13; 95% CI:1.18-3.84]; positive attitudes towards condoms [aPR:3.70; 95% CI:1.41-9.72]; and positive perceived social norms towards condoms [aPR:2.35; 95% CI:1.25-4.42]. Age 25-34 [aPR:0.31; 95% CI:0.16-0.58] and ever performed intimate partner violence [aPR:0.43; 95% CI:0.25-0.76] were inversely associated with consistent condom use with all partners. In the gender-specific multivariate model, residence on Koome island, divorced/widowed status, and age were independently associated with consistent condom use for both males and females. Engagement in sex work and attitudes towards condoms were associated with consistent condom use only among females, perceived social norms were associated with consistent condom use only among males.

Conclusion: Consistent condom use was extremely low in the fishing communities of Koome and Buvuma, even with high-risk partners. Young adult men and residents of Buvuma Island are lagging in condom use. Condom promotion should focus on these subpopulations, but also on sex workers and their clients. Data suggests that condom messaging should be gender-specific, with focus on addressing social norms for men and attitudes for women.

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Psychological wellbeing of children orphaned by HIV/AIDS: A comparative study in public primary schools of Jimma town, Southwest Ethiopia

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Back ground: In developing countries the number of children orphaned by AIDS is growing rapidly. Consequently, the psychological well-being of these children has become a serious concern. This study explored and compared the psychological status of orphan and non-orphan children in Jimma town, Ethiopia.

Methods: A comparative cross-sectional study was employed on 270 children who were between 10-18 years of age. Eighty five orphaned children (those who lost at least one parent due to HIV/AIDS) and 185 non-orphaned children (control, who had two parents alive) were selected by systematic sampling technique from child clubs of selected schools. The psychological wellbeing of the orphans and non-orphans was measured using the psychological wellbeing scale. The scale consists of a series of statements reflecting the six areas of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. Higher scores on each scale indicate greater wellbeing on that dimension.

Results: A total of 270 children (85 orphaned and 185 non-orphaned children) were included in the study. About 61.2% (52/85) of orphaned and 60.5% (112/185) of non-orphaned children were females. In terms of age, 62% of orphaned and 80% of non-orphaned (controls) were found between age groups of 10-14 years. Our findings demonstrated that orphaned children (children from HIV/AIDS-affected families) showed significantly lower total psychological wellbeing (t=6.05, p=0.001), autonomy (t=3.06, p=0.002), environmental mastery (t=3.7, p=0.001), positive relation with others (t=4.32, p=0.000), and self acceptance (t=5.58, p=0.000) than those from unaffected families (non-orphaned). The main psychological problems of orphaned children included lack of confidence in their opinions, lacks sense of control over external world, frustrated in interpersonal relationships and feeling dissatisfied with self.

Conclusion: The psychological wellbeing of orphaned children was lower than those of non-orphans (controls). Our study illustrates that HIV/ AIDS has impacted negatively on the psychosocial wellbeing of children. Thus, a new type of orphan support project which provides not only material support but also psychosocial support is required to improve the quality of life of children orphaned by HIV/AIDS.

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Enhancing dialogue between parents and children to improve healthy behaviours for HIV prevention and Sexual Reproductive Health

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Background: A child is anyone aged below 18 years (UN-CRC). 44% of Nigeria's population are under 15years (NDP 2018). 0.2% of children aged 0 -14years old and 29% aged 15-29 years old are living with HIV (NAISS 2018). Knowledge of HIV transmission (27%) and prevention (57%) is low. 54% of girls and 19% of boys have had sex by age 18 (NDHS 2013); while 17% of young people know their HIV status. Strategic in the National HIV Strategy for Adolescents and Young People (AYP) 2016-2020 is development and dissemination of communication tools to facilitate discussions between parents and children.

Materials & Methods: The aim of this parent child communication (PCC) toolkit is to equip parents with knowledge and communication skills to appropriately dialogue with children and improve their access to appropriate SRH services in Nigeria. For an evidence-informed practical resource to support partnership in all forms child's learning, data was extracted from 2014 Integration Behavioral and Biological Sentinel Survey (IBBSS). Desk review of existing PCC related materials and online discussions with 100 parents and 50 children was conducted to identify contextual issues/ gaps and guide the development of a national PCC-toolkit. 92 participants representing states, parents, children, civil society, PLHIV, implementers and advocates, United Nations, child focused federal ministries and national SBCCTWG met and articulated issues identified into a PCC-toolkit. It was field tested in the UNESCO's O3 project states. A consensus was reached to nationally use the toolkit to improve dialogue between parent and children to better-quality healthy behaviours.

Results: There is dearth of data on PCC for HIV and SRH from national surveys. The review of existing parenting documents and discussions with 100parents and 50children revealed a number of heartrending barriers to open parent-child dialogue concerning HIV and SRH to include religious/social values, lack of unpretentious sexuality evidence/ communication knowledge/skills, and assumptions that mothers are responsible for parent-child communication on health/sexuality issues. It was evident that good parent-child communication promotes healthy behaviors, A national consensus was reached by stakeholders in child development, education, health communication, HIV and SRH on the toolkit's content to cater for the needs and close the gaps in parent-child dialogue. 2000 copies of the toolkit were printed, while capacity of 1000 persons (parents and implementers) built on use of the toolkit at the dissemination. Communication on HIV prevention and SRH issues is now nationally entrenched in parenting for factual information and cognizant resolutions among children.

Conclusions: Parenting should reflect the intricacies of raising a child and not exclusively for a biological relationship The parent child communication (PCC) toolkit should be maximally utilized by parents in applicably discussing with children and improving their access to appropriate and factual HIV prevention and SRH services in Nigeria. The national response should build capacity of implementers and parents on the use of the toolkit across the country. One of the consensus reached was to roll-out national implementation plans PCC interventions and develop PCC-indicators for the national HIV prevention response to close the gaps in parent-child dialogue.

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Knowledge and attitudes of women at reproductive age towards HIV/AIDS in Sudan

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Introduction: HIV is a major health problem in the globe, where approximately 37.9 million people live with this virus. Abound 1.7 million of new HIV cases has been reported by the end of year 2018. Women at reproductive age have a great role in transmission of HIV if they are mother infected with this disease. Women knowledge and attitudes on the HIV transmission method contributes in preventing to get infection with this virus. The aim of this study is to determine the knowledge and attitudes of women at reproductive age towards HIV/AIDS in Sudan.

Method: This study was based on a secondary data collected from the Sudan Multi indicators Cluster Survey (MICS in 2014. Knowledge, perception variables were included in the analysis. Knowledge was measured using (9) items, and attitude was measured using (4) items. These items included variables such as age, gender, marital status, wealth index status, residence, and the level of education. A descriptive analysis was done to present the variables frequencies. Univariate analysis was used to check for any associations between dependent and independent variables. The p- value < 0.25 was used as a cut-point to included variables in the multiple logistic regression model, assuming no interaction. Best model was selected based on the likelihood ratio test.

Results: A total number of 13460 women at reproductive age from 18 states of Sudan were included in this study. A total number of 8132 (60.4%) women were resident in urban areas, while 5328 (39.6%) women were living in rural areas. The majority of women are at the age group 25 -29 (2532). The analysis showed that 78.8% of women said that HIV/AIDS can be avoided by having one uninfected partner. On contrary, 27.4% of women believe that mosquitoes can transmit HIV/AIDS. General knowledge of women at reproductive age regarding HIV/AIDS transmission was very low (22.2%) , and correct attitude of women also was low (37.1%). Multiple logistic regression analysis indicated that the level of education, age 35 -39 and 45-49, live in urban areas, and rich women are associated with the high level of HIV/AIDS knowledge. High wealth indicators, level of education and living in urban areas are statistically associated with the good attitudes of women towards people with HIV/AIDS.

Conclusion: Analysis of this study showed that knowledge and attitudes of women at reproductive age regarding HIV/AIDS transmission was very low. Raising awareness of women at reproductive age HIV/AIDS are highly required.

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"It is bulletproof" correlates of perception on the protective effect of male circumcision in Malawi

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Background: Voluntary male medical circumcision (VMMC) is among the cost-effective health interventions that have been scaled up to combat new HIV infections. However, uptake in Malawi is still very low and below the intended target. Perceptions regarding the protective effect of VMMC might be some of the contributing factors contributing to low uptake. As such, this paper -is the first to use nationally representative data after VMMC scale-up and aimed to find the correlates of understanding of the VMMC protective effect.

Methods: We used data from the Malawi Population-based HIV Impact Assessment (MPHIA). The MPHIA used a multistage cluster sampling method with a random selection of enumeration areas and households. Only household members who had slept in the household the night before, aged 15 -64 years, were eligible for participation. Our analysis was in two levels, univariate and multinomial logistic model.

Results: Regarding whether circumcised men do not need a condom to protect themselves from getting infected with HIV, 10% agreed, 69% disagreed and 21% were unsure/did not know. On whether male circumcision alone reduces the risk, or chance of a man getting HIV 13% suggested that it completely protects against HIV, 56% indicated that it somewhat offers protection, 8% said it does not completely offer protection and 23% did not know or were unsure. Concerning whether men who are circumcised can have multiple sexual partners and not be at risk for HIV, 9% agreed, 72% disagreed and 20% were not sure. Analysis from the multinomial regression confirmed that the following factors increased the likelihood of correct understanding regarding circumcision: a higher education, a higher socio-economic, a higher wealth status, living in urban, and ever having an HIV test.

Conclusion: The findings suggest that there is a huge proportion of respondents who still have no clear understanding of the protective effect of male circumcision. Regarding policy implication, this calls for more campaigns and strategies to disseminate correct information on circumcision regarding its protective effect, risk factors and benefits. Furthermore, integrating this information in the school curriculum could be another effective way of ensuring increased knowledge and awareness among learners who form a large part of those that are eligible.

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Perceived causes of mental health issues among female sex workers, and community response including stigma, Maisha Fiti study, Nairobi, Kenya.

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Background: Many sex workers suffer from mental health problems, but do not seek help while others are not aware of the situation there are in. The community response to people with mental health issues is inadequate. Maisha Fiti, a study on women's health and experiences in Nairobi was conducted in 2019. The objective being how violence, mental health, alcohol and substance use affects their health and well-being.

Methods: In-depth interviews with 40 FSWs. Female sex workers participants gave perceptions on what causes mental health and how the community perceives people with mental health issues. Interviews were recorded, transcribed and analyzed thematically.

Results: Mental health issues were equated   to madness while others thought one has mental health issues when they talk alone. Perceived causes of mental health included violence from clients and intimate partners, genetic, witchcraft, poverty, stress, death, and relationship breakdown. The community response is positive or negative to the affected persons depending on the cause. If it is inborn they sympathize but when it occurred later in life they do not. People suffering from mental health issues are highly stigmatized and discriminated. Their families neglect them and even lock them up in isolated places.

Conclusion: More interventions that aim to increase mental health sensitization should be put into place. Sex workers and the community still need basic information about taking care of people who have mental health issues.

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What matters most to adolescents living with HIV in South Africa? Analysis of aspirations and self-perceptions from a large cohort study.

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Background: Adolescence is a crucial stage when life aspirations emerge. Having aspirations and positive self-perceptions have been linked with better health outcomes in adolescents. However, the aspirations and self-perceptions of adolescents living with HIV (ALHIV) could be limited due to poor mental health and stigma they encounter. The overall aim of the study is to describe and compare aspirations and self-perceptions of ALHIV and adolescents not infected with HIV in South Africa.

Methods: A cross-sectional study interviewed adolescents in South Africa in 2014-2015. Study participants were aged 10-19, 55% female, and included ALHIV n = 1064 and uninfected peers n = 455. Qualitative and quantitative descriptive analysis was conducted on three open-ended questions which asked (1) what would they do as president (2) their job aspirations, and (3) what they are most proud of about themselves. Associations between major themes identified from qualitative analysis and HIV status were evaluated using bivariable and multivariable logistic regression adjusting for sociodemographic factors.

Results: In qualitative findings, adolescents reported a strong desire to change their social circumstances, especially related to housing (41%) relative to 9 other themes identified in question (1) (all mentioned by <15% adolescents). A high percentage of adolescents reported aspirations for careers requiring tertiary education, including Health Care Professionals (68%). However, over 55% of the participants reported delayed grade progression – being at least one grade behind their expected grade-for-age. Nonetheless, adolescents were most proud of their educational achievements (22%) relative to 9 other major themes identified from question (3). In multivariable analysis, HIV status was not found to be a significant predictor of aspirations and self-perceptions identified from participant responses.

Conclusions: Future policies should focus on closing the gap between adolescents' perceived value of education and future aspirations, and the current reality of social and economic inequalities in South Africa. Furthermore, the absence of differences in self-perceptions and aspirations by HIV status supports youth-friendly HIV-sensitive programming of these policies. Including ALHIV in programmes alongside other equally underserved and underprivileged adolescents also helps to avoid stigma. Future interventions can help adolescents achieve their aspirations and positively influence their self-perceptions to improve their psychosocial well-being. This could help improve adolescent health behaviours, including better adherence to antiretroviral therapy.

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Depression literacy among people living with HIV/AIDS in a Nigerian tertiary hospital.

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Background: Depression is the most prevalent psychiatric comorbidity linked with HIV infection. Depression have been shown to have a bidirectional relationship in which depression can increase risks of getting infected with HIV and be triggered by a diagnosis of HIV infection, in people living with the virus. Depression has been consistently shown to impact negatively on HIV-infected patients, significantly decreasing their adherence to ART treatment, quality of life, treatment outcome, and functionality. Mental health literacy has been defined 'the knowledge and beliefs about mental disorders which aid their recognition, management or prevention. It is thus important to assess the Mental Health Literacy of People Living with HIV/AIDS (PLWHA) since it has been shown to influence varied population's mental health-related choices, particularly their help-seeking for psychiatric symptoms. Mental Health Literacy of depression among PLWHA is of interest since depression is about 4-5 times more prevalent in this population compared to the general population. This study aimed to assess the depression literacy, risk perception and preferred source of help for depression among PLWHA.

Methods: It was a cross-sectional descriptive survey. The D-lit questionnaire was used to assess depression literacy among HIV-positive patients receiving care in a tertiary hospital. Data analyses were performed with IBM Statistical Product and Services Solution for Windows V.21.0. Descriptive analyses were performed to characterize the survey sample. The open-ended responses were grouped based on the similarity of thematic content and frequencies/percentages reported. Kruskal-Wallis and Mann-Whitney tests were carried out to compare independent variables with significance set at <0.05.

Results: A total of 188 out of 351 questionnaires distributed were completed (53.71% response rate). About 53.2% of the respondents (n= 100) had depression knowledge scores less than the average score of 10.54±2.032. Males had statistically significant higher depression literacy scores than females. The majority of the respondents reported that they will seek help from their primary care physician (47.9%, n = 90) while less than one-fifth of them opted to seek help from a psychologist (18.6%, n =35). A greater proportion of males recommended seeking help from a psychologist compared to females (25.0%, n =12 Vs. 16.4%, n =23).

Conclusion: Several studies have established the association between HIV infection and depression, however, this is the first attempt at finding out what PLWHA know about depression. The PLWHA surveyed had a fair knowledge of depression and the majority felt they were not at risk of getting depressed. Education was significantly associated with depression literacy scores in this study. A majority of them reported that they would seek help for their primary care physician thus underscoring the importance of routine depression screening among this population. Depression knowledge is an essential part of preventing the debilitating effects of depression coexisting with chronic conditions such as HIV infection. Integrating mental health literacy tools into HIV care can improve early detection and appropriate referrals in this population.

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Time perspectives as predictors of depression and suicidal ideation among adolescents and young adults with HIV : the moderating role of resilience.

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Introduction: The survival rate of HIV positive people has raised the awareness of the need to take into account mental health issues, as mental disorders like depression and suicidal ideation have been observed to contribute to the burden of disabilities. Findings suggest that depression and suicidal ideation have significant interaction with time perspectives which in turn can be of implication to the mental health of HIV patients. Time perspectives refer to individuals' thoughts and feelings toward the past, present, and future and a proper balance between them are considered preconditions for mental health, and personal happiness. Therefore, this study investigated the influence of Time perspectives on depression and suicidal ideation among adolescents and young adults with HIV, and the moderating role of resilience.

Method: An Ex post factor cross-sectional research study recruited 102 adolescents and young adults with HIV. Time perspective was structured in 6 dimensions: past positive, past negative, present hedonistic, present fatalistic, future positive and future negative. Structured questionnaires were administered and the data was analyzed.

Result: Findings revealed that time perspective had a significant influence on depression (R^2= 0.35; (6, 81) = 7.36, P≤0.001), jointly accounting for 35% variance. Present fatalistic contributed the best, followed by Past negative, and future positive. Time perspective also predicts suicidal ideation (R^2= 0.19; (6, 86) = 7.36, P≤0.01), jointly accounting for 35% variance. Present hedonistic contributed the best, followed by future positive and future negative. When the moderating role of resilience was explored, it was significant for depression (R2 = .30; ΔR2= .28; (6, 81) = 7.74, p< .05) and for suicidal ideation (R2 = .15; ΔR2= .11; (6, 85) = 3.31, p< .05). While controlling for resilience only past positive, past negative and present fatalistic independently predicted depression, only present hedonistic and future positive independently predicted suicidal ideation.

Conclusion: Considering the impact of past negative, present fatalistic and negative future orientations on depression and suicidal ideation, and the impact of individual resources such as resilience in alleviating these mental health problems, it is recommended that policies and treatment plans should include time perspective and resilience therapy in the consequent treatment of mental health issues among these population in-order to achieve sustained viral suppression.

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Interpersonal Patient Satisfaction Factors more strongly correlated with Retention in Care than Structural Factors among Adults receiving HIV Services in rural Mozambique

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Background: Retention in care is compromised by multiple factors. Patient satisfaction, reflecting service quality, potentially acts as a covariate influencing retention. The study aimed to assess satisfaction among adults receiving HIV services in Zambézia Province, Mozambique, and its association with 6-month retention.

Materials & Methods: Exit-interviews with HIV-positive adults were completed between December 2017-February 2019 in 20 health facilities. Satisfaction surveys, using a 4-tiered Likert scale (not satisfied, somewhat satisfied, satisfied, very satisfied), assessed eight components: wait time, availability of health professionals, respect, attention received, information received, opportunity to ask questions, usefulness of providers, and overall evaluation. Clinical data were extracted from electronic patient files. Regression analyses assessed the effect of combined satisfaction scores on retention (defined as having an antiretroviral therapy pick-up in the period between 5.5 and 8.5 months from interview date), using restricted cubic splines with three knots, adjusting for age, sex, education, health facility type and district. Individual logistic regressions measured the impact of individual satisfaction questions on retention, adjusting for the same factors.

Results: Among 2,749 interviewed adults, mean age was 33 years (standard deviation (sd) 10 years); 2,036 (74%) were female and 305 (11%) had no formal education. Overall mean satisfaction score was 69% (sd 19%). By varying the satisfaction score from first to third quartile, the odds of being retained was 2.01 (95%CI: 1.56–2.60) for women and 1.76 (95%CI: 1.18–2.61) for men. Patients who reported being very satisfied with the waiting time were more likely to be retained in care at six months than those who reported being not satisfied (OR 1.13; 95%CI: 0.91-1.40). Similarly, the odds of being retained in care were also substantially higher among patients who reported being very satisfied with respect to the information received (OR 2.56; 95%CI: 1.55-4.23), with the opportunity to ask questions (OR 3.22; 95%CI: 1.92-5.41), and by being cared for (by health care providers) with respect (OR 2.10; 95%CI: 1.35-3.27), when compared to the group who reported being not satisfied.

Conclusions: While patient satisfaction regarding wait time was weakly correlated with retention, interpersonal factors related to the provider-patient interaction appeared to be the main drivers of retention. A positive health worker's attitude, provision of undivided attention towards patients, and delivering comprehensive information about the patient's health increased satisfaction and retention to care. In order to promote empathetic care, clinical mentoring should be directed towards improvement of interpersonal communication skills.

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Risk compensation and risk of transmission and reinfection of HIV among HIV+ female sex workers using modern contraceptive in Zambia

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Background: Preventing pregnancy is often a greater concern to sexually active unmarried women in Zambia than preventing HIV/STIs. This is of particular concern among HIV positive female sex workers (FSWs) who are at high risk of HIV reinfection and transmission. Using modern contraceptives helps HIV positive female sex workers to prevent pregnancy, but puts them at greater risk of HIV reinfection and transmission. This analysis assessed risk compensation and risk of reinfection/transmission of HIV/STI among HIV positive female sex workers using modern contraceptive in Zambia.

Method: In March–July 2017, women 18 years and older reporting exchanging sex for money in the past six months were recruited via respondent-driven sampling to participate in an integrated bio-behavioural survey— administered in Lusaka, Livingstone, Ndola and Solwezi Districts. Low condom use was defined as using condoms in less than half of their sexual encounters in the past 12 months. Among the 965 HIV positive female sex workers, bivariate chi-square, logistic regression and treatment effect analysis were conducted to assess the causal effect of modern contraceptives on condom use.

Results: The median age of the sample was 30 years. Almost half (45%) were formally cohabiting with a male partner and 35 percent had a primary school education. Modern contraceptive use was moderately prevalent (54%) and among those, 17 percent had low condom use. Injectable contraceptive use accounted for 20 percent and bivariate analysis shows that injectable contraceptive use was significantly associated with STIs (p=0.004). After controlling for sociodemographic variables, female sex workers using injectables had higher odds (AOR=1.6, CI= [1.02-2.41]) of low condom use. Average condom use falls by an estimated 6 percent when every woman is on injectable contraceptive relative when no woman is on injectable contraceptive.

Conclusion: Female sex workers who are HIV positive , and at risk of HIV transmission or reinfection, are less likely to use a condom, in particular when they are already using an injectable contraceptive method for pregnancy prevention. Therefore, modern contraceptives should be provided to female populations at higher risk of HIV and STIs complimentarily with condoms.

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Is manufacturer's Instructions-For-Use sufficient in a multilingual and low literacy context? The example of HIV self-testing in West Africa

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Background: The ATLAS project aims to promote the use of HIV self-testing (HIVST) in Côte d'Ivoire, Mali and Senegal. In order to ensure accurate HIVST use, it was necessary to evaluate if the manufacturer's Instructions-For-Use (IFUs), standardized at the international level, provides complete, accessible and adapted information in the 3 countries' contexts.

Materials & Methods: In December 2018, cognitive interviews were conducted with 64 participants, mostly Men who have Sex with Men (40,6%) and Female Sex Workers (43,8%) in Côte d'Ivoire, Mali and Senegal. Among them, 17,2 % never performed HIV test before and 38% of participants cannot read. They were invited to perform an oral HIVST (OraQuick®) and were requested, at each step of the procedure to share their understanding of the IFU for HIVST use, of the result interpretation and of related actions to be taken. All participants had in hands the manufacturer's IFUs in French, including the free national hotline number. Half of them additionally received manufacturer's demonstration video translated into local languages. Directive interviews guide included 50 questions to collect participants' perception of what was missing or unclear in the supporting tools. The methodology was validated with all national AIDS programmes and ministries of health.

Results: Out of 64 HIVST performed, 5 results were positive (7,8%) and confirmed with additional tests. Overall, the IFU was well understood: 58 participants (92%) were able to interpret their HIVST result correctly without assistance. However, some misuses were observed at various stages, particularly for people who cannot read, with some instructions misunderstood or perceived as not adapted. Only participants who can read have access to information as "do not eat" or "do not use the test if you are on ART" as it is not illustrated in the IFUs. Most of the participants did not spontaneously identify the promotion of the free hotline number and/or the link to the demonstration video. Some procedure's steps were misinterpreted: 7 participants (11%) did not swab correctly the flat pad along the gum, 3 participants (5%) have read the result at inaccurate time (at 20 seconds, at 5 minutes or after 40 minutes), 13 participants (20%) did not put the stand (for the tube including the liquid) in the right way and 8 other participants struggled to slide tube into the stand. Among 42 participants who can not read and/or who had not seen the video beforehand, 14 of them (33%) had at least one difficulty to interpret the result or to understand what to do after the test/result. On the other hand, the results of the cognitive interviews showed that demonstration video provides a real added value to the user's understanding and accurate HIVST use (31 participants out of 32 found it very easy to understand with 9 of them who felt they do not need the IFUs if they previously watched the demonstration video). The video translation into local languages, produced by the ATLAS project, was very much appreciated by the participants.

Conclusion: The manufacturer's IFUs alone appear not to be sufficient in a multilingual, low-literacy context to ensure accurate HIVST use. Access to additional supporting tools (complementary leaflet, demonstration video or free hotline) is essential in the 3 countries' contexts.

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Trends in consistency of condom use and factors associated among HIV uninfected men and women aged 18-35years at high risk of HIV infection in Kisumu, Western Kenya.

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Background: Condoms are an effective HIV prevention tool. However, correct and consistent condom use is influenced by various factors undermining its effectiveness. We evaluated factors associated with consistency of condom use in an HIV-uninfected population enrolled in a HIV incidence cohort study.

Methods: From January 2017 to February 2018, HIV-uninfected men and women aged 18-35 years who reported ≥2 sexual partners in the preceding 3 months were enrolled into an ongoing HIV incidence cohort study. HIV testing and counselling was performed every 3 months for up to 2 years. Condom use and other HIV risk behavior were assessed by questionnaire every 6 months. Male condoms and positive HIV prevention messages were made freely available at all visits. Condom use was assessed using a 3-point scale ('always' 'sometimes' 'never'). Consistent condom use was defined by answering 'always' as the frequency of condom use with various partner types. We hypothesized that condom use with primary partners is associated with contraception, therefore, trends were analyzed in self-reported condom use with both primary partners and secondary partners and with only secondary partners at enrollment, 6-month,12-month and 18-month visit time points. Logistical regression model was applied to assess factors associated with consistent use.

Results: Of 579 participants, 43.7% were female and 99.3% were literate, with a median age of 24(interquartile range 21-28 years). Fifty percent (292/579)) reported consistent use, 41.1% (238/579) reported inconsistent use and 7.6% (44/579) reported no use. Of those who reported inconsistent use, 62 % (148/238) were male, 53.3% (127/238) were between the age of 18-24 years and 50.8% (121/238) had attained secondary level of education. Age, level of education, gender and income did not seem to influence consistency of condom use. There was a decline in consistency of condom use and non-use over time with secondary partners. When assessed for both primary and secondary partners, there was a significant drop in consistency compared to the assessment in secondary partners only. Consistency with primary partners was below 10% at all time points. There was increase in inconsistent use despite provision of condoms and positive prevention messages every 3 months.

Conclusion: Partner type is a key determinant of consistent condom use. There was a steady decline in consistency of condom use with secondary partner supporting need for other complementary approaches in HIV prevention such as PrEP.

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Empowering young experts: training adolescent girls and young women to be agents of change can increase oral PrEP uptake

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Background: Inadequate information, coupled with barriers to accessing HIV prevention services, makes it difficult for adolescent girls and young women (AGYW) to protect themselves against HIV. Building AGYW knowledge and skills to engage in advocacy and peer support around HIV prevention can change this dynamic and increase uptake of HIV prevention services, including oral pre-exposure prophylaxis (PrEP).

Methods: We implemented the OPTIONS HIV Prevention Ambassador Training with 17 people already working as PrEP ambassadors in Mazowe District, Zimbabwe. Ambassadors were aged 16-59; 8 were under <24, and 7 were aged 25-35. Some were older than 35 (n=3) and/or male (n=3) who were already educating AGYW about PrEP and wanted additional training. Knowledge and attitudes about sexual and reproductive health and PrEP were assessed before and after the training through a pre/post survey. Ambassadors were followed up at six weeks and four months post-training to ask how they applied their training.

Findings: Average scores measuring correct knowledge about PrEP increased by 39% post-training. Six weeks later, ambassadors reported referring 125 AGYW for PrEP initiation and re-initiation. Ambassadors reported increased motivation, knowledge, and confidence in their work and noted that the printed toolkit provided during the training made them feel more empowered to discuss HIV prevention with peers and community members.

At four months, ambassadors continued to find the toolkits helpful, with some reporting using the toolkits to prepare for literacy sessions and that peers borrowed toolkits to read. The most useful topics reported at four months were myths and misconceptions about PrEP and HIV and tips for using PrEP. Finally, ambassadors reported that the training and toolkit promoted their status in communities as professionals equipped with HIV prevention information, skills and tools. AGYW PrEP initiations were ~33 per month before the training and increased to a monthly average of 42 post-training, representing a 26% increase.

Conclusion: The training empowered AGYW ambassadors to support HIV prevention among their peers, and PrEP initiations increased among AGYW in Mazowe District following the training. The OPTIONS HIV Prevention Ambassador Training fills an important need in delivering oral PrEP to AGYW and could be applied in other districts and countries.

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"You know these days girls have so much love for good things": Men's perspectives on transactional sexual relationships in Uganda and Eswatini

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Background: Transactional sexual relationships between men and adolescent girls and young women (AGYW) – or non-commercial, non-marital sexual relationships with the assumption that sex will be exchanged for material support - are common across eastern and southern Africa and have played an important role in HIV transmission. Previous studies have documented young women's perspectives, but comparatively little is known about the motivations for and meanings of transactional sex from the perspective of men.

Methods: In 2017, 134 in-depth interviews were conducted with male partners of AGYW; 94 in Uganda and 40 in Eswatini. Respondents were recruited at venues where men and potential partners gather (e.g., drinking establishments), and through AGYW directly. Interviews explored experiences of and motivations for transactional relationships. Transcripts were coded following the principles of thematic analysis, and coding was carried out by three separate researchers.

Results: Ages ranged from 19-47 years old (mean age = 28). Most men in Uganda (80%), but not Eswatini (23%), were married/cohabiting. Men indicated that money and gifts were the only way to establish and maintain relationships with women: "A man without money to get a wife or sexual partner? It doesn't exist in our community," and they were concerned that insufficient financial support would cause their long- and short-term partners to leave the relationship. Most saw young women as actively pursuing transactional sex for material goods: "young girls have too much craving for money"; "nowadays there's no real love…she will be just enjoying the money." But, under certain circumstances men perceived other men as manipulating or luring AGYW (e.g., when very young or very poor) into sexual relationships. Finally, men described frequent conflict with primary or long-term partners and intentionally seeking out younger women as sexual partners, as they were more compliant and less likely to contradict what an older man was saying.

Conclusion: Transaction dominates men's understanding of relationships between men and women, and young women are seen as active agents in seeking transactional sex. Unless we directly address women's access to economic resources, material needs, and decision-making power, and gender norms supporting transactional sex, high levels of HIV vulnerability will continue.

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Identifying HIV risk profiles and associated service uptake among men in Eswatini

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Background: There is increasing recognition of the need to understand profiles/segments at highest risk for HIV, to elucidate the HIV service needs of each group and to better tailor HIV programming. This is particularly critical among men in sub-Saharan Africa, who play a central role in HIV transmission in the region. We developed HIV risk profiles among men in Eswatini, using two waves of cross-sectional data (late-2016/early-2017; mid-2018), then assessed whether higher-risk profiles are increasingly being reached by HIV services.

Materials & methods: A total of 1,391 men ages 20-34 years (650 at round 1; 741 at round 2) completed surveys at informant-identified hot-spot venues in 19 Tinkhundla across the four regions of Eswatini. We identified profiles using data across rounds via Latent Class Analysis (LCA), based on ten socio-demographic and HIV risk characteristics. We then assessed HIV service use by survey round for each profile.

Results: We identified five profiles, distinguished by their socio-demographic and HIV risk characteristics. Younger high-risk (13% of sample; mean age=23) tended to be unemployed (62%) and urban-resident (58%), with the highest number of sexual partners, hazardous drinking (HD, 84%), intimate partner violence perpetration (IPV; 33%) and inequitable gender norms, and lowest condom use (8%) among the profiles. Older high-risk (9%; mean age=32), largely unmarried/non-cohabiting, also had a high number of partners, who were 10 years younger on average, plus other relatively high levels of risk. Mid-age moderate-risk (31%; mean age=27) had moderate levels on demographic characteristics and all risk indicators. Younger low-risk (29%; mean age=22) were most likely to be in school (34%), unemployed (73%), and rural-resident (63%), with relatively low risk levels (59%). Finally, older low-risk (18%; mean age=32) were largely married/cohabiting (63%, vs. <30% for other profiles), also with low levels of risk, except for IPV perpetration (21%). Turning to HIV service uptake: HIV testing in the last year, which was under 50% at round 1 across profiles, increased from round 1-2 for all profiles, but most among the highest risk (+20-25%; all p<0.001). The proportion ever-circumcised also increased over time for the highest risk profiles, from 39 to 53% among younger high-risk and from 27 to 36% among older high-risk (both non-significant changes). Less than 10% of respondents on average (6% and 20% among younger and older high-risk, respectively) had recently attended HIV-prevention-related meetings.

Conclusion: Of five distinct HIV-risk profiles, one younger (urban and unemployed) and one older (yet unmarried/non-cohabiting) – combined making up one-quarter of the sample – were exceedingly high-risk. Current differentiated HIV testing strategies appear successful in increasingly reaching the highest-risk men; however other primary prevention needs likely require comprehensive prevention programming. It seems clear that more men in Eswatini, and particularly those at highest risk, need to be reached with evidence-based programs to address prevalent and co-occurring risk factors like harmful gender norms, hazardous drinking, and multiple partners. Our research suggests these men can be reached at hot-spot venues. Finally, profiles resembled other profiles we recently identified using LCA in Durban, South Africa, suggesting potential similarities across contexts.

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Factors associated with poor adherence among non-virological suppressing School going adolescents: lessons from The Aids Support Organization (TASO) in Masaka, Uganda

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Background: According to the 90-90-90 UNAIDS ambitious target by 2020, viral load suppression is key among patients on antiretroviral therapy (ART). Whereas there is a growing number of people on ART, limited information is known about virological non-suppression and its major determinants among HIV-positive school going adolescents enrolled in many resource-limited settings. We investigated the factors leading to poor adherence among adolescents with non-suppressed viral load attending the Adolescent HIV/AIDS care clinic at The Aids Support Organization (TASO) in Masaka.

Materials & Methods: Between January and December 2017, we identified adolescents with non-suppressed viral load attending the HIV clinic specifically those in upper primary and secondary school. Blood samples were taken to the central government laboratory for analysis and non – virological suppression was considered as having ≥1000 copies/ml of blood. A six-month viral load testing interval followed by three months repeat for the non -suppressors was the selection criteria. Through one on one and group counseling by trained counselors, we identified adolescent with poor adherence (below 95%) to explore the causes.
Adolescents were grouped in age ranges of 10-13, 14 -17, and 18- 19 years respectively, and to each group a trained counselor, clinician and adolescent peer educator was attached to facilitate intensive adherence counseling. Information on social demographic characteristics and causes of poor adherence was collected using an interview guided questionnaire, data were analyzed using Stata 14.

Results: Out of 355 adolescents on ART, 325 (91.8%) had their viral loads taken; 127 (39%) had non- suppressed viral load, of which 47(37%) were boys and 80(63%) were girls. 17 (13.4%) of the non-suppressors had adherence above 95%, 110 (86.6%) had adherence below 95%. Reasons for non-adherence were; 54(42.5%) joined a candidate class for National promotional exams, 20(15.7%) changed care takers, 17(13.4%) joined a new school , 15(11.8%) joined boarding school, 13 (10.2%) took a self-drug holiday , 8 (6.3%) missed morning doses, and 119 (94%) of all had not disclosed to any one at school.

Conclusions: Non-disclosure among School going adolescents is the leading cause of poor adherence hence there is need for interventions that promote disclosure.

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"Something hidden is something unsolved!"- An examination of the rural-urban difference in Comprehensive Knowledge about HIV in Malawi

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Background: Few studies on socioeconomic determinants of comprehensive HIV knowledge have provided crucial insights from social and behavioural aspects of HIV and AIDS. However, there is a dearth of empirical literature examining in a more detailed way the factors that contribute to the gap (difference) in HIV comprehensive knowledge.

Objective: The aim of this study was to empirically decompose the comprehensive HIV knowledge gap (difference in the proportion of people having HIV and AIDS knowledge), between rural and urban in Malawi.

Methods: Data for the study was obtained from the 2015-16 Malawi Demographic Health Survey (MDHS). We utilized the Fairlie model to decompose and identify the separate contribution of various social-economic factors to the rural-urban gap in comprehensive HIV knowledge. The analysis used weights to account for the complex survey design. The decomposition method attributes the rural-urban gap among males and females in the attainment of comprehensive HIV knowledge to a part that is "explained" and another part that is "unexplained" (a residual part that cannot be accounted for by explanatory variables). We controlled for other variables such as education, region, wealth index, age, among others.

Results: Findings from this study indicate that 42% (p<0.001) and 52% (p<0.001) of rural and urban respondents respectively have comprehensive knowledge about HIV. This entails a difference of 11% (p<0.001). Of the difference, 12% (p<0.001) is explained by the differences in social-economic factors rural and urban, whereby 78% (p<0.001) remain unexplained. Among females and males, we observed a 12% (p<0.001) and 9% (p<0.001) difference in HIV knowledge, between the rural and urban counterparts. This means that 78% (p<0.001) and 91% (p<0.001) remain unaccounted for.

Conclusion: The study suggests that the level of knowledge, remains low and the factors that give rise to the difference largely remain unaccounted for. As such, there is a need to invest more in information dissemination which should take into consideration the socioeconomic factors that limit one's acquisition of comprehensive HIV knowledge

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The Causal Relationship between Structural Barriers and Mental Health among Sex Workers.

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Background: Empirical evidence suggests a causal relationship between mental health and HIV risk index. Mental health issues are hypothesized to affect immunology in such a way to increase HIV risk. Female sex workers in Kenya are disproportionately affected by HIV, mental health, and alcohol and substance abuse. Establishing the interaction of effects of structural barriers and mental health will lead to better mental health outcomes and eventual lowered HIV prevalence.

Methods: Maisha Fiti is a mixed method longitudinal study aiming to explore the interaction between HIV, mental health, and alcohol and substance abuse in 1000 female sex workers in Nairobi who are between 18-45 years. 40 women took part in in-depth-interviews talking about their experiences on general life experiences, Violence, Mental health, Finance, and Sexual and reproductive health. The interviews were audio-recorded, transcribed verbatim, translated and coded inductively.

Results: Structural barriers such as stigma, criminalization of sex work, and inadequate access to justice due to institutionalized discrimination leads to sexual, physical and economic violence against sex workers. Additionally it affects behavior through lack of body autonomy, and lowered ability to successfully negotiate for sex safe. The participants identified these factors to be the leading causes of mental health issues such as 'stress'.
Most sex workers cannot identify common mental health issues unless it's on the insanity side of the spectrum. They perceive anything else to be stress which they term as a normal occurrence. Mental health is highly stigmatized and associated with being mad or bewitched.

Conclusion: The interaction between mental health and structural barriers contribute to the mental health burden among sex workers. Implementing partners and advocacy groups should work to decrease stigma and discrimination of sex work in order to break the structural barriers and their domino adverse effects on mental health and sexual behaviors in order to curb HIV.
Sensitization of populations on common mental health issues is needed in order to destigmatize mental health.

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Challenges of HIV self-tests distribution for index testing in a context where HIV status disclosure is low: preliminary experience of the ATLAS project in Bamako, Mali

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Context and Objective: In Côte d'Ivoire, Mali and Senegal, ATLAS project has introduced HIV self-testing (HIVST) as an index testing strategy, distributing HIVST kits to people living with HIV (PLHIV) during consultations for secondary distribution to their partners. Here, we present preliminary results of an ethnographic survey conducted in one HIV clinic in Bamako, Mali, where most HIV patients have not disclosed their HIV status to their partner(s), notably for women for fear of jeopardizing their relationships. In such a context, how non-disclosure affect the distribution of HIVST kits?

Method: The study was conducted from September 25 to November 27, 2019, and included individual interviews with 8 health workers; 591 observations of medical consultations; and 7 observations of patient groups discussions led by peer educators.

Results: Three principal barriers to HIVST distribution for index testing were identified. (1) Reluctance of PLHIV to offer HIVST to partners to whom they have not (yet) disclosed their status and desire to learn tactics for offering testing without disclosing their HIV status. (2) Near-universal hesitancy among health workers to offer HIVST to persons who, they believe, have not disclosed their HIV status to their partner(s). (3) Absence of strategies, among health workers, to support discussion of status disclosure with PLHIV. In the rare cases where HIVST was offered to a PLHIV whose partner did not know their status, either the PLHIV declined the offer or the provider left it to the patient to find a way to deliver the HIVST without disclosing his/her status.

Conclusion: HIV self-testing distribution could serve as an opportunity for PLHIV to disclose their HIV status to partners. The continuing reluctance of PLHIV to heed advice to share their status and promote secondary HIV self-testing distribution highlights the structural factors (social inequalities and stigma) that limit awareness of HIV status and that favour the persistence of the epidemic.

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HIV prevention through addressing sexual harassment at an Higher Education Institution in sub-Saharan Africa

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Background: Sexual harassment (SH) issues were first raised at the University of Zambia (UNZA) during the process of developing the HIV and AIDS Policy and the SH was recognised as a major contributor of HIV at UNZA.. In a baseline study of sexual harassment carried out at UNZA it was identified SH to be a significant problem for the UNZA community was not resilient to deal with the problem.

Description: Sexual harassment Policy was launched at UNZA in 2010, and a follow up study conducted in 2015 did not find a major improvement in the situations and reporting still seemed to be a problem. Since the introduction of SH policy at UNZA in 2010, only 3 cases of SH were reported (staff members), 2 were formally followed up but none have been resolved. Through this project we aimed to create and maintain a studying and working environment in which the dignity of students and staff are respected and they are resilient to prevention of SH and hence HIV.

Lessons learned: We used a 2 pronged approach: one to create awareness campaigns regarding SH; second to evaluate the implementation of the SH policy including the reporting structure proposed by it.
1. Specific SH awareness campaigns targeting students and staff at UNZA bring out the relationship between SH and HIV. SH awareness campaigns and online resource will be innovatively designed through involvement of all stakeholders and media.
2. Current SH policy implementation and SH reporting structure were evaluated to identify existing gaps and barriers. This involved online surveys and discussions with UNZA community.
3. Revisions to the SH policy was recommended. This involved dissemination workshops, discussions with key stakeholders and policy makers at UNZA.
4. Created an online user friendly resource on dealing with campus SH

Conclusions/Next steps: The University through the HIV and AIDS Response program has been providing comprehensive information on Human Rights to youths through the network of volunteer student peer educators. Building resilience to deal with SH will be built into these activities. The activities will include student peer educator first year orientation programme residence room to room interactive talks during which information on sexual harassment and the reporting procedures will be shared at a peer to peer level. Young women from different student associations will be trained aimed at motivating and empowering them to deal with SH and prevent HIV.

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SUBSTANCE USE AND INTIMATE PARTNER VIOLENCE AMONG MEN WHO HAVE SEX WITH MEN

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Background: Substance use such as cocaine, heroine, marijuana and alcohol has been reported to be very high among men who have sex with men (MSM), the use of substance have has also been reported to be associated with intimate partners violence (IPV). Prior research in countries where MSM right are legalized has highlighted strong association between substance use among MSM and IPV, studies has also shown relationship between substance use and sexually transmitted infections (HIV, gonorrhea, genetal herpes and syphilis). However, most prior studies were conducted in settings with legal backing to MSM relationship and also high income countries. This study therefore will investigate the use of cocaine, heroin, marijuana and alcohol as precursor to IPV among MSM as well as the relationship between substance abuse and sexually transmitted infection (STI) among MSM in Lagos Nigeria.

Methods: This study was a descriptive cross-sectional qualitative study that was carried out among 500 participants using a self-administered questionnaire, we used a non probability sampling (Snow ball sampling) method through collaborated with three MSM led organization across the Lagos State, with the organisations serving as the mobilizers, because we understand that trusted MSM are perceived as more trustworthy than an unknown research team, due to the peculiarity of the study and the prevailing legal and policy environment in Nigeria. Chi-square at p-value < 0.05 was used to determined significance between substance use and IPV while logistic regression was used to determine if substance use was a significant predictor of STI (HIV, gonorrhea, genital herpes and syphilis) among MSM.

Result: The mean age of the respondent was 24 ±9.4 years with 378(75.6%) of the respondents reporting that their partners uses substance (58.2% used only alcohol, 1.6% used only drugs & 40% used both drugs and alcohol) and 66.1% of the respondent reported to have experienced IPV in their relationship. Using Chi-Square to identify significant, substance use (p-value=0.000), drug (cocaine, heroin, marijuana) use (p-value=0.000) and alcohol use (p-value=0.000) are significantly associated with IPV among MSM. Substance (OR =4.926, p-value = 0.000) use was identified as a predictor for sexually transmitted infection.

Conclusion: Substance use has a strong association with IPV, the use of either drugs alone or alcohol alone also has a strong association with IPV among MSM. The use of substance also serves as a predictor of STI (HIV, gonorrhea, genital herpes and syphilis) among MSM. Prevention and intervention strategies aimed at addressing substance abuse among MSM will help reverse the trend of MSM being the only group in Nigeria where the HIV prevalence is still rising and also help prevent other STIs and IPV.

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SOCIOECONOMIC DETERMINANTS OF INTIMATE PARTNER VIOLENCE AMONG MSM USING SUBSTANCE IN NIGERIA

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Background: Substance use such as cocaine, heroine, marijuana and alcohol has been reported to be very high among men who have sex with men (MSM), the use of substance have has also been reported to be associated with intimate partners violence (IPV). Prior research in countries where MSM right are legalized has highlighted strong association between substance use among MSM and IPV, studies has also shown relationship between substance use and sexually transmitted infections (HIV, gonorrhea, genetal herpes and syphilis). However, most prior studies were conducted in settings with legal backing to MSM relationship and also high income countries. This study therefore will investigate the use of cocaine, heroin, marijuana and alcohol as precursor to IPV among MSM as well as the relationship between substance abuse and sexually transmitted infection (STI) among MSM in Lagos Nigeria.

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Conclusion: Substance use has a strong association with IPV, the use of either drugs alone or alcohol alone also has a strong association with IPV among MSM. The use of substance also serves as a predictor of STI (HIV, gonorrhea, genital herpes and syphilis) among MSM. Prevention and intervention strategies aimed at addressing substance abuse among MSM will help reverse the trend of MSM being the only group in Nigeria where the HIV prevalence is still rising and also help prevent other STIs and IPV.

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PERCEPTION OF RISK AND VULNERABILITY OF ADOLESCENTS AND YOUNG PERSONS TO HIV INFECTION IN BONNY TOWN, RIVERS STATE, NIGERIA: A MIXED-METHOD APPROACH WITH CONTEXTUAL FACTORS

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Background: Nigeria has the fourth highest burden of HIV in the world and incidence-prevalence ratio within 5-9.9%, a far cry from the 3% benchmark. Adolescents and Young Persons (AYPs) contribute a significant 28.3% of the entire Nigerian population. Certain societal factors have been implicated in worsening AYPs' vulnerability to HIV infection. HIV prevention efforts among them in the direction of perception of vulnerability to infection are important to achieving sustainable HIV control. This study assessed AYPs' level of comprehensive knowledge of HIV infection, their perceived risk of HIV infection and compared that to their assessed vulnerability status toward acquiring the infection in Bonny Town, Rivers State, Nigeria. Context-specific factors were harnessed.

Materials and Methods: The study was conducted in Bonny Town, Nigeria. It was population-based, comprised both quantitative and qualitative methodologies. The quantitative study employed a descriptive cross-sectional design. Sample size was determined using the formula for estimating single proportions. Two hundred and fifty respondents aged 10-24years were selected for the quantitative component using a multi-stage sampling technique involving three stages. The qualitative component involved six Focused Group Discussions (FGD) with forty-eight participants (eight per session) who were homogeneous in their ages. Interviewer-administered questionnaire, adapted from the National Reproductive and Health Survey questionnaire was used to collect data on socio-demographic variables, knowledge of HIV/AIDS, modes of transmission, perception of risk of HIV infection, prevalent HIV risk indicators and vulnerability towards HIV acquisition. Quantitative data were analysed using STATA 13, subjected to univariate and bivariate analyses (Chi-square test). Sensitivity, Specificity, Positive and Negative predictive values were used to compare perceived risks and assessed vulnerability to acquiring HIV. Statistical significance was set at p<0.05. Qualitative data were transcribed verbatim, coded and analyzed using Atlas.ti software, the result was used to triangulate the quantitative findings.

Results: Respondents' level of awareness of HIV/AIDS was highest at 100%, while their comprehensive knowledge of HIV/AIDS was low at 17.2%. Only 7% of the respondents perceived themselves to be at high risk of HIV infection compared to the researcher's assessment of high vulnerability of 62%, while 93% perceived themselves to be at low/no risk of HIV infection compared to the researcher's assessment of low vulnerability of 38%. Sensitivity, Specificity, Positive and Negative Predictive Value of self-perception of risk of infection compared with their vulnerability to infection were 9.7%, 96.7%, 83.3% and 39.7% respectively, with a Kappa Statistic of 0.0509. No significant association between perceived levels of risk and assessed vulnerability status of the respondents (p=0.053). Amongst others, FGD participants reported that AYPs in Bonny Town were prone to acquiring HIV infection because of salient characteristics present in the community; low socio-economic status, wide wealth gap of the indigenes compared to the oil company workers, negative peer pressure, leading to high rate of unprotected sexual activity.

Conclusions: Despite the 100% awareness of HIV/AIDS among respondents, a majority had less than comprehensive knowledge of the infection, with prevailing myths and misconceptions. Their perceptions of personal risk of acquiring HIV infection based on standardized vulnerability indicators were largely inaccurate. These have grave implications for the control of the infection among Nigerian AYPs. Correct, Consistent and Continuous HIV/AIDS behaviour change communication programmes are advised. Adolescent-friendly programmes that cover health, social, academic, economic empowerment are recommended to address the menace of poverty that fuels increased vulnerability of AYPs to acquiring HIV infection.

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Using "Positive Deviance" approach to assess what drives HIV testing among men in Nairobi, Kenya

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Background: Potential solutions to increase male testing may exist within communities themselves. Some men successfully exhibit positive behaviors, such as HIV testing, despite facing similar barriers and having no extra resources compared to their male peers. These men may possess unique characteristics that promote positive behaviors that others can emulate. This sociological concept is known as "positive deviance," an approach that aims to encourage desirable behaviors by learning from individuals who are deviant in a positive sense. In Kenya and other settings, men who undergo HIV testing may exhibit such positive deviant behavior. Hence, understanding how and why certain men elect to be tested could provide important insights in designing a strategy to improve uptake of HTS among males.

Methods: We conducted a cross-sectional survey at health facilities with men seeking HTS (N=277) aged 18-54 years from Nairobi, Kenya between March 2018 and May 2018. The study assessed the characteristics of men accessing HTS, reasons for testing, frequency of testing and factors associated with testing within a short time (less than a month). Descriptive, bi-variate and multivariate analysis assessed attributes of HIV testing for men accessing services at public health facilities.

Results: Respondents' median age was 31 (IQR:25,38) years and half the sample were married. 87% were repeat testers 40% of whom had tested two or more times. Nearly a third (30%) of repeat testers did not receive post-test counselling. The main reason for testing was routine health care among first-time testers (67%) and repeat testers (63%). Decision to test was taken less than a month (< 1 month) preceding the interview by most respondents (56%). Reasons for testing (< 1 month) were to know HIV status (46%), test as part of VMMC (11%) and ill health (7%). In bivariate analysis, age (≥25 years), (OR=2.76 [1.11-6.85]), college/middle level education, (OR=2.34 [1.05, 5.70]) and circumcision (OR= 3.02 [1.01, 8.36]) were associated with decision to test early. In the multivariate analysis, repeat testers (adjusted odds rations [AOR] =2.52 [1.11-5.69]), age (≥25 years) and college or middle level education were significantly associated with testing within a short time.

Conclusions and Recommendations: These findings suggest the need for specific strategies aimed at directly reaching different segments of men with HIV testing services, institute intervention to mitigate prompt decision making for testing from when a decision to test is made and the time of actual test. Using social network strategies for testing, bringing positive testing messages and HTS to within proximity of where men work and frequent as well as provision of HIV testing in the community can reduce the gap in the time between the decision to test and the actual test.

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"I'm not sick so why must I drink a pill every day?" Perceived challenges to PrEP use by female sex workers in eThekwini, South Africa: The Siyaphanta Study

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Background: PrEP is an important strategy for preventing HIV acquisition among female sex workers (FSW). Data on FSW' attitudes toward PrEP are limited.

Material and Methods: We explored PrEP awareness, acceptability, perceived benefits and challenges among 49 FSW via 7 focus groups (3 with HIV-positive FSW, 4 with HIV-negative FSW), in-depth interviews with 4 FSW of unknown HIV status, and 29 key informant interviews (managers, bouncers, healthcare providers [HCPs], policymakers) in eThekwini, South Africa. Data analysis, using inductive and deductive approaches, was facilitated with NVivo.

Results: FSW had some knowledge of PrEP which varied from limited to good; some confused PrEP with PEP or ARVs for treatment. Few managers and bouncers knew of PrEP. HCPs thought FSW would be willing to use PrEP if they had knowledge about how it works. Participants in all cadres, including FSW, were aware of PrEP service delivery points (public-sector clinics, mobile clinics), but the majority believed PrEP should be provided in FSW' workplace. FSW and other cadres highlighted PrEP's protective function. Perceived challenges to PrEP use were medication-related (reluctance to swallow pills; fear of side effects [e.g. rash, nausea/vomiting, weight gain]); interpersonal-related (judged by others; stigmatization from assumption that PrEP users are HIV-positive; disclosure of sex worker identity ["..as soon as someone was carrying a bottle of PrEP you are really stigmatized, you are a sex worker"]); individual-related (FSW losing clients because of long clinic queues, taking medication when healthy ["I'm sharp, not sick"], sub-optimal adherence due to substance use). Some managers and bouncers thought PrEP was important for FSW because of their heightened work-related risk and felt they could play a supportive role, reminding FSW to take PrEP; however, nearly all FSW felt this was unacceptable: taking PrEP is a private matter, and managers and bouncers prioritize profit-making interests over those of FSW.

Conclusions: Despite awareness of PrEP among FSW, there are misunderstandings and many barriers to use, suggesting the need for clearer messaging about PrEP. Key informants were supportive of PrEP provision in FSW' workplace, but such interventions should be carefully designed with participation from FSW who emphasize the need for privacy.

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HIV and Syphilis Burden Among Uncircumcised and circumcised Men in Hoima_An Oil Mining District, Uganda.

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Background: There is substantial evidence that male circumcision reduces the risk of acquiring HIV and other STIs. We present findings from an open cohort study on association between circumcision status and prevalence of HIV and Syphilis among men in Hoima district, North-Western Uganda.

Methods: We analysed cross-sectional data from 1,029 men (13-80 years) participating in this study. A Questionnaire was administered by trained researchers to determine socio- behavioural characteristics including marital status, age, condom use, number of sexual partners and circumcision status. HIV and Syphilis were diagnosed using HIV rapid tests and Treponema Pallidum particle hem agglutination assay (TPHA) respectively, as per Uganda Ministry of Health algorithms. Using Stata software, descriptive analysis was conducted to determine the prevalence of Syphilis and HIV by circumcision status. Univariate and multivariable logistic regression was conducted to estimate odds ratios and adjusting for age, marital status, HIV status, condom use and number of sexual partners were included in the regression model.

Results: Of the 1,029 men, 469 (46%) were circumcised. Circumcision prevalence was higher 103 (65%) in young males aged 13-17 years compared to 139 (33%) in men older than 30 years, P-value<0.001; 95% CI, 0.04584. Prevalence was higher among HIV negative men (46.4%) compared to HIV positive men (26.1%), (p-value=0.007). HIV prevalence among uncircumcised men was 6.1% compared to 2.6% in circumcised men (p<0.01); and higher among older men over 30 years than in younger men, 9.0% Vs 1.2% respectively, p-value<0.01. No difference was observed in Syphilis prevalence by circumcision status (9.5% in circumcised vs 8.0% in uncircumcised men, p=0.45). After adjusting for age, marital status, condom use and number of sexual partners, circumcision was significantly associated with age (p<0.01) and marital status (p=0.022). Married and older men were less likely to be circumcised. There was no association between circumcision status and HIV prevalence (p=0.06)

Conclusions: Older men had a higher burden of HIV and were less likely to be circumcised. Strategies to further promote VMMC for HIV prevention among older men are urgently needed.

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Individual- and facility-level factors associated with facility testing among men in Malawi: Findings from a representative community survey

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Background: Men are underrepresented in HIV testing. Recent studies show that men who never tested or tested>24months ago visit health facilities regularly for other routine health services, but do not test for HIV. Little is known, however, about individual- and facility-level factors associated with men's testing during routine facility visits.

Methods: We conducted a cross-sectional, community-based representative survey with men (15-64 years) from 36 villages in rural Malawi. Staged sampling was used to randomly select villages and individuals. For this analysis, we include men who attended a health facility ≤24 months ago and were in need of testing in that same time period (tested>12months). Multivariate analyses were used to assess individual- and facility-level predictors of HIV testing at each clinic visit.

Results: A total of 868 respondents, median age 34years (IQR = 22-42), attended a facility ≤24 months ago and were in need of HIV testing. Among them, 2,212 clinic visits were reported. Most participants were married (73.1%), currently working (58.6%), and accessed outpatient services (94.4%). HIV testing occurred at 42.5% of all clinic visits. At the individual level, marriage (aOR: 1.69, 95%CI: 1.11-2.57) was associated with increased uptake of HIV testing, while being young (15-24yrs) (aOR: 0.67, 95%CI: 0.44-1.02) and poor self-rated health (aOR: 0.69, 95%CI: 0.58-0.84) were associated with a lower uptake of HIV testing. At the facility-level, being offered HIV testing (aOR: 5.77, 95%CI: 4.26-7.82) and overall satisfaction with services received (aOR: 1.43, CI: 1.03-1.98) were associated with increased rate of testing, while accessing outpatient services (aOR: 0.34, 95%CI: 0.22-0.54) was associated with lower uptake of testing.

Conclusion: Despite overcoming initial barriers to attending health facilities, uptake of HIV testing among men attending facilities is still low. Increased offering of HIV testing could improve testing coverage, particularly if targeted to youth and outpatient departments.

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Physical, Sexual, and Emotional Violence during Childhood in Namibia: Results from the 2019 Violence Against Children and Youth Survey (VACS)

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Background: Violence against children is a major social and health challenge in Namibia. However, there are limited national data on violence against children. We quantified violence against children to inform protective measures.

Methods: In 2019, data were collected through a nationally representative Violence Against Children and Youth Survey (VACS) of females and males ages 13-24-years-old. The main parameters measured were physical, emotional, and sexual violence experience during childhood (before age 18 years) among 18-24-year-olds and past-12-month violence experienced among adolescents ages 13-17 and young adults ages 18-24. HIV testing was offered for those aged ≥ 14 years who did not self-report as HIV positive, consented to an HIV test, and lived with a head of household who did not opt out of the test being offered. Estimates for childhood violence and HIV prevalence accounted for the survey design.

Results: There were 5,191 survey respondents (980 boys/men and 4,211 girls/women). HIV prevalence was 4.7% (2.9-6.5 95% CI; n=169) among girls/women and 1.4% (0.2-2.5; n=12) among boys/men aged 14-24.
Overall, two in five girls/women and nearly half of boys/men experience violence during childhood (39.6% [36.0-43.3; n=2424] of girls/women and 45.0% [38.6-51.4; n=564] boys/men before age 18, among 18-24-year-olds experienced some form of physical, sexual, and/or emotional violence during childhood.
32.9% [30.1-35.8; n=2400] of girls/women and 41.2% [34.8-47.7; n=548] of boys/men reported physical violence during childhood. This was similar to the prevalence of witnessing physical violence in the home during childhood (35.9% [33.3-38.4; n=2375] girls/women; 38.4% [32.3-44.6; n=534] males). For both, before age 18, among 18-24-year-olds.
Among girls/women who had sex under the age of 18 reported by 18-24-year-olds, 10.6% [7.4-13.7; n=916] were forced or pressured at their first sexual encounter. For boys/men this was 2.4% [0.4-4.5; n=266].
Sexual violence before age 18, among 18-24-year-olds (11.8% girls/women [9.6-14.0; n=92420]; 7.3% boys/men [4.7-9.9; n=564]) was as common as emotional violence (11.4% girls/women [9.2-13.6; n=2361]; 7.8% [5.6-9.9; n=552] boys/men).

Conclusions: We found pervasive sexual, physical, and emotional violence experienced by children and young adults in Namibia. Both girls and boys experience high rates of sexual, physical and emotional violence. These results suggest that increased violence prevention and early intervention measures during childhood could decrease, at an early stage, all forms of violence, including those associated with increased risk of HIV infection.

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Social work engagement improves linking newly diagnosed HIV positive children and young adults to ART care: Lessons learnt from the 2019 Namibia Violence against Children and Youth Survey (VACS)

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Background: Violence against children is a major social and health challenge in Namibia. However, there are limited national data on violence against children. In 2019, data were collected through a nationally representative violence against children and youth survey (VACS) of girls/women and boys/men aged 13-24-years-old.

Methods: The main parameter measured was physical, emotional, and sexual violence experience during childhood (before age 18 years). HIV testing was offered for those aged ≥ 14 years who did not self-report as HIV positive, consented to an HIV test, and lived with a head of household who did not opt out of the test being offered. Estimates for violence and HIV prevalence accounted for the survey design. The HIV tester provided each newly diagnosed respondent with standard post-counseling services. Linkage to ART care was done by either a) a social worker and/or b) an HIV testing and linkage coordinator. Where social work support was provided, an integrated case management approach was used to identify specific needs for psychosocial support and implement relevant actions to mitigate challenges and identify solutions.

Lessons learnt: Of the 5,191 survey respondents, 3,232 who were aged ≥ 14 years consented to testing for HIV. Of the 41 newly diagnosed HIV positive cases, 15 (36.6%) opted to receive support by a social worker; with this support 12 (80%) were linked to a clinic and started ARV treatment. The remaining 3 were either unable to be contacted or changed their mind and declined further contact. In contrast, 21 respondents (51.2%) opted to receive support from an HIV testing and linkage coordinator. Of these, 10 (47.6%) were linked to a clinic and started ARV treatment. Five respondents (12.2%) did not consent to any linkage and were lost to follow-up. In total, 22/41 (53.7%) of newly positive respondents started ARV treatment.

Conclusion: This study shows that a higher proportion (80%) of those who chose social work assistance were linked to care compared to those who received support from the HIV coordinator (47.6%). This illustrates the important role the therapeutic function of social workers can play in effectively linking HIV positive children and young adults to ART care. In Namibia, the lessons learnt through the procedures implemented in this survey influenced the updating of the National Guidelines on Adolescents Living with HIV by clearly recognizing the role of social workers. Greater involvement of social workers in case finding and linkage to care may enhance service uptake among newly diagnosed HIV positive children and young adults.

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THE UPTAKE OF SEXUAL REPRODUCTIVE HEALTH AND RIGHTS (SRHR) SERVICES AMONG ADOLESCENT GIRLS AND YOUNG WOMEN IN KADUNA STATE, NIGERIA.

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Background: This study aims at assessing the knowledge, experience, and exposure of Adolescent Girls and Young Women on sexual education, condom use and Gender-based Violence (GBV), which also contribute in their poor uptake of Sexual Reproductive Health and Rights (SRHR) services.

Method: An online study comprising of 88 Adolescent Girls and Young Women, age 10-24 of different ethnic background and religion was conducted, from the 25th of February to the 7th of April 2018, in Kaduna state, Nigeria. A mixed method approach was employed for this study, involving the use of self-administered online questionnaires to elicit information. Data collected was analyzed by Google, and presented graphically, in percentages. https://bit.ly/2HejPPf

Result:
- 83% of the respondents know how to track their menstrual cycle, while 17% do not.
- Only 37.5% of respondents have knowledge of their safe period, while 62.5% do not have knowledge of their safe period.
- 76.1% of respondents have heard of female condom, while 23.9% of respondents have not.
- 51.1% of respondents have seen female condom, while 48.9% have not.
- All the respondents have never used a female condom.
- 15.9% of respondents are victims of Gender-based violence (GBV), while 84.1% have never had such experience. Of all the victims, 76.9% did nothing, 15.4% reported to the Police/Authorities and 7.7% reported to their Parent/Guardian.
- Of all the victims that did nothing, 71.4% was because they did not know what to do, 14.3% were threatened and 14.3% were scared of stigma.

Conclusion: Sexual Reproductive Health and Rights (SRHR) are services we must provide to Adolescent Girls and Young Women. Its therefore paramount that efforts aimed at addressing these gaps and challenges are made as it will greatly impact on the quality of Sexual reproductive health and right (SRHR) services and it's outcome.

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Sexual Partner elicitation during Index Testing services for HIV Positive Clients- Results from 7 states in Nigeria.

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Background: Index testing is an effective global strategy to identifying new cases of People living with HIV. It has become an important approach to achieving 90:90:90 target in HIV programs in Nigeria. The results and success rates from index testing is largely dependent on the number of partners elicited per index however optimal elicitation remains a challenge.
The objective of this study was to assess the disparity in sexual partner elicitation rates among index clients across 7 states in a CDC funded program in Nigeria

Materials and Methods: Newly diagnosed HIV positive cases and those previously diagnosed and enrolled in treatment were identified for Index testing services in 165 facilities in 7 states (2 states in the North Central and 5 states in the South West).Trained health care providers in these facilities counselled the index clients to name their sexual partners in the last 12 months. Elicited partners were offered HIV Testing services. An analysis of index testing data between October 2018 and September 2019 was conducted using descriptive and summary statistics. A comparison of elicitation ratio across geopolitical zones, states and sex was analyzed using MS-Excel.

Results: Data revealed that there were disparities in the elicitation rate across Geopolitical zones. The North-Central States: Benue and Plateau had an elicitation ratio of 1: 2.4 partners (21,501 index clients elicited 52,329 partners) while the South-West states: Oyo, Ondo, Osun, Ekiti and Ogun States cumulatively had an elicitation ratio of 1:1.2 partners (6,877 elicited 8427 partners) Elicitation ratio among male index clients is 1:2.0 (10,736 males' elicited 25,165 partners) and Females 1: 2.3 (17,642 females elicited 35,591 partners) showing no significant difference.

Conclusion: Differences in culture, religion and social norms can be a determinant for partner elicitation rate among index cases and may play a key role in the identification of new positives using index testing strategy; however sex of index does not affect partner elicitation. In-depth studies to generate evidence on factors affecting elicitation in Nigeria is highly recommended.

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I am feeling depressed because I just found out I am HIV positive; A hotline support system for adolescents and young people living with HIV in Kenya.

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Background: Globally, adolescents and young people (AYP) aged 15-24 years represent a growing population of people living with HIV. AYPs account for about 4% of all people living with HIV. In Kenya, 48 AYPs get infected with HIV on a daily basis and they contribute 51% of new infections. Globally in 2019, 39% of HIV patients were reported to suffer from depression. Evidence demonstrates a bidirectional relationship between depression and HIV, with one exacerbating the other. Depression worsens HIV-related outcomes among AYPs, including risky sexual behaviors, poor HIV treatment adherence, decline in CD4 count and rapid disease progression. AYPs living with HIV experience challenges accessing counselling services due to high costs and stigma associated with counselling. Hotlines have potential to improve uptake of counselling services among AYP's.

Methods: LVCT Health operates a hotline (1190) which offers free targeted counselling and information dissemination to AYPs (15-24 years) living with HIV across Kenya. The hotline has trained psychologists with skills in offering youth friendly services, and psychotherapy. When the AYPs call the hotline, a counselor receives the call, creates rapport and assures them of confidentiality. As part of the needs assessment the counselor establishes the AYPs HIV status and attends to their immediate needs. In the course of the conversation, the counselor utilizes the patient health questionnaire (PHQ-9) tool to determine presence of depression and its' intensity, subsequently a mutually agreed action plan is formed to address signs and symptoms of depression. The action plan may include referral to a psychologist for confirmatory psychological assessment, or to a counselor for therapy. The counselor makes follow-up calls to ensure the AYP took up the service referred for. The follow-up can consist of: a telephone call to the AYP, a written report from phone call to a receiving service or delivery point and a self-reported feedback from clients after a referral. Based on the progress feedback, each AYP living with HIV is offered online counselling support via 1190 for as long as they require it.

Results: We reviewed routine online counselling data for the period of October 2018 to September 2019. Data was analyzed using SPSS V 22. We reached 796 AYPs living with HIV where 75% (597) were females 30% (199) males and median age of 19 years. 8.4% (67) AYPs living with HIV screened positive for signs and symptoms of depression.61% (41) were in high school, 27% (18) were in tertiary and 12% (8) were in primary school.

Conclusion: The hotline is a useful platform to reach AYPs with HIV information. Furthermore, the platform can be used to respond to depression by identifying, providing counselling, and offering appropriate referral.

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Association of alcohol use with HIV among men & women in Hoima district, Mid-Western Uganda

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Background: Alcohol is the most commonly used psychoactive substance worldwide and   is linked to engagement in risky sexual practices (such as unprotected sexual intercourse and multiple sex partners) that increase risk of HIV. We present findings of association between alcohol use, HIV risk behaviors and HIV prevalence among men & women in Hoima, an oil mining district in Uganda.

Methodology: We analyzed cross-sectional data of 2,291 men and women participating in the Africa Medical and Behavioral Sciences Organization's (AMBSO) Population Health Surveillance study. Participants were recruited between February and April 2019. Alcohol use and HIV risk behavior in the past year were documented. Blood samples were tested for HIV using standard Ministry of Health testing algorithm. Chi square test was used to determine association between alcohol use, risky sexual behaviors and HIV among the participants. Multi-variable regression was used to adjust for potential con-founders including gender, age, marital status, level of education, number of sex partners and condom use.

Results: Thirty one percent (31%) of participants reported alcohol use in the past year. Women were disproportionately burdened by HIV compared to men (9.3% vs 4.5%: p<0.05). HIV positive participants were more likely to drink alcohol daily or weekly compared to HIV negatives (among females: 10% vs 5%:p=0.004; among men 56% vs 38%;p=0.037). Women and men who drank daily/weekly were more likely to be HIV positive than those who don't drink alcohol (women: 17.9% vs 8.1%; p<0.05; Men 6.4% vs 3.5%; p<0.05). HIV positive participants were more likely to take alcohol before sex compared to HIV negatives (24% vs 15%: P<0.013). After adjustment, alcohol use was associated with high HIV prevalence (p=0.035).

Conclusion: This research confirms a positive association between alcohol use and HIV status. Interventions to reduce alcohol use need to be designed for this community

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Determinants of early sexual debut in Wakiso district, Uganda

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Background: Early sexual debut is a strong marker for poor sexual health and sexual risk behaviors. In Uganda, the median age of first sex among adolescents is 16.9 years among females and 18.5 years among the males. We present findings on determinants of early sexual debut in Wakiso, Uganda.

Methods: 2,308 participants were enrolled in an open cohort study between 2017 and 2019. Questionnaire information on socio-demographics and behavior factors such as age, sex, marital status, number of sex partners were collected from consenting participants ages 13-80 years by trained research assistants. Participants provided a blood sample for HIV diagnosis using the Uganda Ministry of Health testing algorithm. Bivariate analysis was conducted to determine the association between early sexual debut, HIV status and other factors. Multivariable logistic regression analysis was done to estimate odds ratio after adjusting for potential confounders. Early sexual debut was defined as having first sexual intercourse before 18 years.

Results: Fifty one percent (386/752) of the males and 60% of the female had early sexual debut (p<.001). Early sexual debut was higher among participants with low educational level; primary (143/210), 68%) compared to Secondary (733/1262), 58%) and tertiary (126/308) 41%' p<.001.), food insecurity (62% vs 55%; p<.001) and among females (60% vs 51%: p<.001). There was no difference in HIV burden among early sexual debutants and late sexual debutants (9.1% vs 8.7%; p=0.81). After adjustment, primary education, being female and food insecurity were associated with early sexual debut. Reasons for early sexual debut included; rape/forced sex, 153/203 (75%), pleasure, 549/972 (56%), desire to start a long-term relationship, 196/406 (48%), desire to get a child (37%), and for commercial gain (62%).

Conclusion: Being female with low level of education and food insecurity were associated with early sexual debut. Forced sex was the major reason for early sexual debut in this community. There is need to support child-protection interventions, promote education and create food security to reduce early sexual debut.

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Cleaning House – Addressing Stigma and Discrimination Directed Towards Peer Counsellors Working In the HIV Clinic- Kampala Branch, AIDS Information Centre

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Background: Peers may be defined as trained HIV positive medication-adherent role models but may also be HIV negative leaders who belong to key and priority groups. The use of peers has been incorporated into HIV programming to facilitate mobilization for service uptake and to provide psychosocial support to address stigma and promote adherence and retention for clients on PrEP, PEP and ART. Peers working in HIV clinics also perform multiple roles through task shifting of some of the trained health workers' roles and as such these clinics are assumed to be their workplaces.

Materials & Methods: In April 2018 through funding received from the CDC funded IDI Kampala HIV project, AIC contracted seven peers to work in the Kampala branch clinic predominately for peer-to-peer counselling and client tracking activities. These peers include a peer mother, community linkage facilitators and others to perform assigned tasks in the clinic and community for clients on ART. They were also integrated to perform other activities through task shifting in the clinic like registration of clients at the reception and conducting health talks. During the course of their work the peers encountered stigma and discrimination from the health workers they worked with at different sections in the clinic which included public disclosure of their HIV status and health issues in waiting areas, being referred to as patients, disrupting peer-to-peer counselling sessions and discrediting information given by peers. Additionally peers experienced stigma when they developed illnesses particularly cough. This directly impacted their performance with some developing anxiety, withdrawal and missing working days.
To address this, the following were put in place: monthly peer meetings with their supervisor, assigning peers to staff counsellors to address their mental health and other issues particularly related to stigma, mandatory attendance/ participation of peers in staff meetings and activities including expanded task shifting activities (e.g. preparation of activity and project required reports); staff and peers screening for TB regularly.

Results:
• Challenges the peers encountered were discussed in the peers' meetings and subsequently addressed with resultant reduction in complaints of stigma and discrimination.
• Emerging peers' mental health issues were and continue to be addressed and they now feel like part of the program/ staff and not just "patients".
• Staff and peers are accountable to each other for health related events and these are addressed in a timely manner by the clinicians. This has allayed fears of contracting infections like TB from the peers. Regular screening has excluded presence of active TB cases among staff and peers
• Through attendance of staff meetings and trainings the capacity of peers has been built and they have attained certification in some disciplines like counselling.

Conclusions: Peers are susceptible to stigma and discrimination from within HIV clinics from health workers and therefore mechanisms should be put in place to protect and promote a safe working environment for them.

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"These questions are important": assessing resilience among people living with HIV (PLHIV) within the PLHIV Stigma Index 2.0

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Background: The People Living with HIV (PLHIV) Stigma Index is the most widely used survey documenting stigma and discrimination experienced by PLHIV globally. After nearly a decade of implementation experience, and reflecting revised treatment guidelines, the 2008 survey was updated through an iterative, consultative process (2016-2017) led by PLHIV. A key recommendation of stakeholders was to add questions to assess resilience – positive adaptation within the context of significant adversity – alongside stigma. A new 10-item PLHIV Resilience Scale (PLHIV-RS) was therefore developed and validated. This analysis presents qualitative findings about PLHIV's opinions of the new questions.

Methods: The PLHIV-RS assesses whether HIV status has had a positive/neutral/negative effect on meeting important needs, such as their ability to cope with stress, find love, contribute to their community, or practice a religion/faith as they want to. Along with testing the quantitative survey in Cameroon, Senegal and Uganda (n=1,207), 60 cognitive interviews (20 per country) and 8 focus groups (Uganda only) were conducted by PLHIV interviewers to assess face validity and perceived importance of survey questions, including the PLHIV-RS. Respondents, including key populations such as men who have sex with men and sex workers, were purposively sampled to represent a broad range of opinions. Interviews and focus group discussions were audio recorded, transcribed, translated into English (where relevant), and analyzed thematically.

Results: Nearly all respondents felt the resilience questions were important and relevant, and that the specific items were comprehensive. Several key themes emerged. First, being asked and answering the resilience questions was described by some as therapeutic in that the question framing and item content resonated with their lived experiences, and allowed them to reflect on positive ways they are coping with and even benefiting from their HIV-positive status ("..[the questions] show that we can play an important role in society"). Second, many respondents felt the questions imply that "PLHIV have the same desires as other people," which helped them feel included rather than excluded. Finally, respondents felt the questions are important for capturing how well PLHIV are accepting their status, saying it is important to know that many PLHIV are coping well with their status, but that for those who are not, the data generated can help identify where additional support is needed.

Conclusion: This qualitative evaluation of the new PLHIV Resilience Scale underscored the importance to PLHIV of asking about resilience alongside stigma and discrimination. Implementation of the PLHIV-RS as part of the Stigma Index 2.0 should be prioritized as a meaningful and appreciated experience for PLHIV, along with helping to inform and assess interventions to improve the lives of PLHIV.

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HIV-related stigma & discrimination in rural & urban communities in South-Western Nigeria: Experiences of people living with HIV & rights issues

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Background: HIV-related stigma and discrimination continue to be major social determinants driving the epidemic of HIV globally despite the advances in medical treatment and increases in the awareness about the disease with a significant threat to the success of achieving universal access to HIV prevention, treatment, care and support. Hypotheses tested were place of residence influence on stigma & discrimination and right awareness of people living with HIV/AIDS influencing HIV-related stigma & discrimination. The study aimed at assessing the level of HIV/AIDS related stigma and discrimination, forms, effects, and internal stigma experienced by PLHIVs in South-Western Nigeria.

Methods: This cross sectional study was carried out at eight PEPFAR supported primary, secondary and tertiary level hospitals in South-Western Nigeria. The target population was adult (18 years and above) male and female persons living with HIV (PLHIVs) including key population. Data was collected from 278 consenting respondents by trained volunteers by a face-to-face interview using a pre-tested questionnaire. The data was analysed using SPSS software version 23.0, with significance fixed at P<0.05. Categorical values were reported as frequencies and percentage while numerical values were reported as mean and standard deviation.

Results: The mean age ± SD of the respondents was 38.48 ± 11.48 years, 70.05% females, most of them are married in a monogamous setting (48.6%), with a formal education (86.3%), traders (33.5%), live in rural area (88.5%) while people in the key populations accounted for 9.4% of the participants. More than half (59.7%) of the respondents have adequate knowledge on HIV/AIDS and knew their status when sick (52.2%). 78.4% elicited negative feelings such as depression and shame after diagnosis. About one-third (33.1%) PLHIVs have ever experienced HIV-related stigma and discrimination mostly gossip, physical abuse, and verbal insult, of which about two-third (63.2%) occurred in the hospital setting, followed by home/community (25.0%). In addition, 8.6% have been refused a job while 5.0% have lost their job because of their HIV status. Almost half (44.6%) of the respondents elicited internal stigma and 47.4% believed that family bonds are weakened because of HIV. Place of residence and awareness on HIV related rights significantly influence stigma/discrimination (χ^2 = 4.69, df = 1, P = 0.030). Rights awareness by PLHIVs does not rule out HIV-related stigma & discrimination experience (χ^2 = 5.29, df = 1, P = 0.021).

Conclusion: A remarkable proportion of PLHIV still face stigma/discrimination with possible dramatic impact on their treatment and resultant quality of life. Efforts therefore, should be made to ensure PLHIV are not only aware of their rights, but are empowered to seek redress if these rights are violated.

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HIV & AIDS Policies in Africa: A Critical Analysis

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Background: Investigating framing of stigma/discrimination and media in Human Immunodeficiency Virus (HIV) & Acquired Immune Deficiency Syndrome (AIDS) policies in Namibia and four other African countries – Botswana, Malawi, Lesotho and Uganda, provides a window into the importance of collaboration between all critical stakeholders on matters that deal with the disease. It is noteworthy that though the five countries in this study have had major challenges with HIV & AIDS prevalence since each of them identified the first case of the disease, the figures have significantly changed downwards in recent years.

Materials & Methods: Mixed methods approach (Content, and Discourse analysis) was used. Content analysis was used to enumerate the words 'stigma', 'discrimination' and 'media' in the policies. By enumerating the words, the researcher was able to identify how often these critical areas/potential stakeholder in the policies are mentioned. Discourse Analysis was used to analyse the language used where stigma/discrimination and media are mentioned and the context in which they are used.

Results: Findings indicate the following: (1) the forewords in the policy documents are done by key government persons and there seems to be a relationship in how the ranking of the person compared to how the country has dealt with HIV or AIDS nationally is visible. (2) throughout the five policies, there is mention of stigma (19 times) and extensive mention of discrimination (60 times) but minimal mention of media (6 times) thus showing a lack of correlation on both stigma/discrimination and role of media in dealing with the vice; (3) While stigma is mentioned variedly across the documents, emphasis on how to deal with it especially using media is non-existent.

Conclusions: The findings show the importance of the person who writes the foreword to the policy and how HIV & AIDS is dealt with in the country post the release of the policy document and level of support from the government. Findings also show critical need to extensively accommodate media in the policies in order to engage them in assisting with sensitization that could reduce the prevalence of the disease as the media would address stigma/discrimination at more varied levels e.g newspapers and others. It is envisaged that the study results will be significant in showing a need for all stakeholders' engagement nationally by reviewing each stakeholder's critical niche that could be better utilized to lower prevalence of infection of the disease in Namibia and the various countries reviewed.

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HIV-related stigma and its determinants among prisoners in Nigeria.

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Background: In sub-Saharan Africa, HIV-related stigma and discrimination remain widespread and continue to hinder the uptake of HIV prevention, treatment, and care services. However, in prisons, where inmates are vulnerable to HIV infection, there is dearth of data on the prevalence of stigma and discrimination against people living with HIV. This study aimed to assess HIV-related stigma and its determinants among prisoners in Nigeria.

Materials & Methods: A cross-sectional study was conducted between August 2018 and March 2019. Systematic random sampling method was used to obtain a study sample of 2,511 prison inmates from 12 prisons across the six geopolitical zones of Nigeria. Data analysis was done using descriptive statistics, chi-square tests, and multivariate logistic regression. Significance level of < 0.05 was considered statistical significant. Stigma was computed based on the selection 1 to 3 options out of three HIV related stigma questions on fear of casual contact with PLWH, by the respondents. Data analyses were conducted using SPSS software version 21.

Results: Most of the respondents were between 25-35 years (51%), male (92.4%), single (64.7%), Christian (70%), and had primary school (39.0%) as their highest level of education. Less than half (48.1%) of the inmates had certain misconceptions about HIV transmission. The most common misconception was that HIV could be transmitted through mosquito bites (28.9%). Stigma was high among inmates (72.5%). Only about two-fifths of respondents were willing to eat with a person living with HIV (PLWH) while about 60% were willing to associate or share a cell with a PLWH. Factors associated with HIV-related stigma among inmates were: traditional religion (aOR=3.4, 95%CI: 1.09-10.57); tertiary education (aOR= 0.3, 95% CI: 0.20 - 0.54); secondary education (aOR= 0.3, 95% CI: 0.16 - 0.44), primary education (aOR= 0.2, 95% CI: 0.11 - 0.31), and having misconceptions about HIV transmission (aOR=1.7, 95% CI: 1.30-1.87).

Conclusion: HIV-related stigma among prisoners was high. There is a need to implement programs on HIV awareness and education as well as anti-stigma interventions in Nigerian prisons.

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Exploring the meaningful involvement of people living with HIV and AIDS (MIPA) — and the effects of stigma and the capacity of people living with HIV and AIDS on MIPA — in Zimbabwe's HIV response: The Case of Central and Western Districts, Harare Province.

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Background: Meaningful Involvement of People Living with HIV (MIPA) has been identified at national, regional and international levels as being a critical component in the response to HIV as it facilitates the development, implementation and monitoring of ethical and effective HIV and AIDS programmes and processes. However in spite of this realisation, and formal commitment by Zimbabwe to a number of declarations such as the United Nations General Assembly Special Session (UNGASS) Declaration, the Abuja Declaration, and the Maseru Declaration, there has been little movement from commitment to action in terms implementation of MIPA, due to a number of challenges. This study sought to identify and explore factors leading and contributing to this state of affairs.

Materials/Methods: A qualitative approach was used in this study. Data were gathered from four groups of people: policy-makers, coordinators/programmers, representatives of the PLHIV/MIPA Technical Working Group (TWG) and support group members (SGs). Five in-depth interviews were conducted with the policy-makers, and six in-depth interviews were conducted with coordinators/ programmers. A total of five focus group (FGDs) discussions were conducted with support groups and one with the MIPA TWG. Key questions focused on issues relating to the concept of MIPA: how the participants understood it, the capacity of PLHIV representatives in terms of skills and education levels to put MIPA into action; and factors integral to MIPA such as representation, stigma, discrimination, and positive living. Analysis examined data in relation to the factors above as well as the theoretical concepts of social capital and cultural capital; additional codes were generated using key steps from a grounded theory approach.

Results: The study findings reveal that the main barriers to MIPA are HIV related stigma and the low capacity of people living with HIV to support and promote MIPA. Forms of stigma range from the 'soft' types of stigmatization such as labelling and discouraging HIV-positive persons from participating in household chores such as cooking, to harder core forms of stigma such as dismissal from work on the basis of an HIV–positive status. Stigma discourages HIV-positive persons, especially professionals, to be open about their status. Lack of accurate information, fear of death and cultural perceptions are also key causes of stigma and discrimination, with women being more stigmatised than men.

Tokenistic representation of PLHIV in Zimbabwe's national response, has been mitigated by building on social capital that exists in the form of traditional and social structures such as support groups and other differentiated care approaches.

Conclusion: The capacity of PLHIV needs to be strengthened as most of the representatives lack appropriate leadership and advocacy skills. Empowerment in the areas of livelihoods, networking and information sharing is also essential if MIPA is to be achieved and stigma reduced.

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The role of Short Message Service reminders and peers' home visits in improving adherence to antiretroviral therapy among HIV-infected adolescents in Cameroon

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Background: Adherence to antiretroviral treatment (ART) is a major barrier to achieving optimal treatment outcomes among adolescents living with HIV (ALWHIV). In Cameroon, very few interventional studies have been conducted with the goal of improving adherence to antiretroviral treatment (ART) in HIV-infected adolescents. This study set out to assess the impact of daily Short Message Service (SMS) reminders of drug dosing schedules and peers' home visits on adherence to ART and virologic response in HIV-infected adolescents receiving antiretroviral therapy (ART) in a Cameroonian health facility.

Methods: Two randomized control trials (RCT) were conducted for a period of 6 months (from July through February 2019). The sample constituted 184 adolescents aged 15 to 19 years old with disclosed HIV status receiving ART at the Mother-Child Centre, Chantal BIYA Foundation, Yaounde. For the first RCT, participants received daily SMS reminder of drug dosing schedule while for the second RCT, participants benefitted from weekly home visits from peers whose viral loads were already suppressed. Both control groups for each RCT received the standard care provided at the healthcare facility. Adherence was measured by using a composite of both self-reported and pill count assessments.This trial was registered in the Pan-African Clinical Trials Registry PACTR201904582515723 at (www.pactr.org).

Results: After the interventions, adherence to ART was better in both interventional arm-A (SMS reminder about drug dosing schedule) and arm-B (peer support by home visits), compared to the control arm (OR, 95% Confidence Interval: 5.8[2.3–14.9] and 4.1[1.6–10.9], respectively). Similarly, adolescents in both interventional arms were significantly achieved viral load suppression than those in control arm (OR, 95% Confidence Interval: 15.6[4.2–57.7] and 14.7[4.8–44.6], respectively).

Conclusion: Adherence to ART and virologic response are improved by SMS reminders about drug dosing schedule and peers' home visits. Such interventions should be integrated in the routine monitoring strategy for a better transition of adolescents to adult care in Cameroon.

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Linkage of HIV-positive and High-Risk Blood Donors to HIV Testing Services and Care and Treatment in Mozambique, 2019

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Background: The Mozambican Servico Nacional de Sangue (SENASA) contributes to HIV epidemic control through prevention of transfusion-associated HIV infection via routine screening of the national blood supply. Given that on average 100,000 blood units are screened annually for risk factors for HIV infection, SENASA can also serve as an access point to identify individuals at high-risk of HIV infection. In 2019, a referral mechanism was established at two of the largest blood donor sites in Maputo, Mozambique, to strengthen linkage of HIV+ blood donors to antiretroviral treatment (ART) and to link at-risk individuals to prevention services.

Methods: A prospective blood donor study was conducted at Maputo Central Hospital Blood Bank and National Reference Center, from May to December 2019. Demographic information, Health facility linkage rates were collected through medical record abstraction. Blood donors who were determined at high risk for HIV using a high risk behavior questionnaire and deferred from blood donation or whose blood donation tested positive for HIV were followed up by community health workers (CHW) and encouraged to return to local health facilities for HIV testing or confirmatory retesting in the case of positive blood donors, and if positive, referral to ART.

Results: Out of 16826 potential donors screened 513 blood donors enrolled at the two study sites, 72% (371/513) were female and 28% (142/513) were male; 26.1% (134/513) were determined to be at high risk and deferred; 73.9% (379/513) of those who donated blood were HIV+; 84% (202/240/) of blood donors, and 47% (64/134) of deferred donors were linked to care and retested. Total deferred and HIV+ blood donors linked to ART 131 (35%) and 72 (59.5%) initiated ART. The median CHW attempts to make contact for referral was one. The median time to establish linkage was 15 days.

Conclusions: Our results show linkage to care and ART initiation is possible with the use of CHW who facilitated linkage to testing, care and treatment and services. This study proposes an innovative way to improve linkage of HIV+ blood donors to HTS and HCT services with possible future policy implications to ensure safe blood.

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Coverage of the DREAMS primary and post-violence care services in Uganda

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Background: Since 2016, the President's Emergency Plan for AIDS Relief (PEPFAR) supported a Determined, Resilient, Empowered, AIDS-free, Mentored, Safe (DREAMS) lives partnership —a multi-sectoral approach to reduce HIV risk among adolescent girls and young women (AGYW) aged 15-24 years through a primary service package of interventions. Implementation was in seven districts of South-Central Uganda with high HIV prevalence (8%) with the goal of decreasing incident HIV infection in this subpopulation. We report on coverage of the DREAMS primary and post-violence care service packages.

Methods: Data from the Uganda DREAMS-OVC Tracking System (UDOTS). Using the 2016-2018 definition, the primary DREAMS service package consisted of HIV testing services (HTS), combined social economic strengthening (SES) and "Stepping-Stones" - a behavioural change intervention. Parenting using the SINOVUYO approach was received by AGYW in-school, pregnant and/or engaged in sex work. Secondary packages based on need include: post violence care (PVC), family planning, condoms and education subsidies. Start and Awareness Support Action (SASA!) was a contextual package. Stepping-stones completion was at 69% (9/13) modules, while SES completion was at 75% (3/4) modules. We determined the proportions of AGYW who received primary, PVC and/or parenting packages.

Results: From 2016 to 2019, 129,439 AGYW were enrolled on the DREAMS program, representing 67% of the target population (193,168). About 58% (75,646/129,439) of AGYW were aged 15-19 years. The proportions of AGYW targets reached were in-school 135.4% (51,002/37,654), married (213.6% (34,161/15,992), pregnant AGYW (77.2% (9,788/12,671), engaged in sex work 15.7% (8,688/55,328), and AGYW who gave birth before age 19, 36.1% (25,800/71,523). The coverage of the primary package was 81.0% (104,817/129,439) and 85.1% (89,222/104,817) completed the primary package. All AGYW received HTS. Stepping-stone and SES were received by 91.8% (118,787) and 84.9% (109,862), respectively. Completion rates for Stepping-stone and SES were 97.8% (116,168/118,787) and 86.3% (94,845/109,862) respectively. PVC and parenting were provided to 31.4% (40,603/129,439) of AGYW.

Conclusions: In this population, we found moderate coverage rates and high completion rates of DREAMS primary service packages. The segment approach to DREAMS enrolment should not leave out AGYW at risk at the same time saturation with primary package of services is needed.

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Evidence of a Quality Improvement-Guided Intervention to Improve the Availability of Viral Load Results Among Pregnant and Lactating Women Receiving Care at a Large HIV Clinic in Rural Mozambique

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Background: In Mozambique, routine viral load (VL) testing for pregnant/lactating women (PLW) is performed three months following antiretroviral therapy (ART) initiation and thereafter on a yearly basis. However, programmatic data showed an overall VL coverage of approximately 40%. In an attempt to identify bottlenecks and devise tailored interventions to address identified constraints at the individual health facility (HF) level, we evaluated steps along the prevention of mother-to-child transmission (PMTCT) VL continuum, from time of initial test requisition through result communication to patients in the Namacurra Sede health facility (HF). In 2018, Quality Improvement (QI) activities included mentoring of clinicians and health counselors on a biweekly basis and placement of VL request reminders within patients' clinical files (CF). In May 2019, a specific VL result tracking tool was introduced along with weekly monitoring of process measures such as the number of VL samples collected, number of results updated into the electronic patient tracking system (EPTS) and the number of printed results inserted into the CF. Health facility personnel received feedback regarding performance towards weekly targets in real-time. We report results from three Plan-Do-Study-Action (PDSA) cycles.

Materials & Methods: Data included all HIV-positive PLW, eligible for initial VL testing within three PDSA cycles (Cycle 1: September 21–December 20, 2017 [n=97]; Cycle 2: September 21–December 20, 2018 [n=82]; Cycle 3: March 21–June 20, 2019 [n=71]). Eligibility for initial VL testing was defined as having consistent ART pick-ups for 3 months and was confirmed using CF. Descriptive analysis was performed on indicators including VL requisition, turn-around of samples and results, results entry into EPTS, placement of results into CF, and communication of results to the patient over the three PDSA cycles.

Results: Initially, clinicians under-requested VL among PLW eligible for their first VL test: requests were only registered for 11% of 97 PLW in the first cycle and 22% of 82 PLW in the second. Other barriers in the first two cycles included problems with result availability in CF (11% of PLW samples in the first cycle and 5% of PLW samples during the second cycle) and limited communication of results to patients (6% for first cycle and 1% in the second cycle). Following introduction of the third QI PDSA Cycle, improvements were seen with 58% of the VL requisitions being registered in the CF and 49% of the results being placed into the CF. The communication of VL results to patients improved to 30%. There was no observed difficulty/delay with regard to turn-around time of VL samples and results between the HF and the provincial reference laboratory during any of the three consecutive cycles.

Conclusions: Using a specific viral load result-tracking tool in the health facility, combined with intensive monitoring of process measures targeting observed constraints within the PMTCT viral load continuum, led to improvements that are essential for PMTCT. Based on these preliminary successes, we have expanded this approach to 20 high-volume health facilities in Zambézia Province.

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Promoting consistent access to affordable condoms through introduction of condom vending machines in Sekondi-Takoradi, Ghana

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Issue: Condom use is a very effective HIV and STI prevention strategy, yet usage remains low. In Ghana standard condoms are available at health facilities, pharmacies and some hotels but uptake remains low. Reduced access to condoms and its usage has been linked to perceived societal stereotype about condoms, high price of condoms, self -stigma, shyness and religious/cultural connotations. As a measure to ensure access to affordable condoms, the Ghana AIDS Commission (GAC) introduced Condom Vending Machines (CVM) to promote consistent use of condoms in Sekondi-Takoradi, Ghana.

Description: The Ghana AIDS Commission identified 20 hotspots where people engaged in risky behaviors within the Sekondi-Takoradi metropolis. 20 Condom Vending Machines (CVM) were installed at vantage points in these hotspots that assured confidentiality and easy accessibility. Hotspot owners were engaged to agree to the installation at their hotspot. Each CVM had 4 knob chambers that took 216 condoms and dispensed at 3 pieces for 10 pesewas (Price 50% below market price for a standard condom).

Lessons Learned: Data from GAC shows that condom uptake increased after introduction of CVM. Given an estimated total of 72 users for each CVM, having access to condoms averagely every 2 days before stock out, a total of 3,240 pieces of condoms should be dispensed via a CVM in a month. However, an assessment on CVMs for Sekondi-Takoradi Metro in 2019 shows that more than 64,800 pieces of condoms were dispensed via 20 CVMs outlets in a month. This shows that 1,080 users (72*15=1,080) had access to condoms through a CVM in a month.

Next Steps:
-        The results showed the acceptability, feasibility and effectiveness of this innovative prevention through CVM. The Ghana AIDS Commission should sustain this strategy to increase uptake of condoms across all districts.

-        Providing affordable and accessible condoms through CVM encourages uptake of condoms among high risk population. Hence, the use of condom vending machines should be used as a prevention intervention toward reaching the hard-to-reach population as it may help reduce Sexually Transmitted diseases in the country.

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Low sFlt-1 and PlGF in early pregnancy are associated with HIV, preterm birth , and stillbirth

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Background: Maternal HIV increases the risk of adverse birth outcomes including low birth weight, preterm birth (PTB), and stillbirth but the mechanism underlying this risk is incompletely understood. Altered levels of the angiogenesis-related cytokines soluble Endoglin (sEng), soluble fms-like tyrosine kinase-1 (sFlt-1) and placental growth factor (PlGF) have been observed in women who experience PTB and stillbirth. We sought to determine whether HIV is associated with altered levels of angiogenic cytokines in early pregnancy.

Materials and Methods: We performed a nested case-control study in the ongoing prospective observational Zambian Preterm Birth Prevention Study (ZAPPS) in Lusaka, Zambia. ZAPPS enrolls pregnant women <24 weeks gestational age, performs an early ultrasound for gestational dating, collects longitudinal biological specimens for testing and storage, and follows participants through delivery to 42 days postpartum. Cases were defined as HIV+ at enrollment with a serum sample collected at < 16 weeks gestational age. Controls were HIV- at enrollment and matched on gestation age at sample collection. Concentrations of sENG, sFLT-1, and PLGF were measured with the Luminex MAGPIX analyzer. Associations of analyte concentrations between groups were tested using the Kruskal-Wallis H test. For analysis of cytokine concentrations in women who experienced an adverse birth outcome, PTB was defined as delivery before 37 weeks gestational age and stillbirth was defined as absence of signs of life at birth.

Results: 60 cases and 60 controls were met initial selection criteria, of whom 59 (98%) HIV+ cases and 58 (97%) HIV- controls had serum samples available for analysis. Median EGA at sample collection was 12.6 weeks in cases and controls (p=0.752). In HIV+ cases, the mean sFLT-1 concentration was 2085.72 pg/mL compared to 2381.51 pg/mL in HIV- (p=0.051). The mean PlGF concentration was 11.02 pg/mL in HIV+ participants compared to 12.65 pg/mL in HIV- participants (p=0.018). sENG concentration did not differ between HIV+ (2519.50 pg/mL) and HIV- participants (2347.66 pg/mL; p = 0.887). Of the 100 (85%) participants retained at delivery, 11 (11%) delivered preterm. The mean concentration of PLGF was 6.82 pg/mL in participants with PTB and 12.86 pg/mL in those with term birth (p = 0.008). Of the 98 (84%) retained participants with known neonatal vital status at birth, 5 (5%) delivered a stillborn infant. The mean concentration of sFLT-1 was 1231.03 pg/mL among participants with stillbirth and 2293.24 pg/mL among those with liveborn infants (p = 0.037). The mean concentration of PlGF was 5.90 in participants who delivered a stillbirth and 12.60 in those with liveborn infants (p = 0.028). Limiting analyses to exclude unmatched cases and controls did not significantly alter the results.

Conclusions: HIV is associated with lower sFLT and PlGF concentrations in early pregnancy, which were also associated with PTB and stillbirth. These results suggest that HIV may increase the risk of adverse birth outcomes by altering angiogenic processes early in pregnancy.

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HIV/AIDS treatment in Elderly Women: Experiences, Unique Challenges and lessons learnt

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Background: Despite the continuing successes attributed to antiretroviral therapy (ART) towards the improvement of the health status among people living with HIV/AIDS, strategic frameworks for coordination and implementation of HIV/AIDS interventions have not targeted older persons. This population has been ignored and marginalized yet they have played a front-line role by looking after orphans left by the youth who have succumbed to the HIV/AIDS pandemic in Uganda. From our programmatic experience, majority of the elderly women in our care live in rural areas where poverty is rife, economic opportunities are limited and accompanied by lack of family support. Several of them have reported sexual and gender-based violence. Age specific factors have affected HIV/AIDS prevention and ART among elderly women. ART has been further challenges by the increased burden of noncommunicable diseases and conditions such as dementia.

Methods: Our intervention focuses on improving the livelihoods of elderly women (50+years) living with HIV/AIDS to live a responsible & dignified life for themselves as well as OVCs in their care through a holistic model of care approach that takes care of the whole person, including the needs of the body, mind, family and community. We offer a comprehensive health package that involves screening and treatment for noncommunicable diseases. We have further developed a system of grandmother-to-grandmother (GM2GM) community support model and a robust surveillance system of grandmother's village committees (GVCs) for result based monitoring to capture emerging issues. The Project also focuses on sanitation, nutrition support and economic empowerment. Elderly women living with HIV/AIDS face not only medical problems but also social problems associated with the disease for example, stigma, injustice and many more, we have therefore addressed HIV based Vulnerability through increased legal, social protection and advocacy for rights and justice.

Results: Between June and August 2019, 24 special clinics have been conducted and 1,033 medical consultations made. 3 out of the 103 grandmothers screened for cervical cancer were positive with VIA. 634 elderly women (50+years) were active on ART and virally suppressed, 230 elderly women received economic strengthening skills and handouts. The number of GM2GM and GVCs has increased from 11 to 45 and 4 to 13 respectively since 2017, In 2019 alone ,6 legal cases have been addressed to support grandmother's rights and justice, 6 community dialogue meetings with key stakeholders on grandmothers' rights have been held and 11 community sensitization outreaches have been carried for purposes of advocacy.

Lessons learnt: Elderly-Driven strategies have increased responsiveness and demand creation for HIV/AIDS services. ART among elderly women requires harmonized efforts from different stakeholders that include clinicians, nutritionists, expert clients, counselors and family support to enhance adherence and viral suppression. Special attention is required to address drug interactions from multiple drug use. Social and cultural values take precedence over ART treatment in elderly women. Aging comes with vulnerability. Poor feeding is common to most elderly. Majority of the elderly are not prepared for the old age and it takes a human understanding to work with the aged.

Conclusions: HIV/AIDS treatment in elderly women has been challenged with a number of physical, clinical, and social aspects. We have observed that GM2GM and GVCs support systems are effective in addressing these unique challenges. We recommend design of special geriatric clinics, frameworks and programming across all HIV/AIDS spheres.

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Penis-centric priorities: the invisibility of LBQ women and female-bodied trans-diverse people in sexual and reproductive health services.

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"Bridging The Chasm", a SRH-R project implemented by Positive Vibes, through Amplify Change, partners with LGBTIQ and sex-work organisations in five Southern/East African countries to increase quality access to effective, appropriate sexual and reproductive health services for sexual and gender minorities; promote rights-forward approaches to health; and utilise local evidence to influence practice and improve policy engagement. Monitoring, accountability, public participation, active citizenship, democratisation of public health and good governance constitute underlying concepts and activities.

In 2019, LGBTIQ and sex work organisations applied "Setting The Levels (STL)" amongst their constituencies in Lusaka, Harare, Francistown, Walvis Bay, Gulu and Mbarara. This participatory methodology for systematic community-led monitoring of health facilities supported diverse populations, communities and healthcare workers from 18 local facilities to review, reflect and dialogue around their distinct perspectives, perceptions and experiences of healthcare, and plan for measurable, accountable improvement.

Amongst many common themes that emerged across five countries, one theme starkly exposed the intersections between sexuality and gender: that the urgency of SRH-R services, especially in the way these are coupled with HIV services in the public health paradigm, prioritises -- more: privileges -- men who have sex with men, and heterosexual, cisgender women. These penis-centric priorities invisibilise lesbian, bisexual and other queer women who have sex with women, and female-bodied trans men, in compound ways that increase their exclusion, vulnerability and marginalisation.

Sociologically, sexuality, safety and pleasure of female-bodied persons seem remarkably easily dismissed when they are not functions of an associated cisgender, heterosexual male sexual experience. Queer women and trans men are mysterious – exotic – to healthcare workers who have little understanding of their relationships and can offer little specific information or health education on safety, protection, prevention or risk; or commodities (eg. dental dams; finger cots). Epidemiologically, queer women and trans men are perceived to be at negligible risk of contracting or transmitting HIV, but little research exists to understand their experiences, behaviours or interactions. Trans men require access to comprehensive sexual and reproductive health, but may not present in settings that are unwelcoming, inhospitable or hostile.

Nor is it reasonable to expect that behaviour and biology can or should be -- certainly within a healthcare context -- divorced from identity. Clients and healthcare workers in a care setting, discussing the intimacy of sexual and reproductive health through an exchange of trust and confidence, should not be required to operate in a "don't ask, don't tell, just pretend" conditionality. Queer women and female-bodied trans men should have equal freedoms as any other clients to discuss their concerns about HIV, their sexual and reproductive health needs and questions, and their options for safety, protection and prevention.

Across at least five countries in Southern and East Africa, however, this is not the case, despite the stated priority of women within the HIV response.
Effective, rights-forward, equitable policy cannot exist when "…but not all women" disclaimers on SRH services apply to populations deemed epidemiologically insignificant. Under-serving LBQ women and trans men is to the detriment of general and HIV-specific health outcomes, and to the full expression and realisation of human rights and gender equity.

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Assessing the relationship between Intimate partner violence and dis-engagement from HIV care among Pregnant and Breastfeeding Women Living with HIV in Uganda

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Introduction: In sub-Saharan Africa, women remain disproportionally affected by HIV/AIDS because of socio-cultural factors including violence perpetrated by their intimate partners which affects engagement and retention in care.We analyzed data from a prospective cohort of WLWHIV and compared IPV prevalence among women in care and those disengaged from care traced through community outreach.

Methods: The prospective cross-sectional study was conducted in public health facilities in Wakiso district a peri-urban community in Uganda.HIV-infected women who initiated ART during pregnancy and are at 6-12 weeks postpartum were eligible between September 2018 to July 2019.A woman was considered disengaged (DW) if she was last seen > 90 days prior to database closure as identified from the electronic health records system.Women who were retained in care (RW) were similarly enrolled in the study.A team of community outreach workers traced the DW through telephone-calls and home visits to obtain vital information of both mother and baby using purposive consecutive sampling.Information on IPV were collected using structured questionnaires.IPV in the previous 12 months was assessed using the 13-item tool developed for the WHO.Poisson generalized linear regression model was used to determine factors associated to experiencing IPV using STATA 13, Texas, USA.

Results: Of 322 participants enrolled, a sample of 40 DW and 42 RW were interviewed for IPV. The median (Interquartile range) age in the sample was 26(24-29) years, 51(62.2%) were married, while 33(40.2%) had never disclosed their HIV status to their partners.32(43%) of women reported experiencing ≥1 act of IPV; emotional 30(36.6%), physical 16(20%) and sexual 14(17%).Higher proportions of DW experienced any form of IPV compared to RW (58% vs 29%, p=0.008), emotional violence (53% vs 21%, p=0.004), and sexual violence (34% vs 2.4%, p <0.001).Women who had not disclosed their HIV status to their partners reported higher proportions of IPV compared to their counterparts that had disclosed (57.6% vs 32.6%, p=0.025).DW had an increased risk (aRR=2.3; CI:1.3-4.2, p=0.007) of number of IPV experienced compared to RW, after adjusting for confounders.

Conclusion: Occurrence of IPV was higher among DW compared to their retained counterparts. Understanding the temporality of IPV among disengaged women and identifying strategies for IPV reduction are is critical.

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CONTRACEPTIVE UTILISATION AND ASSOCIATED FACTORS AMONG HIV POSITIVE WOMEN IN MULAGO HIV CLINIC.

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Introduction: Although HIV prevalence in Uganda has reduced from over 30% in the early 1980s to 6.2% in 2018, many people still suffer from HIV and many more are still getting infected with the disease. For the unborn child, spread through Mother-to-Child Transmission (MTCT) is still the main route of transmission. However despite this, the Contraceptive Prevalence Rate is still low (41.8%) according to the World Bank collection of development indicators, 2018. Contraceptive use is important in the prevention of pregnancy and considering the increased risks associated with pregnancy in HIV, HIV positive women should be utilizing contraceptive.

Objective: The study aimed at determining the contraceptive utilization among HIV positive women in Mulago HIV clinic Uganda cares and the associate factors.

Methodology: A cross sectional study was carried out in Mulago HIV clinic. Systematic sampling was used to select women to participate in the study. A total of 330 women who meet the inclusion criteria were interviewed using an interviewer administered questionnaire. Qualitative data was collected using FGDs. Data was then analyzed using SPSS 12. Logistic regression was used for the quantitative data. Qualitative data was analyzed according to the emerging themes.

Results: From the study, Contraceptive Prevalence Rate among all the women in the study was 60% and 70% among the married compared to 48% among the unmarried. The most commonly used methods included the male condom (41.4%), Injectables (38.9%) and Pills (13.69%). Among the factors associated with contraceptive utilization included intention to have children (OR=57.50, CI: 7.09-46.23) and marital status (OR= 5.61, CI: 2.14-14.73). Duration on ARV was found to be confounding the relationship between Contraceptive utilization and intention to have children in the future (43.9%). Desire for children was found to be highest among those who were newly married. In addition, discontinuation of contraceptives was mainly because of the side effects associated with the different contraceptive methods.

Conclusion: Women with HIV infection like other women may wish to plan pregnancy, limit their family or avoid pregnancy. It is therefore important to take into consideration their desires in order for them to make informed reproductive choices especially concerning use of contraceptives. More still, those who do not wish to have any more children should be encouraged to stick to consistent and correct condom use.
Key words: Contraceptive utilization, positive women, mulago HIV Clinic

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Depression among Pregnant and Breast feeding Women who disengage From HIV Care in Uganda

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Introduction: Depression occurs more frequently in people living with HIV than in the general population straining achievements of positive HIV treatment outcomes especially retention in care. We sought to examine the relationship between depression and retention in HIV care among women living with HIV.

Methods: This was a prospective study carried out in public health facilities in Wakiso district. The study aimed at locating HIV positive women who disengaged from HIV care for a period of January 2018 to January 2019 A woman was considered disengaged if she was last seen >90 days prior to time of tracing. These were identified from electronic health records system and were traced through telephone calls and home visits to obtain both mother and baby status. A PHQ-9 depression scale was used to assess the depression status. Descriptive statistics and ordinal logistic regression was used to determine factors associated with depression using STATA 13.

Results: Out of 1023 women identified from records, 385 (37.6%) had disengaged from care and 116 (30.1%) were successfully traced and enrolled in the study. The median interquartile range age (IQR) in the sample was 26 (23-29) years, 48 (41.4%) had a viral load above 1000 copies, 72 (62.1%) women were living with partners. 13 (11.2%) of women reported experiencing depression and 61 (52.6%) had not received any HIV care from any facility at the time of tracing. Married/cohabiting women were less likely to be depressed compared to their counterparts not living with partner, (ORR=0.4; CI: 0.19-0.95, p=0.038). Women who had reconnected to care were less likely to experience depression as compared to their counterparts who reconnected to care, however the association was not statistically significant, (ORR=0.6; CI: 0.26-1.56, p=0.327).

Conclusion: A high prevalence of depression among HIV women disengaged from care was noted indicating need for assessment of mental health as a barrier to retention in care.

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Community Health Worker household-based HIV testing among remote fishing communities in Uganda.

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Background: HIV is 4-5 times higher among hard to reach Lake Victoria fishing communities (FCs) in Uganda than the general population. Women are more at risk and disproportionally affected by HIV.
HIV prevention interventions among women in these most at-risk environments are key to the prevention and control of new infections.
With Uganda facing health worker shortages especially among those most at risk, hard to reach FCs, we explored willingness and factors associated with undergoing community health worker (CHW) household-based HIV testing and counseling (HTC) as a means of prevention and control of HIV among women in these communities.

Materials and Methods: As part of a community-based CHW intervention study, a cross-sectional survey among 243 consenting women aged 15-49 years, who were pregnant or had a birth or abortion in the past 6 months was conducted among three purposively selected island FCs of Kalangala District, Uganda, during January-May 2018.
Following the training of CHWs on HIV counseling, testing and referrals, women received household-based HTC by CHWs over a period of 12 months. Face-face interviewer-administered questionnaires in Open Data Kit (ODK) software were used to collect data on women's socio-demographics, receipt of household HTC services, as well as satisfaction with the services. Multivariable logistic regression modeling was used to determine factors associated HTC by CHW. The analysis was done using STATA version 15.

Results: Women's median (range) age was 25 (15-41) years, majority were married [86.8%, (211/243)], mainly working as housewives (stay home mums) [46.1%, (112/243)] and had never studied beyond primary level education [71.6%, (174/243)], with over half being pregnant at enrolment [55.6%, (135/243)].
A quarter had not had an HIV test during the preceding three months [25.5%, (62/243)]. The majority, 86.4% (210/243) were willing to undergo CHW HTC. 214 women (88.1%) participated in the CHW household-based HTC intervention. At 12 months, almost all participants followed up [96.3%, 206/214] were visited by CHWs, with visits ranging from 1-12 (median 5). Over three quarters, 82.5% (170/206) had household-based HTC by CHWs, 16.5% (28/170) were found to be HIV infected and were referred for HIV care by the CHWs.
Adolescents and Young adults were four times as likely to undertake CHW HTC as to those who were older (AOR= 4.2, 95% CI 1.5-12, P-value<0.05), controlling for marital status, partner's education, abortion history and attendance of antenatal care.
Almost all [98.8%, 168/170)], were satisfied with CHW household-based HTC.

Conclusions: CHWs household-based HTC is feasible and could help improve HIV prevention efforts among women in these hard to reach most at risk island FCs.

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Integrating HIV testing services into Maternal, Newborn and Child Health week in Nigeria: A gateway to improved HIV case finding among pregnant women and access to Prevention of Mother-to-Child Transmission of HIV services.

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Background: Previous studies have shown a high prevalence of HIV among pregnant women, but the challenge has been how to reach them with HIV Testing Services (HTS). Prevention of Mother-to-Child Transmission of HIV (PMTCT) is meant to overcome this challenge by providing HTS services, providing care for both the mother and unborn child, but PMTCT coverage in Nigeria is still low. Provision of HTS alongside Maternal, Newborn and Child Health (MNCH) services could be an effective method of ensuring a large number of pregnant women know their HIV status and access PMTCT services. This paper aims at showcasing the gains of integrating HTS into MNCH week on HIV case finding among pregnant women and access to PMTCT services in Nigeria.

Method: The project was implemented between May-June 2019, in three local government areas (LGAs) in each of the seven states: Anambra, Akwa Ibom, Oyo, Rivers, Abia, Kaduna, and Taraba. conducted Prior to project implementation advocacy visits to states' stakeholders were conducted. Traditional birth attendants and other community stakeholders mobilized clients with a special interest in pregnant women. Pregnant women attending the MNCH week accessed HTS at facilities and some choice community location, given incentives and provided with other health services. Positive pregnant women were linked to support groups and referred to facilities were PMTCT services were offered. National reporting tools for HIV were used for data collection while the LGA monitoring and evaluation officers ensured daily data collations. A database of all identified positives was given to the HIV program team for follow up.

Results: The total number of pregnant women reached (43,585) was 45% above the set target (30,000). The percentage of pregnant women who were HIV positive was 1.5% (653). Out of the 653, 87% (568) were newly identified HIV positive pregnant women and were referred to PMTCT service centers. The positivity rate for pregnant women was highest in Akwa Ibom (4.4%), then Rivers (1.7%) and Anambra1.5%. Oyo state which had the lowest positivity rate (0.3%) had the highest percentage of newly identified HIV positive pregnant women (93%), followed by Akwa Ibom (92%) and then Rivers (89%).

Conclusion: Integration of HTS into MNCH week was a great avenue to reach a large number of pregnant women within a short period of time with HTS and PMTCT services and also those who may not visit routine antenatal care services. Bringing this strategy to scale will improve HIV case finding among pregnant women, PMTCT coverage and outcome. Additionally, the HIV positivity rates varied across states and a high proportion of newly identified HIV positive pregnant women was observed. These findings may require further studies that would guide the design of more effective programmatic interventions.

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The Glass Ceiling Effect on Women Involved in HIV Research

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Background: The glass ceiling effect has been identified as an invisible barrier to advancement, which women face. Marilyn Loden, a management consultant, first used the term in 1978. The glass ceiling explains the inability of women to advance past a certain point in their professions and occupations, regardless of their qualifications or attainments. Research has shown that this metaphor does exist. However, there is limited research on the glass ceiling effect among women involved in HIV research. The aim of this paper was to explore the literature on the glass ceiling effect on women involved in HIV research.

Materials and Methods: A systematic scoping review was conducted between November 2019 and January 2020. The following databases were used Medline (Pubmed), Scopus, Embase (Ovid) and Google Scholar. Grey literature and hand searching of relevant journals were also used. Relevant criteria included articles that were describing the glass ceiling, narrowed down to the glass effect in research, then the glass ceiling effect on women in HIV research. Other relevant criteria included the glass ceiling effect on women in science then narrowed down to those involved in HIV research. The literature was searched by title first then abstract.

Results: The database and grey literature search yielded no results describing the glass ceiling effect on women involved in HIV research. Published papers and grey literature explained the glass effect on women in science, technology, engineering, academia, pharmaceutical sciences, health research, and other areas. These areas were outside the aim of this study. This is a research gap and studies can be done in this area. The author, a female researcher involved in HIV research, will share personal experiences in this field. The glass ceiling also exists in HIV research. Although there have been many advances in HIV research, the major contributions come from male researchers. The shortage of female scientists in HIV research may lead to fewer women pursuing the career. Most of the lead researchers and professors in HIV research are male and there are few female role models who can serve as mentors. The stigma associated with HIV/ AIDS still exists and this can also deter female researchers in this field.

Conclusions: Several barriers contribute to the glass ceiling on women in HIV research. Most documented articles explain these barriers in relation to science, technology, engineering and other areas except HIV research. There is a research gap, which can be explored to understand the barriers that women involved in HIV research face. There is a need for more women to be involved in HIV research and eventually serve as mentors for junior female researchers.

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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 (WLHIV) 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 approach ensured that data collection was conducted by WLHIV. The study was conducted in seven districts each in a different province. 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. Key Informants were selected using expert case sampling with a specific focus on health care workers responsible for supporting treatment. Transcripts were analyzed using Atlas Ti and thematic analysis was the key analytic method used. Results from analysis were synthesized into a draft report which was reviewed and iterations were made.

Results: Viral load monitoring is still supply driven with minimal community involvement especially around demand creation. The collapse of the sample transportation system and sub optimal results transmission mechanism has affected turnaround time for viral load test results especially in the context of a centralized laboratory system. Optimal provision of viral load testing has been affected by chronic human resources for health and power challenges affecting the country. 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 (25 years and above).

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 women living with HIV in key processes including strategic planning, resource mobilization and community monitoring on VL cascade and VLT advocacy.

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Knowledge and perception of factors influencing Wound healing process amongst Female diabetic patients living with HIV of 4 government hospitals in Osun state, Nigeria

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Background: There is a belief that improving the knowledge about the relationship between Diabetes and wound healing amongst diabetic patients can reduce mortality amongst them. Moreover, wound healing is usually a well-organized complex series of events that can be impaired in the presence of a chronic illness such as diabetes and diseases such as HIV. It, therefore, takes an understanding of the wound healing process and the effects on diabetes to promote the healing of these complex patients with what can be potentially life-threatening wounds. This research aims to assess the level of knowledge about delayed wound healing among Diabetic patients living with HIV.

Method: Four Government Hospitals were visited for the data of Diabetic patients over the last three years. Ethical approval was given on request at the 4 different Hospitals. Simple random sampling was used to select 38 patients. Questionnaires were distributed to patients likewise Focal Group Discussion was also conducted at 4 different centers. IBM SPSS Statistics 20 was used to analyze the data collected.

Results: The age Distribution is 18-27 (61.3%), 28-37 (16.8%), 38-47 (8.2%), 48-57 (8.7%), 58-67 (5.0%). 35% of the respondents are surgical patients, while 70% of them have wounds or had a wound experience before. Those with family history of diabetes are 60.3% of the total population. Average correct response include: General knowledge 67.1%, Risk factors69%, Symptoms 69.6%,Complications and consequences 71.7%,Level of knowledge: Poor 0-7(18%),Moderate 8-15(41.3%),Good16-23(53.9%).Source of information: Friends and relatives 33.9% journals and magazine11.1%, Internet 30.5%, Television and radio 9.7%, Medical staff 14.7%. 80% did not know about the causes before coming down with the disease. Only 50% are complying with their HIV treatment ts perfectly. The type of hospital visited by respondents was both associated with good compliance with HIV treatments with 57.9% visiting private hospitals for treatment and medical checkups monthly. Exactly 67.8 and 60.5% reported problems with nutrition and diet prescription by healthcare professionals at HIV clinics and healthcare professionals they consult about Diabetes treatment.

Conclusion: The patient's status of knowledge is commendable. There is a need to intensify the media role. The medical staff needs to give information to patients about the patient's condition in ways the patients would understand. More work should be done to reduce the cases of diabetes by advocacy and by making people be well informed about the causes.

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Gender-based violence interventions enhanced uptake of HIV services among female sex workers in Montserrado County, Liberia

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Background: Liberia has a high prevalence of HIV among female sex workers (FSWs). Approximately 10% of the estimated 163,000 FSWs are infected. High levels of sexual violence against FSWs increase the risk of HIV infection. White Rose Alliance (WRA), under the USAID/PEPFAR-funded and FHI 360-led LINKAGES/EpiC project, established a successful model of responding to gender-based violence (GBV) among FSWs in Montserrado County, Liberia.

Methods: In August 2019, peer outreach teams were sensitized in the identification and reporting of violence cases. GBV response teams were formed to provide social, psychological, and referral services. The teams include peer educators, peer navigators, hot spot owners, and female and male "five stars" (high-ranking and respected champions at hot spots). The teams intervened with perpetrators and brought them to community mediation for resolution or referred them to police.

Results: Prior to LINKAGES/EpiC, there had been a paucity of GBV case reporting. After training peer educators on GBV awareness, reporting, and creation of crisis-response teams, 94 GBV cases were recorded in hot spots served by WRA between August and November 2019. Discussions with 40 FSWs showed a strong preference for crisis response teams to resolve GBV cases instead of relying on police, because police are perceived to connive with perpetrators of violence. Seventy-seven cases (82%) were physical violence such as beating or other physical manhandling, eight (9%) were cases of emotional abuse, and seven (7%) were refusal by clients to settle the agreed payment. Forced sex and eviction of FSWs from hot spots accounted for 2% (1% each). Sixty-three percent (59/94) of perpetrators were regular sexual clients. All cases were successfully managed by the crisis-response team, except 15 GBV cases whose perpetrators refused to comply with their resolutions.

Conclusion: GBV sensitization and operational crisis response teams have provided protection for FSW victims of violence. Since some perpetrators do not cooperate with violence response teams, collaboration and coordination with the police is necessary to increase the protection of victims. The crisis-response interventions will help the entire project mitigate the effects of gender-based violence.

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Test and Treat, the Dilemma of the Woman in Antenatal Care in Malawi

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Background: Malawi's introduction of Option B+ policy improved uptake and retention in prevention of mother to child transmission (PMTCT) and resulted in impressive gains in the number of pregnant and breastfeeding women initiating antiretroviral therapy (ART). Despite this, retention-in-care of women has remained a key challenge. In the context of a study examining the impact of linkage-programs on PMTCT outcomes, we sought to understand key factors that continue to influence women's engagement in care.

Methods: Across five districts and eight clinics we interviewed 43 PMCTC-enrolled mothers, and conducted 30 focus groups with professional, lay and NGO health workers. Thematic inductive analysis was used to identify and synthesis findings.

Results: Findings revealed complex interaction between social, structural and individual motivations for starting and remaining in care. However a dominant theme in both client and health worker accounts was the tension between women's socially-sanctioned motivation to engage in PMTCT to 'protect my unborn child' and their equally socially driven fears that treatment would result in their 'being accused of being the one who brought the virus into the home' resulting in abandonment by (particularly) husbands. While many emphasized initial engagement in care as driven by a desire to 'save' the life of the child, some mothers felt pressured by the system to comply with government policy despite ongoing fears about the consequences for their own social security. In the context of this dominant narrative, facilities' capacity to respond to women's fears, through provision of counselling, community follow-up and psycho-social and peer support were often predictive of improved long-term engagement and retention.

Conclusions: While preserving their child's life remains a key motivation for enrolling in PMTCT for pregnant and breastfeeding women, it does not remain a strong motivation for remaining engaged in ART once the child is born. For Option B+ to deliver on its promise, health facilities must be able to respond to women's need for counselling, linkage and support in the critical post-partum phase, and PMTCT and ART programmes must further engage with social programming to address still-prevalent, gendered, community-based HIV stigma.

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Women Race, Age and Regional US & Non-US Subgroup Analysis of Dolutegravir (DTG) and Non-Integrase Inhibitor Treatment (Non-INSTI) Regimens in Naive Randomized Clinical Trials at Week 48

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Background: Throughout the highly active antiretroviral therapy (HAART) era, there has been a difference observed in the rate of viral suppression (VS) by gender and race, probably influenced by socio-cultural and economic impact. This analysis aims to evaluate the efficacy of DTG regimens in treatment-naive women at birth by race, age and region of origin.

Materials & Methods: A pooled analysis of 3 multicentre RCTs in 20 countries in treatment-naive participants (ARIA, FLAMINGO & SINGLE) comparing DTG to non-INSTI regimens was performed. The primary endpoint was VS at Week 48. Efficacy and safety endpoints were assessed per original study reporting. Unadjusted VS rates were estimated using a fixed effects meta-analysis inverse-variance weighted combination of individual study estimates. Baseline covariate adjusted treatment regimen odds ratios (ORs, DTG: non-INSTI) were estimated using a fixed effects meta-analysis logistic regression of VS.

Results: 1812 ART-naive participants were included. DTG and non-INSTI arms were balanced on baseline factors. Median age was 36 years, 29% identified as black and 38% were women. Virologic success rates (HIV-1 RNA <50 c/mL) at Week 48 for the DTG and non-INSTI arms were 83% and 72%, respectively, for women (OR = 1.862; 95% CI = 1.287, 2.695; p=0.0010); 78% and 69%, respectively, for black women (OR = 1.489; 95% CI = 0.873, 2.539; p=0.1438) and 87% and 75%, respectively, for non-black women (OR = 2.281; 95% CI = 1.365, 3.809; p=0.0016). There was no statistical evidence (p>0.10) that the treatment regimen OR (DTG: non-INSTI) differs between black and non-black women. The treatment regimen OR in black women relative to non-black women was 0.653 with 95% CI of 0.311 to 1.369 (p=0.2590). The women population was also evaluated by region of origin (US vs non-US). Women in the US reached 79% vs 74% undetectability (OR = 1.273; 95% CI = 0.667, 2.431; p=0.4647) while women in non-US reached 85% vs 72% (OR = 2.226; 95% CI = 1.417, 3.497; p=0.0005) for DTG vs non–INSTI-based regimens, respectively. VS rates were high in women taking DTG-based regimens, regardless of age stratification, < or ≥40 years old, showing numerically higher levels of VS with DTG regimens vs non-INSTI options: <40 years old, 79% vs 68% (OR = 1.695; 95% CI = 1.071, 2.683; p=0.0244), respectively; ≥40 years old, 88% vs 79% (OR = 2.143; 95% CI = 1.138, 4.033; p=0.0182), respectively. No DTG regimen safety concerns were noted.

Conclusions: VS rates were numerically higher for DTG compared to non-INSTIs at Week 48 in women and all analysed subgroups. The explanation for US vs non-US differences is not clear and may be linked to unobserved reasons probably beyond biological diversity. The data supports higher VS rates in treatment-naive women on a DTG regimen compared to a non-INSTI regimen at Week 48.

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Prevalence, antimicrobial susceptibility, serotypes and risk factors of group B streptococcus rectovaginal isolates among pregnant women at Kenyatta National Hospital, Kenya

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Background: Estimates of group B streptococcus (GBS) disease burden, antimicrobial susceptibility, and serotypes in pregnant women are limited for many resource-limited countries including Kenya. These data are required to inform recommendations for prophylaxis and treatment of infections due to GBS.

Objective: We evaluated the recto-vaginal prevalence, antimicrobial susceptibility, serotypes and factors associated with rectovaginal GBS colonization among pregnant women at 12-40 weeks gestation receiving antenatal care at Kenyatta National Hospital (KNH) between August and November 2017.

Method: In this cross-sectional study, consenting pregnant women between 12 and 40 weeks of gestation were enrolled. Interview-administered questionnaires were used to assess risk factors associated with GBS colonization. An anorectal swab and a lower vaginal swab were collected and cultured on Granada agar for GBS isolation. Positive colonies were tested for antimicrobial susceptibility to penicillin G, ampicillin, vancomycin, and clindamycin using disk diffusion method. Serotyping was performed using Immulex Strep-B kit. Logistic regression was used to identify factors associated with GBS colonization.

Results: A total of 292 women were enrolled. Their median age was 30 years (interquartile range [IQR] 26-35) with a median gestational age of 35 weeks (IQR 30-37). Overall GBS was identified in 60/292 (20.5%) of participants. Among the positive isolates resistance was detected for penicillin G in 42/60 (72.4%) isolates, ampicillin in 32/60 (55.2%) isolates, clindamycin in 14/60 (30.4%) isolates, and vancomycin in 14 (24.1%) isolates. All ten GBS serotypes were isolated with 37/53 (69.8%) of GBS positive participants having more than one serotype. GBS colonization was not significantly associated with maternal age (OR 1, CI 0.93-1.05; P 0.86), parity (OR 1.1, CI 0.77-1.51; P 0.65), gestation age (OR 1, CI 0.93-1.10; P 0.71), prior still births (OR 0.7, CI 0.45-1.16; P 0.18), history of pregnancy loss (OR 1.3, CI 0.76-2.19; P 0.33), history of preterm birth in prior pregnancies (OR 1, CI 0.64-1.51; P 0.94), past histoty of neonatal death (OR 2.1, CI 0.80-5.60; P 0.13), history of neionatal infection (OR 0.5, CI 0.14-1.60; P 0.23), history of membrane rapture in prior pregnacy (OR 0.7, CI 0.30-1.60; P 0.39).

Conclusion: The prevalence of GBS colonization was high among mothers attending antenatal clinic at KNH. In addition, a high proportion of GBS isolates were resistant to commonly prescribed intrapartum antibiotics. Hence, other measures like GBS vaccination is a potentially useful approaches to GBS prevention and control in this population. Screening of pregnant mothers for GBS colonization should be introduced and antimicrobial susceptibility test performed on GBS positive samples to guide antibiotic prophylaxis.

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How gender inequalities, give rise to the phenomenon of male sexual behaviour towards women's sexual health.

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Introduction: The purpose of this study was to describe how gender inequalities give rise to bad male sexual behaviours which affects women's sexual health particularly in HIV discourses.

Methods: We conducted a cross-sectional research drawing on a quantitative approach to collecting data through an interviewer administered questionnaire with 96 members of two support groups of the National Association of People living with HIV and AIDS in Malawi (NAPHAM) in Lilongwe city from 19 July 2017 to 04 August 2017. We calculated the percentage and the frequencies of responses from the participants while cross tabulating them with their demographic characterizes to examine how the responses were reflected across different people with different characteristics. Pearson chi square test was used to assess if there was an association between male sexual behaviour and women's sexual health.

Results: Among the 96 study participants interviewed, 27 (28%) were males and 69 (72%) were females. Eighty-one (84%) had formal education while fifteen (16%) did not have any formal education. Forty-four (45%) participants agreed that men had more access to education, financial opportunities and the right to own productive assets which according to them was a catalyst for gender differences between men and women while 14 (15%) disagreed and 38 (40%) did not know ($P<1.136$). Furthermore, 21 (29%) males and 52 (71%) females acknowledged that these gender differences give rise to immoral male sexual behaviours which puts them and their partners at risk of being infected with HIV while 6 (26%) males and 17 (74%) did not agree ($P<0.083$). Based on marital status, the majority of the participants (76%) who were either married, cohabiting, divorced, widowed or separated also agreed that gender differences give rise to immoral male sexual behaviours like having multiple sexual partners and male dominance which has negative implications in sexual relationships while the rest (24%) did not agree to the assertion ($P<0.803$).

Conclusion: Men's access to education, financial opportunities and the right to own productive assets leads to gender inequalities between men and women which puts women at a disadvantage both at home and in intimate relationships. The gender disparities that exit between men and women give rise to immoral sexual behaviours among men which puts them and their partners at risk of being infected with HIV. Men develop sexual behaviours which entice them to have multiple sexual partners which has implications on women's health.

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"So, treatment and adherence… it goes hand-in-hand literally with what you are going through in life": experiences of women six years after starting antiretroviral therapy in pregnancy in Cape Town, South Africa

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Background: Loss from care following initiation of life-long antiretroviral therapy (ART) during pregnancy remains a major challenge with implications for women's own health and transmission of HIV through sex, pregnancy and breastfeeding. We explored women's experiences with long-term ART after they initiated treatment during pregnancy.

Methods: We recruited 31 women with different categories of engagement in care based on routine medical records (13 consistently in care, 11 with gaps, 7 out of care). Women completed individual in-depth interviews approximately six years after they had started ART during pregnancy in Gugulethu, South Africa. The interview explored patterns of engagement in care and asked women to reflect on their experiences and life circumstances in relation to their ART. Data were transcribed and analysed thematically.

Results: Across all categories of engagement in care, barriers to adherence and retention were frequently reported, even among the women who had managed to remain in care. Stigma and social support, closely linked to HIV status disclosure, emerged as dominant themes with overarching influence on women's ability to remain in care and adherent. Partner relationships in particular frequently impacted women's care both positively and negatively. Having a supportive person, whether partner, family, friend, or even someone from the clinic, was important for many women who remained in care and the desire for support and follow-up was a prevalent theme. However, some women expressed strong feelings of self-efficacy and autonomy, reporting that their health was their own responsibility.

Layered on top of issues of support and stigma, there was a clear sense that HIV is just one component of women's lives and that life can be challenging and unpredictable. Women remaining in care reported that treatment was well integrated into their lives and they had found ways to continue ART even when disruptions occurred. Those with gaps or out of care were less able to navigate their HIV treatment when disruptions occurred, with some women reporting a sense of fatigue related to adherence to life-long daily medication.

The primary motivators for women to remain in care and to return to care after a gap were their responsibility to their children and fears about their own health. Women out of care expressed fear of being ill-treated and stigmatised by health providers, which made them hesitant to return to care.

Conclusion: Respondents differed in their ability to incorporate ART into their daily lives and this was influenced by their support systems, sense of autonomy, desire to remain healthy for their children, and various competing and often unpredictable life priorities. Issues of stigma and lack of support remained prevalent years after ART initiation. This highlights a critical need to engage communities, families and friends to strengthen support networks for people living with HIV. The sense of fear around returning to care following a gap in care is concerning given the high levels of disengagement from ART services. Interventions are needed to sensitise health providers and to support re-engagement both in health facilities and in communities.

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LOW PREVALENCE OF LIKELY DEPRESSION AMONG PrEP USERS IN KENYA

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Background: Effectiveness of PrEP in preventing spread of HIV is dependent on the commitment to taking daily pill of PrEP. Depressive symptoms have been associated with poor adherence especially in individuals living with chronic illnesses.

Methods: From May 2018 to December 2019, we enrolled 480 participants (165 men and 130 women in a HIV serodiscordant couple, 185 women at HIV risk) in a randomized trial testing if HIV self-testing could ease PrEP delivery. Eligible participants were ≥18 years, HIV uninfected (confirmed with rapid testing), and had used PrEP for 1 month. We measured the prevalence of likely depression at enrollment using the Patient Health Questionnaire-9 item (PHQ-9) depression scale. The PHQ-9 is a depression screening tool that includes items on somatic and cognitive depressive symptoms, as well as suicidal ideation. Each of the 9 items is measured from 0 ("not at all") to 3 ("nearly every day") and the sum score provides a continuous measure of depressive symptom severity (range: 0-27). We categorized PHQ-0 scores ≥10 as likely depression. We reported descriptive statistics for all participants and for each sub-population.

Results: The median age of enrolled participants was 34 years (IQR 28-41) and the median number of years in school was 9 (IQR 8-12). Among all participants, the severity of depressive symptoms was low (median PHQ-9 score: 1, IQR 1-4), as was the overall prevalence of likely depression (6%, n=28), Figure 1. Few participants reported any thoughts of suicide (5%, n=22). There were variations in the prevalence of likely depression by sub-population; men in serodiscordant couples had a lower prevalence of likely depression (2%, n=4) compared to women in serodiscordant couples (9%, n=11) and women at HIV risk (8%, n=13).

Conclusions: Depressive symptoms were relatively low in the three populations at substantial ongoing risk for HIV. Integrating screening services for depressive symptoms into PrEP delivery could help identify those with depressive symptoms for timely intervention.

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