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ABSTRACT BOOK

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ORAL ABSTRACTS

International Workshop on Pediatrics & HIV 2024

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1

Emerging Dolutegravir Resistance in Children and Adolescents Living With HIV in Malawi

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Background: In 2021, Malawi transitioned all children and adolescents living with HIV (CALHIV) to dolutegravir-based anti-retroviral therapy (ART), most with abacavir/lamivudine (< 30kgs) and tenofovir/lamivudine (≥ 30kgs) backbones. Transitions often happened without recent viral load (VL) results. VL suppression rates improved post DTG transition but remain below 85% among CALHIV, raising concerns about emergence of dolutegravir resistance.

Methods: National guidelines recommend HIV drug resistance (HIVDR) testing for individuals with confirmed virological failure (VL ≥1,000 copies/mL and repeated after enhanced adherence counseling) on dolutegravir-based regimens. We reviewed all HIVDR testing applications and available genotype results between December 2019 and November 2023 from CALHIV 0-18 years on dolutegravir-based ART in Malawi's ART program. Genotyping was performed from DBS samples at National Health Reference Laboratory in Lilongwe, Malawi or National Health Laboratory Service, Johannesburg, South Africa. Drug resistance was defined as resistance score ≥15 (Stanford HIVdb version 9.5.1).

Results: Of 302 applications from CALHIV with confirmed virologic failure (all on 2NRTI+dolutegravir), 145 genotyping samples were sent and 117 results were available. 28(24%) samples had no resistance, 33(28%) had single-class resistance, 36(31%) dual-class resistance, 18(15%) triple-class resistance and 2(2%) quadruple-class resistance, including one with darunavir resistance. Prevalence of dolutegravir resistance was 26% (n=31). Dolutegravir resistance scores were 13(42%) high-, 17(55%) intermediate- and 1(3%) low-level. The R263K mutation was most frequently detected (15 samples), followed by E138K (11), G118R (8), T66A/I (7), S147G (6), Q148R/K (4) and N155H (2).

Among 31 CALHIV with dolutegravir resistance, median age was 10 years (range 2-18). Four (13%) were <5 years and 16(52%) 10-18 years; 19(61%) were male. Median total time on ART was 75 months (range 21-182), median on current regimen 21 months (range 1-39); 25(81%) were on abacavir/lamivudine; 2(6%) on zidovudine/lamivudine and 4(13%) on tenofovir/lamivudine.

Conclusions: While access to HIVDR testing has remained limited in Malawi, dolutegravir resistance was observed among a quarter of CALHIV with confirmed virologic failure. More streamlined protocols are needed to prevent and detect dolutegravir resistance and to define practical switching strategies.

2

High Prevalence of Transmitted and Acquired Drug Resistance Mutations Among Newly HIV Diagnosed Neonates and Infants From Mozambique

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Background: Post-natal prophylaxis (PNP) and very early neonatal antiretroviral treatment (ART) within the first four weeks of life currently rely on nevirapine-based regimens. The efficacy of prophylactic or therapeutic regimens are potentially limited by virus-containing drug resistance mutations (DRM), acquired from mothers living with HIV (MLWH).

Methods: In the LIFE Study conducted in Mozambique and Tanzania, we enrolled MLWH 6505 and their 6602 infants at the time of delivery. During the first 12 weeks, we identified 125 infants diagnosed with HIV (1.9%; 95% CI: 1.6, 2.3) who were followed-up until 18 months of age. Genotypic resistance testing (GRT) was performed by Sanger sequencing for nucleot(s)ide (NRTI) and non-nucleotide (NNRTI) reverse transcription inhibitors, protease inhibitors (PI), and integrase strand transfer inhibitors (INSTI).

Results: At delivery, 76.4% of MLWH were on a dolutegravir-based ART regimen, 22.1% were on efavirenz, and 1.2% were not taking ART. HIV-diagnosed neonates received zidovudine, lamivudine, plus nevirapine for the first four weeks of life. From week 4, infants received abacavir, lamivudine, plus lopinavir/r, and in 29.7% of cases, lopinavir/r was later switched to dolutegravir. We performed GRT at baseline for 82 MLWH with HIV-positive infants and for 147 samples collected from 73 infants during the follow-up. Among mothers, DRM against NRTI were detected in 7.3% (mostly M184IV), NNRTI in 40.2% (mostly K103NT, E138AGKQ), and none against PI or INSTI. Among infants, we detected DRM against NRTI in 32% (mostly M184IV, L74V), NNRTI in 53.7% (mostly K103NT, E138AGKQ, Y181YCF), PI in 1% (V32I), and INSTI in 2% (S147SC). The proportion of detected DRMs against NRTI among infants was significantly higher than in mothers (p=0.004).

Conclusion: We observed high rates of transmitted DRMs against NNRTI among infants born to MLWH that potentially impacted PNP efficacy before HIV diagnosis and ART in neonates starting treatment from birth. Accumulated DRMs, especially against NRTI can be associated with inefficient treatment response because of transmitted DRMs and poor treatment adherence. Optimized PNP and ART regimens for neonates during their first weeks of life are urgently needed.

3

Low-Level Viremia Leads to Increased Risk for Virologic Failure in Children and Adolescents Living With HIV on Antiretroviral Therapy in Sub-Saharan Africa (CLOVES): A Multicenter, Retrospective Cohort Study

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Background: Viral load (VL) of 1000 copies/mL marks the cutoff for defining virologic failure (VF) in children and adolescents living with HIV (CALHIV) in many low and middle-income countries. However, evidence in adults suggests that low-level viremia (LLV), or VL between 50-999 copies/mL, increases risk of later VF. There are fewer studies that address LLV in CALHIV.

Methods: A retrospective chart review was performed on data collected from October 2004 to December 2022 from the Baylor College of Medicine Children's Foundation – Tanzania sites in Mbeya and Mwanza. CALHIV (0-19 years of age) on antiretroviral therapy (ART) for ≥6 months with at least one VL <50 copies/mL plus ≥2 subsequent VLs were included. Data analysis was performed with two VF categories, VL ≥1000 copies/mL and ≥200 copies/mL. Multivariable Cox regression modeling was performed to evaluate the association between LLV and VF; hazard ratios (HR) with 95% confidence intervals (CI) are presented.

Results: A total of 2618 CALHIV were included in the outcome analysis with a median age of 13.2 (IQR 9.7, 16.7), and 52.5% were female. Most participants (81.9%) were on 1st line dolutegravir (DTG)-based regimens. LLV was found in 40.5%. When defining VF as ≥1000 copies/mL, those with a history of LLV had a HR of 1.63 (1.38, 1.91) for VF. When stratifying by LLV (50-199, 200-399, and 400-999), all levels were associated with an increased risk for VF with HR of 1.39 (1.13, 1.69), 1.69 (1.33, 2.16), and 2.03 (1.63, 2.53), respectively. When defining VF as ≥200 copies/mL, HRs for VF rose to 3.85 (3.33, 4.46) for any LLV and 1.41 (1.15, 1.72), 7.99 (6.68, 9.57), and 9.37 (7.85, 11.18) for LLV of 50-199, 200-399, and 400-999, respectively.

Conclusion: LLV in CALHIV is associated with a greater risk of VF that increases with higher levels of LLV.

4

Viral Failure in Children and Adolescents Living With HIV on Dolutegravir (DTG) in Europe and Thailand

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Background: There are limited data on viral failure (VF) among children and adolescents living with HIV (CALHIV) on dolutegravir (DTG) in routine care settings.

Methods: Data on CALHIV aged<18-years at DTG start were pooled from 15 cohorts across Europe and Thailand in the European Pregnancy and Paediatric Infections Cohort Collaboration. VF was defined as confirmed viral load (VL)≥400c/mL or 1 VL≥400c/mL followed by DTG discontinuation after 24 weeks on DTG. Cumulative incidence of VF and associated factors were estimated using Kaplan–Meier methods and Cox proportional hazards models. Multivariable models were adjusted a priori for age and ART/VL status at DTG start. Fully adjusted models were not fitted due to limited numbers of CALHIV with VF.

Results: Of 1231 CALHIV ever on DTG, 778 had ≥2 VL measurements available >24 weeks on DTG and were included. At DTG start, median [IQR] age was 14 [11,15] years, 47% male, 97% perinatal HIV, 52% black ethnicity; 10% ART-naïve, 56% ART-experienced/suppressed (VL<200c/mL), 13% ART-experienced/viraemic (VL≥200c/mL), and 21% ART-experienced/unknown VL; 13% advanced/severe WHO immunosuppression; 22% had previous VF. Median duration on DTG was 137 [90, 215] weeks.

58 CALHIV experienced VF. Overall cumulative incidence (95% CI) by 96 and 144 weeks was 4% (3-6) and 9% (7-12), respectively. Incidence varied by ART/VL status at DTG start: lowest in ART-experienced/suppressed at 2% (1-4) and 3% (2-6) and highest among ART-experienced/viraemic at 12% (7-21) and 24% (16-36), respectively (p<0.001).

After adjusting for age and ART/VL status at DTG start, being female (adjusted Hazard Ratio (aHR) (95%CI) 2.18 (1.22-3.89), p=0.009), advanced/severe WHO immunosuppression (2.11 (1.06-4.17), p=0.033) and previous treatment failure (2.72 (1.52-4.88), p=0.001) were associated with higher VF rates. Geographic region was also associated with VF (Thailand: 1.38 (0.41-4.68), Ukraine: 0.17 (0.04-0.75), rest of Europe: 0.43 (0.24-0.78), compared with UK, p=0.004).

Conclusions: Overall incidence of VF by 3 years was low at 9%, although this was markedly higher among those ART experienced/viraemic at DTG start, reaching 24%. Females, advanced/severe WHO immunosuppression, previous treatment failure and living in the UK was associated with higher risk of VF. The regional effect may be due to different frequency of VL monitoring.

5

Preliminary Safety, Efficacy, and Acceptability of Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) in Children and Infants From 1 Month Old Weighing 6–<14 KG

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Background: Infants with HIV have limited treatment options and often face a high pill burden and non-pediatric/poorly palatable formulations. B/F/TAF is approved for children aged ≥2 years and/or weighing ≥14 kg. It has a high barrier to resistance and is well tolerated. We present preliminary data on B/F/TAF in infants and children aged ≥1 month and weighing 6–<14 kg.

Methods: Participants were enrolled in Cohort 4 of the Phase 2/3 open-label trial evaluating B/F/TAF in children and adolescents with HIV-1 (NCT02881320). We report preliminary data for participants weighing 10–<14 kg (Group 2) and 6–<10 kg (Group 3) receiving two and one B/F/TAF 3.75/15/1.88 mg tablets for oral suspension (TOS) twice daily, respectively. Participants were treatment naïve or on ART at screening and will be followed for 48 weeks with an optional extension phase. CD4 count, viral suppression (missing=excluded), safety data, and acceptability/palatability are presented.

Results: Fourteen (Group 2) and 15 (Group 3) participants were enrolled from South Africa, Uganda, and the USA. At baseline, in Groups 2/3 respectively, 57.1%/73.3% were female, 100.0%/86.7% were Black, median age and weight (range) were 30 (21-57)/9 (3-20) months and 11.3 (10.0-13.8)/8.0 (6.0-9.6) kg, median (Q1, Q3) CD4 counts in cells/µL and % were 1573 (1126, 1987)/2303 (1563, 2686), and 33.6% (31.6%, 35.7%)/36.3% (28.8%, 40.4%) respectively, and 46.2%/40.0% had HIV-1 RNA ≥50 copies/mL. At the data snapshot (last participant enrolled), median (Q1, Q3) exposure to B/F/TAF was 54.5 (29.7, 61.7)/32.7 (13.6, 48.4) weeks. At Week 12, CD4 remained stable and 92.9% (13/14)/81.8% (9/11) had HIV-1 RNA <50 copies/mL. Treatment-emergent adverse events (AEs) occurred in 42.9%/93.3%; one AE of Grade 1 pruritus in Group 3 was drug-related. One serious AE occurred in Group 3, and one participant in each group experienced a Grade 3/4 AE; these were not considered drug-related and did not result in discontinuation. At Week 4 in Groups 2/3 respectively, 100.0%/86.7% of caregivers reported that TOS were easy/very easy to prepare, and all perceived TOS with neutral/favorable acceptability and palatability.

Conclusions: In this preliminary analysis, B/F/TAF TOS demonstrated favorable safety, efficacy, and acceptability, supporting further evaluation in this population.

6

Interrupting ART in Children: Looking at Neurocognitive Functioning at School-Going Age

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Background: As we approach Antiretroviral Treatment (ART) interruption to study HIV cure, understanding the repercussions of HIV rebound on the brain, a known HIV reservoir, becomes crucial. We investigated cognitive functioning post-early ART introduction followed by interruption and re-initiation within the CHER trial.

Methods: Children who completed the CHER trial, at a median age of 5.1 years, were recruited into a cross-sectional study of neurocognitive performance if they were 6.5-8.5 years with no known CNS abnormalities and competent in local languages. The comprehensive neuropsychological battery included the Test of Variables of Attention (TOVA) and the Kaufman Assessment Battery for Children (KABC-II). Participants with KABC Mental Processing Index (MPI) or Non-Verbal Index scores ≤ 69 or TOVA Attention Performance Index < -2 were classified as neurocognitively impaired. We present results by randomized Arm i.e. deferred continuous ART (ART-Def) or early, time-limited ART until 40 (ART-40W) or 96 (ART-96W) weeks. Continuous and categorical values were analyzed via medians and frequencies, respectively. ANCOVA compared neurocognitive assessments.

Results: Among 269 available participants (57% females) median age was 7.3 years (IQR: 7.1-7.7), Median duration of schooling was 25.0 months. Median duration on ART was 6.7 years for ART-Def, 6.4 years for ART-40W, and 6.3 years for ART-96W. Median time off ART during ART interruption was 24 weeks for ART-40W and 40 weeks for ART-96W . There were no significant differences between arms on KABC-II individual subtest measures. However, more participants in ART-40W exhibited low MPI suggesting worse cognitive performance than ART-Def (31% vs 17%, p-value=0.041) while ART-96 was not different (28% vs 17% p=0.106). On the TOVA, more in ART-Def had attention difficulties compared to ART-40W (28.4% vs. 15.5%, p=0.038) and no difference with ART-96W (28.4% vs 20.7%, p=0.247).

Conclusion: Despite similar overall duration of ART in treatment arms, early ART withdrawal has a mild deleterious effect on longer-term cognitive ability, whereas deferred initiation may affect concentration. Early continuous ART seems protective for long-term neurocognitive ability, while interrupting treatment after 2 years of age may be less disruptive than earlier interruption.

7

Progress toward Triple Elimination of Mother-to-Child-Transmission of HIV, HBV, and Syphilis: A 12-months Retrospective Analysis of Testing Coverage in Antenatal Care Clinics in Cameroon

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Background: As Cameroon engages in the initiative to eliminate mother-to-child-transmission (MTCT) of HIV, syphilis and hepatitis B (HBV), there is scarcity of data to evaluate progress. We assessed testing coverage, PMTCT cascade for HIV, HBV and syphilis, and factors associated with testing among pregnant women.

Methods: We retrospectively analyzed data from pregnant women who attended their first antenatal care visit in 15 health facilities between October 2020 and September 2021. We abstracted and described mothers' demographics, clinical characteristics, HIV, HBsAg and syphilis testing results, and child diagnosis status. A multivariable logistic regression was used to assess the associations between being women living with HIV (WLHIV) and testing/tested positive for HBV and syphilis, adjusted for demographic and clinical characteristics.

Results: Overall, 21,419 pregnant women were enrolled, with a median age of 27 (IQR: 23-31), 9,564 (44.7%) did the three tests. Overall, 807 (3.9%) were HIV positive (592 known HIV positive, 215 newly diagnosed). Of the 11,086 (51.8%) women tested for HBV, 406 (3.7%) were HBsAg positive, including 18 receiving tenofovir as part of their HIV treatment. Of 12,534 (58.5%) women tested for syphilis, 126 (1.0%) tested positive and all were prescribed treatment. In total, 21 women were HIV/HBV co-infected, 6 were HIV/syphilis co-infected, and 8 were HBV/syphilis co-infected. Of the 21,419 women, 8,799 (41.1%) completed their pregnancy follow-up in the same facility and gave birth to 8,903 children. Among them, 446 infants were HIV exposed, of whom 12/264 (4.5%) tested positive after 24 months; 197 infants were HBV-exposed including 4 (2.0%) who received HBV-immunoglobulin and 15 (7.6%) who received vaccine at birth; 61 infants were syphilis-exposed with no documentation of maternal treatment uptake or child diagnosis. In multivariable analysis, being woman living with HIV (WLHIV) was associated with lower odds of HBV testing (aOR:0.78, 95%CI:0.67-0.92) or syphilis testing (aOR:0.74, 95%CI:0.64-0.87). Similarly, being WLHIV (aOR:1.68, 95%CI:1.02-2.61) was associated with a higher odds of HBV infection.

Conclusion: Despite considerable progress made with preventing MTCT of HIV, gaps remain in preventing MTCT of HBV and syphilis, particularly for infants. Strategies to improve HBV and syphilis testing and treatment among pregnant women are urgently needed.

8

Causes of Death Among Infants Living With HIV and Hospitalized With Severe Pneumonia in Sub-Saharan African Countries: Preliminary Results From the EMPIRICAL Trial

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Background: Mortality in infants living with advanced HIV is high but the chain of events leading to death is not well documented. We analyzed causes of death (CoD) in African infants living with HIV enrolled in the EMPIRICAL trial (NCT03915366) comparing CoD during hospitalization at enrolment vs. postdischarge.

Methods: EMPIRICAL enrolled infants living with HIV aged 28-365 days hospitalized with severe pneumonia in 20 hospitals in six African countries. CoD in deaths occurring from March 2020 to September 2023 was individually determined by two experts integrating antemortem socio-demographic, clinical, and laboratory information. Discrepancies were reviewed by a third expert. An underlying cause was assigned to all deaths, defined as the condition initiating the chain of events leading to death. Deaths where no cause was identified were classified as undetermined. When more than one condition contributed to death, the chain of events was documented (underlying, triggering comorbid conditions that ended in an immediate cause).

Results: Among 507 participants enrolled 225/507 (44%) died. Information was available for CoD determination in 222/225 (99%). Of them, 128 (58%) died during first admission and 94 (42%) postdischarge. Time to death from enrolment was 3 vs. 79 days. Females were more likely to die during first admission (72%) and male (59%) postdischarge. 76% of children were newly diagnosed with HIV, had a median CD4 of 13% and a high viral load, with no significant differences between groups. Complicated HIV was the most common underlying CoD. Of them, HIV resulted in infections was most common in children dying during first admission (43% vs 19%) whilst wasting syndrome in those postdischarge (57% vs. 84%, p 0.016). Pneumonia was the most common immediate CoD in the first group (64% vs. 32%, p<0.001), where lower Sat02 was a significant predictor (Sat02 72% vs. 82%, p 0.015). Sepsis was most prevalent among those dying postdischarge (13% vs. 30%, p 0.006). CoD was undetermined in 17%, mostly among children dying postdischarge out of a health facility.

Conclusions: Infants living with HIV and pneumonia are at an unacceptably high-risk of short-term and post-discharge mortality and knowing the CoD helps to prioritize their care.

9

In-Utero Exposure to High TFV-DP Concentrations Is Not Associated With Growth Anthropometrics in HIV Unexposed Breastfed Infants in South Africa: A Post Hoc Analysis of the CAP 016 PrEP in Pregnancy RCT

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Background: Studies examining in-utero exposure to Tenofovir Disoproxil Fumarate (TDF) containing pre-exposure prophylaxis (TDF-PrEP) in association with infant growth trajectories are sparse. In a post-hoc analysis of a PrEP in pregnancy randomised controlled trial we investigated an association between infant growth metrics in the first 18 months of life and high in-utero exposure to TDF-PrEP as opposed to no exposure to TDF-PrEP.

Methods: Infants were assessed at birth and 6, 26, 50 and 74 weeks of age. At each visit, trained nurses measured weight (W), length (L), and head circumference (HC). The World Health Organisation growth standards were used to calculate age and sex-appropriate z-scores for W, L, and HC. Stored DBS samples collected during pregnancy at two-time points were used to measure tenofovir-diphosphate (TFV-DP) levels. Age stratified mean WAZ, LAZ, WLZ, and HCAZ scores were compared between infants exposed to TFV-DP >500 fmol/punch, versus TFV-DP <500 fmol/punch versus unexposed to PrEP.

Results: A total of 455 mother-infant pairs were included in the secondary analysis, 228 in the Immediate PrEP arm and 227 in the Deferred PrEP arm. Among 228 women in the Immediate PrEP arm, the mean TFV-DP level during pregnancy was 310.3 fmol/punch (range <50 to 946.7 fmol/punch); 68 with TFV-DP levels >500 fmol/punch. Age-stratified WAZ, LAZ, WLZ, and HCAZ scores were comparable between infants in the Deferred PrEP arm and infants exposed to maternal TFV-DP <500 and >500 fmol/punch. Mean LAZ scores were consistently low across all groups from 6 weeks, PrEP Unexposed (-1.06), TFV-DP<500 (-0.89) and TFV-DP>500 (-1.12) through to 74 weeks, PrEP Unexposed (-0.82), TFV-DP<500 (-0.76) and TFV-DP>500 (-1.03). In a mixed-effects linear regression model adjusting for maternal age, BMI, socioeconomic and newborn characteristics, in-utero exposure to high TFV-DP levels (>500 fmol/punch) was not associated with WAZ [β=-0.52 (95%CI -1.10-0.06)], LAZ [β=-0.46 (95%CI -1.10-0.18)], WLZ [β =-0.43 (95%CI -1.05 – 0.18)] and HCAZ [β =-0.11 (-0.76 – 0.55) scores over time.

Conclusion: There was no evidence of an association between infant growth metrics in the first 18 months of life and high in-utero exposure to TFV-DP concentration among breastfed infants born to women without HIV.

10

DTG-Based ART Is Not Associated With Excessive Weight Gain in Children: 192 Weeks Follow-up in the ODYSSEY Randomised Trial

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Background: ODYSSEY demonstrated superior efficacy of dolutegravir(DTG) + 2 NRTIs versus standard-of-care (SOC, 77% efavirenz first-line, 96% boosted PI second-line) over 192 weeks in children starting first-line and second-line ART, and in cohorts enrolled weighing ≥14kg and <14kg. Here we present anthropometric data.

Methods: Anthropometrics measures were compared by intention-to-treat analysis between treatment arms using linear mixed models, including fixed effects and interactions for treatment arm and scheduled visit weeks, adjusting for first-/second-line, randomisation stratification factors and baseline measurements. Girls were censored at pregnancy. Proportions becoming newly overweight (BMI-for-age Z-score (BAZ) >1 to ≤2) or newly obese (BAZ>2) are described.

Results: 792 children were randomised (392 DTG,400 SOC); 383 started first-line, 409 second-line; 707 enrolled ≥14kg, 85 <14kg. At baseline in the ≥14kg cohort, median age (IQR) was 12.2years (9.1-14.9), weight 31kg (23-43), height 138cm (125-153), and BAZ -0.6(-1.4-0.1); 5% were overweight, 1% obese. In the <14kg cohort, median age (IQR) was 1.4years(0.6-2.0), weight 8kg(5-10), height 73cm(61-80) and BAZ -0.8(-2.0-0.2); 8% were overweight, 2% obese. 598(85%) ≥14kg and 70(82%) <14kg children were followed up to 192 weeks; of these, 89% and 66% remained on their randomised treatment at 192 weeks. Among the ≥14kg cohort, weight, height and BAZ increased more on DTG than SOC; adjusted differences in means (DTG-SOC) at 192 weeks were 1.2kg(95%CI:0.5,1.9;p=0.002), 0.6cm(-0.1,1.3; p=0.091) and 0.16 BAZ(0.04,0.29;p=0.01), respectively. The differences between treatment arms did not increase between 96 and 192 weeks, and were similar on first- and second-line ART. In <14kg cohort, there were no differences between treatment arms; at 192 weeks, adjusted differences in means were -0.02kg(-0.68,0.63;p=0.94), -0.3cm(-2.3,1.7;p=0.75) and -0.01 BAZ (-0.74,0.72;p=0.98), respectively.
20 (7%) children/adolescents in DTG and 20(8%) in SOC were newly overweight or obese at 192 weeks in ≥14kg cohort (p=0.86); 1(3%) DTG vs. 3(9%) SOC in <14kg cohort (p=0.29).

Conclusions: Children in ≥14kg cohort initially grew better after starting DTG compared to SOC, although differences were small; no differences were observed in <14kg cohort. Few children became newly overweight or obese in either DTG or SOC. Over 192-weeks' follow-up, DTG-based ART was not associated with excessive weight gain in infants, children and adolescents.

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Pregnancy and HIV Status Among Pregnant Adolescent Girls and Young Women in Eight EGPAF-Supported Countries

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Background: Pregnancy and breastfeeding are high-risk periods for HIV acquisition, and adolescent girls and young women (AGYW) are a high-risk group for pregnancy and HIV. We explored trends in antenatal care (ANC) attendance and HIV positivity among AGYW in eight country programs supported by the Elizabeth Glaser Pediatric AIDS Foundation before, during, and following COVID-19.

Methods: Routinely-reported program data between January 2019 - June 2023 were analyzed across eight countries [Cameroon, CDI, DRC, Eswatini, Lesotho, Malawi, Mozambique, Tanzania]. Indicators of interest included the number of new ANC clients by age (10-14yrs, 15-19yrs, 20-24yrs) and documented HIV status at first ANC: known HIV positive (KP) and newly diagnosed/newly positive (NP). Data were analyzed to compare trends pre-COVID-19 [January 2019-January 2020], during-COVID-19 [March 2020-June 2022] and post-COVID-19 [April 2022- September 2023].

Findings: Overall, 3,499,537 AGYW were identified as pregnant between January 2019 - September 2023 across the eight countries. The overall proportion of pregnant AGYW among all new ANC clients increased significantly from 27% pre-COVID-19 to 47% post-COVID-19 (p=0.0028). AGYW 20-24yrs constituted 25% (869,544) of all new ANC clients enrolled in care, followed by 15-19yrs olds (14%;498,337). A total of 7,354 (0.2%) 10-14yr olds were identified as pregnant. Higher HIV positivity was noted with increasing age among pregnant AGYW, with 1.9% (131/6833) positivity among AG 10-14yrs, 2.0% (10,092/493,681) among AG 15-19yrs, and 4.1% (35,057/860,583) among YW 20-24yrs. There was a higher proportion of new positives (NP) among AG 15-19yrs presenting to ANC (49%;4,935/10,092) compared to the other ages with 33% (43/131) among AG 10-14yrs and 39% (13,775/35,057) among YW 20-24yrs. However, there was a decline in the proportion of NP among AG 15-19yrs across countries from 54% (330/608) in January-March 2019 to 41% (190/469) by April-June 2023. There was heterogeneity in the proportion of NP vs KP among AGYW 15-19yrs compared to 20-24yrs across countries.

Conclusions: We observed high pregnancy rates among AGYW during and post-COVID-19 across countries. There was also a high proportion of NP among AG 15-19yrs and high pregnancy among KP across age groups. This underscores the importance of establishing integrated HIV and family planning support services targeting AGYW.

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The Effect of STI Screening During Pregnancy on Vertical Transmission of HIV and Adverse Pregnancy Outcomes in South Africa: A Modelling Study

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Background: Sexually transmitted infections (STIs) in pregnancy are associated with increased risk of adverse pregnancy and birth outcomes and vertical HIV transmission. Standard of care for STI management in South Africa is syndromic management (SM). We assessed the potential impact of point-of-care (POC) screening for curable STIs (Chlamydia trachomatis [CT], Trichomonas vaginalis [TV] and Neisseria gonorrhoeae [NG]) during pregnancy on vertical HIV transmission and adverse pregnancy and birth outcomes.

Method: We developed a static mathematical model to estimate the impact of SM compared to POC screening of STIs in pregnant women attending antenatal clinics in South Africa over one calendar year (2022). We conducted a meta-analysis of three published systematic reviews that independently assessed CT, NG, and TV on adverse pregnancy outcomes, conducted another meta-analysis on impact of STIs on vertical HIV transmission. Local studies inform STI prevalence, POC screening uptake and treatment, and sensitivity of SM.

Results: In the absence of POC screening of curable STIs, 25.5% of pregnant women without HIV and 34.6% of pregnant women living with HIV (WLHIV) have undiagnosed and untreated STIs. In the POC scenario, approximately 92% (95% CI: 85-100%) of STIs are diagnosed and treated during pregnancy, reducing antenatal maternal HIV incidence by 10.0% (95% CI: 1.0-20.1%). The anticipated reductions in vertical HIV transmissions at birth and postnatally are by 20.9% (15.2-27.0%) and 2.5% (-0.9-9.0%) respectively. Overall, vertical transmission risk of HIV is estimated to reduce by 8.6% (5.2-13.8%) in the POC screening scenario compared to current syndromic management. POC screening of curable STIs is further estimated to reduce the incidence of stillbirth by 10.1% (1.3-18.7%), preterm delivery by 6.3% (3.4-9.7%), infants born small for gestational age by 2.7% (0.7-4.9%) and low birth weight by 9.1% (0.9 – 18%).

Conclusion: Curable STIs are common among pregnant women in South Africa. POC STI screening and treatment could substantially reduce the burden of curable STIs in pregnancy and the risk of adverse pregnancy and birth outcomes and may modestly reduce maternal HIV incidence and vertical transmission of HIV. The study motivates to move beyond syndromic management of STIs in South Africa, particularly in antenatal care.

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High Vertical Transmission Rate Among HIV-Exposed Infants up to 9 Months of Age Born to Newly Identified Breastfeeding Women Tested at the Well-Child Clinic: Results From a Pilot in Mozambique

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Background: HIV retesting of breastfeeding women (BFW) is key to reducing postpartum HIV vertical transmission. In Mozambique, BFW with unknown/undocumented or negative HIV status are tested quarterly up to 9 months postpartum. As part of a broader performance assessment of a new HIV risk screening tool to optimize testing among BFW, we describe herewith the results of women's HIV positivity when tested in the breastfeeding period and the vertical transmission rate among their infants.

Materials and Methods: Data were collected from August 2022-November 2023, in 48 health facilities of Cabo Delgado, Nampula and Zambézia provinces. HIV tests results of women, and follow up data of women living with HIV and their newly exposed infants were captured in the REDCap™ platform. Positivity rate was defined as the proportion of BFW with a positive HIV rapid diagnostic test result; vertical transmission rate as the proportion of infants of seroconverted mothers having two positive virologic test results. Descriptive analysis was performed using STATA V.15.

Results: A total of 70705 HIV tests were performed (10248, 30887, 29570 in Cabo Delgado, Nampula, Zambézia, respectively), with 90.2% (n=63772) having a documented previous HIV negative test result. From all tests performed, 70297 (99.4%) had a negative result, 333 (0.5%) had a positive result (38 [0.4%], 186 [0.6%], 109 [0.4%] in the respective provinces), and 75 (0.1%) had an indeterminate result. Among exposed infants, 278 (83%) were linked to the child-at-risk clinic and had a virologic HIV test result (37 [97.4%], 150 [80.7%], 91 [85%] in the respective provinces). Infants' positivity rate was 15.1% (n=42), being 16.2% [n=6], 13.3% [n=20], 17.6% [n=16] in the respective provinces. Linkage to care was 93% among BFW (n=309) and 98% (n=41) among infants.

Conclusions: Despite a relative low proportion of BFW being identified with HIV, the vertical transmission rate among infants up to 9 months of age born to newly-diagnosed women was high. Results underscore the need for optimized retesting strategies and its referral to infant HIV testing services. Ultimately, primary prevention and linkage to PrEP services are crucial to avoid new maternal HIV infections and prevent vertical transmission.

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Safety Outcomes Among Infants Whose Mothers Used Dapivirine Vaginal Ring or Oral PrEP During Pregnancy (MTN-042/DELIVER)

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Background: Dapivirine vaginal ring (“ring”) is registered for HIV prevention in cisgender women in 11 African countries and available for use in six. MTN-042/DELIVER, conducted in Malawi, South Africa, Uganda and Zimbabwe, is the first study of ring use during pregnancy. We report infant birth and safety outcomes following in-utero exposure to the ring/DVR or to oral tenofovir disoproxil fumarate/emtricitabine (oral TDF/FTC). Maternal and pregnancy safety data has been previously reported elsewhere.

Methods: Pregnant individuals enrolled at 36-37 weeks’ gestation (Cohort 1), 30-35 weeks (Cohort 2) and 12-29 weeks (Cohort 3). In Cohorts 1 and 2, women were randomised 2:1, in Cohort 3, 4:1, to receive the ring or oral TDF/FTC. Infant visits were conducted at <2 weeks, 6-weeks, 6- and 12-months after delivery. Birth outcomes, Serious Adverse Events (SAEs), ≥Grade 3 AEs, growth parameters and infant development (using Ages and Stages questionnaire), up to 12-months for cohorts 1 and 2 and 6-months for cohort 3, are included.

Results: In total, 546 infants enrolled (Cohort 1=147, Cohort 2=154, Cohort 3=245); median intrauterine exposure was 3.4, 9.1 and 16.0 weeks respectively. Across all 3 cohorts, 99% of deliveries were live births, 4.4% were preterm (<37 weeks). Low birth weight (<2500g) was recorded in 5% of infants. The median weight-for-length z-scores at 6-weeks did not differ by cohort or drug exposure. Congenital anomalies occurred in 25 infants and of these 12 were umbilical hernias and none were considered related to product by site physician or study medical monitor. SAEs were reported in 61/399 (15%) infants exposed to the ring and 14/147 (9.5%) to oral TDF/FTC, including 9 infant deaths. No ≥Grade 3 AEs or SAEs were considered related to either product. Developmental milestones were in the “typical development” range for almost all children in all cohorts, across both products.

Conclusion: Through 6 and 12-month follow-up of infants, no safety concerns were observed following maternal use of the ring or oral TDF/FTC. Combined with previously reported maternal safety findings throughout pregnancy, this analysis supports use of the ring and oral TDF/FTC by pregnant individuals to prevent HIV.

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Pharmacokinetics and Safety of Dolutegravir in Neonates Exposed to HIV-1 (IMPAACT 2023)

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Background: Dolutegravir (DTG) is approved for treatment of HIV-1 in adults and pediatric patients ≥4 weeks and ≥3 kg. We evaluated the pharmacokinetics (PK) and safety of two single oral doses of DTG administered as either an investigational liquid suspension (LS) or dispersible tablet (DT) in addition to standard of care in full term neonates exposed to HIV-1.

Methods: IMPAACT 2023 is an ongoing PK and safety study of DTG in infants during the first 4-6 weeks of life. Two single doses of DTG (0.5 mg/kg LS or 5 mg DT) were administered within the first 13 days of life. Adverse events (AEs) were graded using the DAIDS grading table. A population PK (PopPK) model was developed using nonlinear mixed-effects modeling. Simulations were performed to evaluate the appropriateness of DTG 5 mg DT chronic dosing regimens in neonates for the first 4 weeks of life to achieve target geometric mean exposures: Ctrough >0.697 µg/mL, AUC0-tau >37 µg*h/mL, and Cmax <18.35 µg/mL.

Results: Data were available from 18 neonates with birthweights between 2.3-3.5 kg and postnatal age 1-5 days at time of enrollment. Geometric mean (range) Cmax with the LS was 2.10 (1.38–3.83) µg/mL in six neonates with maternal DTG use (DTG-exposed) and 0.74 (0.16–1.34) in six DTG-naive neonates, and with the DT was 3.91 (2.86–5.08) µg/mL in six DTG-naïve neonates. No neonates experienced ≥ grade 3 AEs or AEs deemed related to study drug. A 1-compartment PopPK model with first-order absorption and first-order elimination adequately described the data. Simulations show that DTG 5 mg DT every other day for two weeks (Q48h), followed by once-daily (Q24h) through 28 days of life is predicted to achieve target exposures in both DTG-naïve and exposed neonates.

Conclusions: Two single doses of DTG were well-tolerated with no unexpected AEs in neonates exposed to HIV-1. Simulations show that for both DTG-naïve and DTG-exposed neonates, a 5 mg DT dose Q48h for two weeks, followed by 5 mg Q24h is predicted to achieve target exposures. This chronic DTG dosing regimen will be evaluated in a subsequent cohort of IMPAACT 2023.

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A Multi-Country Analysis of HIV Testing Strategies for Identifying Adolescents Living With HIV

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Background: Adolescents account for 4% of people living with HIV and 10% of new adult HIV infections (UNICEF 2022). We describe testing data and strategies under U.S. President's Emergency Plan for AIDS Relief (PEPFAR), through U.S. Agency for International Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project to identify adolescents living with HIV (ALHIV), in 18 countries (Africa, Asia, South America).

Material and Methods: Adolescents were offered HIV rapid test/self-test in health facilities and communities, through various trained cadres (peer outreach workers, counselors, clinical providers). Using routinely collected aggregated data, we analyzed the number of adolescents ages 10-19 years who were tested by population category, testing strategy, venue; calculated the case finding (CF) rate as percentage of ALHIV among those tested.

Results: Between October 2022 and September 2023, EpiC tested 77,608 adolescents, identifying 1,848 (2% CF) ALHIV: 60% tested in facilities (2.7% CF; 2.4% excluding index testing), 40% in communities (1.9% CF; 1.2% excluding index testing). Among those tested, 27% were reached through index testing (5% CF); 16% through mobile testing (1% CF); 25% through facility-based provider-initiated testing and counselling (3% CF); 32% through antenatal, voluntary counseling and testing and others (2% CF). The latter included social network strategy (SNS), for which 2,517 received a coupon, 2,017 were tested, 24 (1% CF) tested positive. Among those tested, 28,880 received HIV self-test, 22,639 returned the test result, 42 (0.2% CF) reported a reactive self-test, confirmed positive by rapid test. Among ALHIV, 83% were from general population (GP, 2% CF), 14% priority populations (PP, 5% CF), 3% clients of female sex workers (CFSW, 5% CF) and children of key populations (CKP, 8% CF).

Conclusions: Facility testing reported a CF higher than community testing suggesting that we could be reaching adolescents when they were already sick and calling for scaling up of community testing. Index testing resulted in higher CF than other strategies, hence, should be continued. Testing strategies were effective in reaching high risk groups (PP, CFSW, CKP), who should be prioritized. We recommend scaling up HIVST to improve access and assess fidelity of the SNS because of low CF.

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Findings From the Todurujo NA Kadurok (Empowering Youth) HIV Self-Testing and Edutainment Comic Randomized Controlled Trial With Refugee Youth in a Humanitarian Setting in Uganda

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Background: HIV vulnerabilities among refugee youth are shaped by structural and social factors in humanitarian settings that constrain access to HIV prevention and testing. Although HIV self-testing (HIV-ST) is particularly promising among youth, humanitarian contexts are underserved by HIV-ST. Comic books, a form of graphic medicine whereby images are juxtaposed by text reflecting internal and external narratives to share health information (also known as 'edutainment'), are understudied in the context of HIV-ST. Uganda hosts more than 1.5 million refugees. We evaluated the effectiveness of HIVST and edutainment comics in increasing HIV testing with refugee youth in Bidi Bidi refugee settlement, Uganda.

Methods: We conducted a qualitative formative phase with focus groups with refugee youth to create an edutainment comic about HIV testing barriers and facilitators in Bidi Bidi. We then conducted a randomized controlled trial in Bidi Bidi with a purposive sample of refugee youth aged 16-24. Arms included: (1) HIV-ST; (2) comics; (3) HIV-ST with comics; and (4) standard of care (SOC). Intervention effects on primary (HIV testing uptake) and secondary (e.g., HIV knowledge) outcomes at 3-month follow-up (T2) were assessed using generalized estimating equation (GEE) models.

Results: There was 98% retention (n=117/120) of participants (n=120; mean age: 20, standard deviation: 2.3) at T2. In adjusted analyses, in comparison with the SOC at T2, HIV testing odds were highest in Arm 3 (adjusted odds ratio [aOR]: 8.46; 95% confidence interval [CI]: 2.87-24.97) followed by Arm 2 (aOR: 4.14; 95%CI: 1.58-10.87), with no significant differences with Arm 1 (aOR: 2.81; 95%CI: 0.96 8.16). Arm 1 at T2 reported lower HIV-related stigma (ab: - 0.95, 95%CI: -1.9, -0.03), reduced condom use at last sex (aOR: 0.21, 95%CI: 0.07-0.65), and lower consistent condom use compared to the SOC (aOR: 0.010, 95%CI: 0.02-0.58). In secondary analyses including all participants, there were statistically significant T1 to T2 increases in HIV testing (aOR: 21.79; 95%CI: 4.57-103.93), HIV knowledge (ab: 1.45; 95%CI: 0.93-1.97; p<0.001), and safer sex efficacy (ab: 3.64; 95%CI: 2.09-5.19; p<0.001).

Conclusions: HIV self-testing is feasible with youth in a Ugandan refugee settlement and can be supplemented with edutainment comics to advance HIV prevention.

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Concerning Lack of Virological Suppression in Plasma and Cerebrospinal Fluid in Adolescents on Long-term Early Antiretroviral Therapy

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Background: Infants who started early antiretroviral therapy (ART), with long-term suppression, are thriving and are good candidates for HIV remission and cure. However, the latent reservoir, including in the central nervous system (CNS) may be an important barrier to cure/remission. We report preliminary findings on plasma and CSF HIV levels in adolescents on ART from early infancy and also associations with neurocognition.

Materials and Methods: Participants from the CHER trial, conducted in South Africa (2005-2011), were enrolled into a cross-sectional study to investigate the CNS. Cerebrospinal fluid (CSF) (17mL) and peripheral blood were collected for plasma HIV RNA viral loads (VLs). Neurocognition was evaluated through Test of variables of Attention (TOVA), Wechsler Abbreviated Scale of Intelligence (WASI-II) Similarities, Wechsler Intelligence Scale for Children (WISC-IV) digit span for working memory and coding and symbol search for processing speed. Raw scores were adjusted for age on the WISC-IV tests. Recreational drugs were measured in urine. Medians for continuous data and correlations between viral loads and neurocognitive scores were performed.

Results: Eighty participants, equal enrollment from Cape Town and Soweto, were studied (46 female; 34 male). Median [IQR] age was 17[16.9:17.6] years, body mass index 22 [19:24], CD4 count 727[563-880] (n=66), CD8 count 794[680:1024] (n=64), CD4:CD8 ratio 0.93[0.66:1.27] (n=62). Age at ART start was 8.2[7.0-11.7] weeks, Median duration of ART was 16.3 [15-16.9] years. Fifty-three (66%) were on Tenofovir-Lamivudine-Dolutegravir. Plasma and CSF VLs were available on 65 participants: 21(32%) had detectable HIV in plasma (20-399 copies/mL n=11; >399 copies/mL n=10), of these, 20 had detectable HIV VLs in CSF (16 <400 copies/mL; 4 >400 copies/mL). Log plasma and CSF VLs were strongly correlated (r=0.84). Thirty-six participants (45%) tested positive for Cannabis (2 also methaqualone positive), 11 reported using drugs >1/week. Viral non-suppression influenced neither neurocognition nor attention.

Conclusion: Almost 1/3 of participants were unsuppressed with almost all having HIV RNA in CSF. There was a high prevalence of Cannabis use which must still be explored. These data are extremely concerning for long-term outcomes.

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Adolescents and Young Adults with HIV Using Long-Acting Injectable Cabotegravir/Rilpivirine as a Standard of Care: Outcomes of the Observational Cohort at 26 months

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Long-acting injectable (LAI) cabotegravir/rilpivirine (CAB/RPV) can improve antiretroviral treatment (ART) adherence and outcomes among adolescents and youth with HIV (AYHIV). Current data on LAI CAB/RPV in AYHIV are limited to clinical trials. We evaluated outcomes of LAI CAB/RPV among AYHIV in care at Children's National Hospital, Washington, DC.

We analyzed an observational cohort of AYHIV ≥12-<25 years of age who initiated LAI CAB/RPV between October 2021 and December 2023 as standard of clinical care. Data included demographics (age, race, ethnicity, sex at birth), HIV transmission mode, body mass index (BMI), prior ART, self-reported injection site pain, adverse events, HIV RNA, ART resistance, CAB/RPV dosing and retention in care.

Nineteen AYHIV (53% male; median age=19.2 years [14.9-23.6 years]; 84.2% African- Americans; 63.2% with perinatally-acquired HIV; median BMI=25.8 kg/m2 [18.6-57.9 kg/m2]) transitioned from oral ART to monthly LAI CAB/RPV with longest LAI duration of 26 months. Most AYHIV (94.7%) were virally suppressed ≥6 months on prior ART and transitioned (89.5%) from one daily pill with two NRTIs plus one INSTI. Two AYHIV (10.5%) experienced ≥1 viral blips ≥ 200 copies/mL [207-1,100 copies/mL] and one AYHIV (5.3%) experienced ≥1 viral blips <200 copies/mL when transitioning to bimonthly injections during the first 12 months on LAI CAB/RPV. These viral blips did not result in development of resistance to CAB and/or RPV. Most AYHIV (89.5%) switched to bimonthly LAI CAB/RPV after maintaining HIV RNA <20 copies/mL for 3-6 months on monthly injections. All AYHIV on LAI CAB/RPV were virally suppressed at the end of the study period. Injection-associated pain/discomfort ranged from mild to moderate, lasted 0.5-1 days and improved with physical activity. Two AYHIV (10.5%) with perinatally-acquired HIV developed immediate post-injection adverse reactions (malaise, and pain), which self-resolved within 20 minutes and did not occur with subsequent injections. There were zero missed or delayed injections.

Despite challenges (e.g., viral blips and selected AYHIV with high BMI), we report 100% engagement in care and viral suppression among 19 AYHIV on LAI CAB/RPV at ≤26 months follow-up. More data are needed to evaluate the long-term outcomes and sustainability of LAI CAB/RPV used in clinical care by AYHIV.

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Effectiveness and Safety of Tenofovir Alafenamide Fumarate (TAF)-Based Therapy Compared to Tenofovir Disoproxil Fumarate (TDF)- And Abacavir (ABC)-Based Therapy in Children and Adolescents Living With HIV (CALHIV) in the European Pregnancy and Paediatric Infections Cohort Collaboration (EPPICC)

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Background: TAF is safe and effective in paediatric trials, but data from routine care settings are limited for CALHIV.

Materials and Methods: CALHIV aged 6-<25 years at first use of TAF, TDF or ABC, from 12 European cohorts, were included. Proportion with viral load(VL) suppressed (VL<50c/mL) at 48 weeks (amongst ART-experienced), time to suppression (amongst unsuppressed at start), time to virological failure (failure to suppress within 48 weeks, or ≥2 consecutive VL≥50c/ml, or 1 VL≥50c/ml followed by change in anchor drug), death, clinical adverse events (TAF only), rate of treatment-emergent laboratory events (DAIDS criteria), and drug discontinuations were compared between TAF, TDF and ABC. Analyses were adjusted for characteristics at drug start.

Results: 577 CALHIV received TAF, 428 TDF and 426 ABC. Median age at drug start was 16/15/13 years respectively, 98%/93%/94% had vertically-acquired HIV, and 96%/83%/55% were treatment-experienced. Median duration on TAF/TDF/ABC was 1.6/2.3/3.0 years.
84% TAF, 84% TDF and 89% ABC had VL<50c/mL at 48 weeks (adjusted odds ratio vs. TAF: TDF 1.58(95%CI 0.83-2.99, p=0.16); ABC 0.99(0.46-2.16), p=0.99). There was also no difference in time to suppression (adjusted hazard ratio(aHR) vs. TAF: TDF 1.07(0.78-1.46), p=0.68; ABC 1.01(0.73-1.41) p=0.95) or to failure (vs. TAF: TDF 0.95(0.57-1.59), p=0.85; ABC 0.96(0.56-1.65), p=0.88).
There was 1 death (ABC, not related to ART). Among those on TAF, there were 4 SAEs, of which 1 was considered causally related to TAF and led to discontinuation.
The rate of DAIDS grade≥1 laboratory events was 83 per 100 person-years(/100PY) TAF, 70/100PY TDF and 59/100PY ABC (adjusted incidence-rate ratio(aIRR) vs. TAF: TDF 0.74(0.53-1.03), p=0.07; ABC 0.73(0.53-1.01), p=0.06), and of grade 3/4 laboratory events, 2.3/100PY TAF, 2.1/100PY TDF and 2.1/100PY ABC (aIRR vs. TAF: TDF 0.86(0.32-2.34), p=0.77; ABC 0.70(0.28-1.72), p=0.43).
By 192 weeks, 14%(10%-19%), 32%(27%-38%) and 23%(18%-27%) had discontinued TAF, TDF, ABC respectively (for reasons other than optimisation/simplification) and the risk of discontinuation was lowest for TAF (aHR vs. TAF: TDF 2.15(1.38-3.35), p=0.001; ABC 1.61(1.00-2.61), p=0.05).

Conclusions: Virological suppression was high and similar across drugs, there was no difference in rates of laboratory abnormalities, and few had severe or life-threatening events. Drug discontinuation was lowest on TAF.

ORAL POSTER ABSTRACTS

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Hospital Outcomes From a Cohort of Mozambican HIV-Exposed Uninfected and HIV-Unexposed Infants

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Background: In reports from outpatient cohorts, HIV-exposed uninfected infants (HEUI) have had higher rates of infectious morbidity and hospitalizations compared to HIV-unexposed infants (HUI), with conflicting findings regarding mortality. There is limited evidence about outcomes from inpatient cohorts of HEUI and HUI.

Methods: The Infant Ward at Hospital Central de Maputo admits patients 1-11 months age and performs routine provider-initiated testing for breastfeeding mothers and point-of-care nucleic acid testing for HIV-exposed infants. The ward admits neurosurgical patients, but there is a separate ward for infants admitted primarily for nutritional rehabilitation. Clinical and demographic data for confirmed HEUI and HUI discharged from January 2020-December 2023 were collected retrospectively from the discharge register. Chi-square independence and Mann-Whitney tests were performed to compare hospitalization outcomes between HEUI and HUI.

Results: A total of 4103 infants were included (498 HEUI, 3605 HUI). There were no significant differences between HEUI and HUI in median age (5 months, IQR:2-8 in both groups) or sex (42.2% vs 40.5, p=0.499). Median days of hospitalization were significantly longer for HEUI (5, IQR:3-10) vs HUI (4, IQR:2-8), p<0.001. Mortality was significantly higher in HEUI (2.8%) vs HUI (1.4%), p=0.023. The proportion of HEUI with an infectious principal discharge diagnosis (61.8%) was significantly lower than for HUI (74.5%), p<0.001. The proportion of HEUI vs HUI with a primary diagnosis of sepsis was 3.0% vs. 1.3% (p=0.005), 32.8% vs. 48.0% (p<0.001) for lower respiratory tract infections, 16.1% vs. 13.8% (p=0.184) for gastroenteritis, and 0.8% vs. 0.3% (p=0.080) for tuberculosis. Hydrocephalus and/or myelomeningocele was a primary diagnosis for 16.5% of HEUI vs. 6.4% of HUI (p<0.001).

Conclusions: These findings align with the literature showing health risks for HEUI, with significantly higher inpatient mortality and median duration of hospitalization. The significantly lower proportion of infectious primary discharge diagnoses in HEUI does not mean that they have lower risk of admission with these diagnoses, but rather demonstrates a different distribution of inpatient pathology, possibly influenced by the use of universal cotrimoxazole prophylaxis in HEUI. The significantly larger proportion of HEUI with hydrocephalus and/or myelomeningocele merit further study with assessment of known risk factors.

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Trends in Infant HIV Positivity and Linkage to ART among HIV-Exposed Infants Aged <12 Months in PEPFAR-Supported Programs, FY2018-FY2023

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Background: With support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), Ministries of Health implement comprehensive prevention of mother-to-child transmission (PMTCT) services to reduce HIV vertical transmission and provide timely linkage to antiretroviral treatment (ART) for infants living with HIV. This analysis describes recent trends in infant HIV diagnoses and treatment linkage in PEPFAR-supported countries.

Methods: We analyzed aggregate data from PEPFAR Monitoring, Evaluation, and Reporting indicators across 18 African countries with complete reporting on HIV-exposed infants (HEI) aged <12 months from Fiscal Years (FY) 2018 to 2023 (October 2017 to September 2023). We reviewed annual trends in number of HEI with a first sample collected for early infant diagnosis (EID), number of HEI diagnosed with HIV, percentage of HEI diagnosed with HIV among those with EID samples collected (HIV positivity), and percentage of HEI diagnosed with HIV who were linked to ART in the same three-month period as diagnosis (ART linkage). We also analyzed the proportion of HEI diagnosed with HIV aged ≤2 months at sample collection. We calculated percent change (PC) and absolute percent change (APC).

Results: HEI with a first EID sample collected by 12 months varied but decreased overall from 806,924 in FY18 to 771,440 in FY23 (PC: -4%). HEI diagnosed with HIV decreased from 17,630 to 9,655 (PC: -45%). Infant HIV positivity decreased from 2.2% to 1.3% (APC: -0.9). The proportion of infants diagnosed with HIV identified by age ≤2 months (vs. later diagnosis) increased from 43% to 46%. In FY23, 78% of countries identified <50% of infants diagnosed with HIV by age ≤2 months. Average infant ART linkage varied but increased overall from 83% to 88% (APC: +6%); five (28%) countries achieved ≥95% ART linkage in FY23.

Conclusion: The number and percentage of infants with HIV infection declined across countries, yet the proportion of infants diagnosed by age ≤2 months showed little change. ART linkage was <95% in many countries. As countries achieve reductions in new child infections, adapting PMTCT programs to support provision of high-quality, timely services may ensure all HEI living with HIV are identified early and linked to care.

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Genotypic Resistance to Integrase Inhibitors, Protease Inhibitors and Tenofovir Alafenamide Is Uncommon in Children With Virological Rebound in the CHAPAS-4 Randomised Trial of Second-Line Antiretroviral Therapy for Children With HIV in Africa

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Background: The CHAPAS-4 trial demonstrated superior virologic efficacy at 96-weeks for dolutegravir(DTG) vs. ritonavir-boosted lopinavir(LPV/r) and atazanavir(ATV/r) and for tenofovir alafenamide(TAF) vs. abacavir(ABC)/zidovudine(ZDV) in African children starting second-line antiretroviral therapy(ART) following treatment failure on first-line non-nucleoside reverse transcriptase inhibitor(NNRTI)-based therapy.

Material and Methods: Randomisation was to DTG vs. ritonavir-boosted darunavir(DRV/r) vs. ATV/r vs. LPV/r; and simultaneously to TAF vs. standard-of-care(SOC) ABC/ZDV (whichever not first-line). At week 96, samples with HIV-1 viral load(VL) >400c/ml were retrospectively sequenced for genotypic resistance. Drug resistance mutations and resistance scores were defined using Stanford algorithm(v9.5.1), comparing groups using exact tests.

Results: At week 96, VL >400c/ml was 124/908 (13.7%): 18/226 (8.0%) DTG vs. 27/230 (11.7%) DRV/r vs. 36/229 (15.7%) ATV/r vs. 43/223 (19.3%) LPV/r; 48/454 (10.6%) TAF vs. 76/454 (16.7%) SOC. Reverse transcriptase/protease gene sequencing was available for 86/124 (69.4%); integrase gene sequencing for 79/124 (63.7%).

Anchor drugs: 0/13 (0%) DTG vs. 0/18 (0%) DRV/r vs. 1/26 (4%) ATV/r vs. 0/29 (0%) LPV/r had ≥1 major protease mutation (p=0.66); 2/9 (22%) vs. 0/17 (0%) vs. 0/24 (0%) vs. 0/29 (0%) had ≥1 major integrase mutation (p=0.01). No participant had intermediate/high-level DRV/r or LPV/r resistance; one high-level ATV/r resistance (N88NS); two intermediate/high-level DTG resistance, both in the ZDV arm (one G118R+G146QR+R263RK, high-level; one R263K, intermediate-level). Overall, 72/86 (84%) had ≥1 NNRTI mutation (p=0.38; most commonly K103N).

Backbone drugs: 13/33 (39%) TAF vs. 40/53 SOC (75%) had ≥1 NRTI mutation (p=0.001). Intermediate/high-level resistance was observed for: tenofovir in 3(9%) TAF vs. 0(0%) SOC participants (p=0.053; one D67DN+K219KE+K70KR+M184MV+M41ML+T215F; one D67E+L210W+L74V+M184V+T215Y+T69G+Y115F; one D67N+K219Q+K70R+M184MV+T215F; all intermediate-level), emtricitabine(FTC)/lamivudine(3TC) in 12(36%)TAF vs. 38(72%)SOC (p=0.002), ABC in 7(21%)TAF vs. 9(17%)SOC (p=0.78) and ZDV in 4(12%)TAF vs. 5(9%)SOC (p=0.73).

Conclusions: Emergent high-level resistance to DTG and protease inhibitors was uncommon with no DRV/r resistance and only one case of high-level DTG resistance. Intermediate-level tenofovir resistance was observed only in the TAF arm, however this was rare and no K65R mutations were detected. Resistance to 3TC/FTC was more common in SOC. Baseline resistance testing is ongoing to identify factors associated with virological failure and emergent resistance.

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In-Utero Exposure to High Tenofovir Concentration Is Associated With Lower Bone Mineral Content in HIV-Unexposed Infants

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Background: Tenofovir Disoproxil Fumarate (TDF) is a drug of choice for pre-exposure prophylaxis (PrEP) and combination HIV treatment for pregnant women. In-utero exposure to TDF was found to be associated with lower bone mineral content (BMC) in HIV-exposed uninfected neonates. Data for infants born to women taking TDF-PrEP are lacking. We evaluated BMC in HIV unexposed infants in the first 18 months of life in association with maternal TDF PrEP use during pregnancy.

Methods: Infants born to women randomized to TDF-FTC PrEP or no PrEP in pregnancy in the CAP016 clinical trial had BMC measurements of the whole body with head (WBH) and lumbar spine (LS) by Dual Energy x-ray absorptiometry (DXA) at 6, 26, 50 and 74 weeks. Maternal Tenofovir (TNF) levels were measured at two time points in pregnancy.

Results: Of the 481 infants born to women enrolled in the CAP016 clinical trial, 335 (69.6%) infants had a minimum of one DXA scan of the WBH and LS between 6 and 74 weeks of age (168 TDF-exposed and 167 TDF unexposed); 106 (TDF-exposed) and 100 (TDF-unexposed) had a DXA scan performed at more than one visit. Using a linear regression model and adjusted for gestational age, sex, and ever-breastfed, we did not observe significant differences in BMC of the WBH (p=0.283) and LS (p=0.329) between TDF-exposed and unexposed infants over the 18-month period. Of the women randomized to the PrEP arm, 70 (41.9%) women had TNF concentrations ranging from undetectable to <200 fmoles/punch. Using a mixed linear regression model, and adjusting for gestational age, sex, and ever-breastfed, a lower LS BMC was significantly associated with the highest TNF concentration (>600 fmoles/punch) (p=0.014) at 74 weeks. We also observed a strong correlation between lower BMC of the WBH at 50 and 74 weeks with higher concentrations of TNF in pregnancy (correlation coefficient -0.048, 95%CI -0.079 to -0.016 at 50 weeks and -0.045, 95%CI -0.077 to -0.013 at 74 weeks).

Conclusions: In-utero exposure to higher concentrations of TNF strongly correlated with lower BMC of the whole body and lumbar spine in infants born to women taking TDF-FTC PrEP in pregnancy.

POSTER ABSTRACTS

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Pregnancy Management in HIV Viral Controllers: Twenty Years of Experience

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Background: The evidence base for the management of spontaneous viral controllers in pregnancy is lacking. We describe the management outcomes of pregnancies in a series of UK women with spontaneous HIV viral control (<100 copies/mL 2 occasions before or after pregnancy off antiretroviral therapy (ART) over a twenty-year period.

Methods: A multi-centre, retrospective case series (1999-2021) comparing pre- and post-2012 when guidelines departed from zidovudine-monotherapy (ZDVm) as a first-line option to triple ART for all. Cases were identified by attending health care professional through the London HIV Perinatal Research Group and the UK national NHS clinical service for viral controllers. This activity was undertaken as a clinical audit of management practices. Demographic, virologic, obstetric and neonatal information were collected in two phases, pre- and post-2012, using a standardised questionnaire which was anonymised, centrally collated, and analysed in SPSS.

Results: Forty-nine live births were recorded in twenty-nine women, thirty-five pre-2012 and fourteen post-2012. HIV-infection was more commonly diagnosed in the first reported pregnancy pre-2012 (15/35) compared to post-2012 (2/14), p=0.10. Pre-2012 pregnancies were predominantly managed with ZDVm (28/35) with pre-labour caesarean section (PLCS) (24/35). Post-2012, 4/14 received ZDVm and 10/14 triple-ART, p=0.002. Post-2012 mode of delivery was varied (five vaginal, six PLCS and three emergency-CS). No intrapartum ZDV-infusions were given post-2012 compared to 11/35 deliveries pre-2012. During pregnancy, HIV was detected (>50copies/mL) in 14/49 pregnancies (29%) (median 92, range 51-6084). Neonatal ZDV post-exposure prophylaxis was recorded for 45/49 infants. Maternal ART was stopped post-delivery in all pregnancies pre 2012 and in 10/14 cases post-2012, p=0.005. There were no reports of breastfeeding pre-2012. Post-2012 two women chose to breast fed, both took triple ART in pregnancy and continued post-partum. No transmissions were reported.

Conclusion: This case series, the largest of its kind, highlights that ART and obstetric management of viral controllers in pregnancy was heterogenous and evolved over time. UK practice has been influenced by the change in guidelines, but this has had little impact on CS rates. The high rate of viraemia, although at low copy numbers, is supportive of the use of ART in viral controllers during pregnancy.

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Cost and Cost-Effectiveness of Scaling-up Point-Of-Care Very Early Infant Diagnosis in Mozambique and Tanzania

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Background: Prompt HIV early infant diagnosis (EID) is critical, especially for neonates acquiring HIV in-utero who, without treatment, have high mortality rates in the first months of life. Late diagnosis causes delays in access to lifesaving antiretroviral treatment (ART). Point-of-care (PoC) testing at birth offers an opportunity for same-day treatment initiation, however, cost and cost-effectiveness evidence is needed for planning scale-up and assessing sustainability of EID programs.

Methods: We estimated the health system cost of birth plus 4-6-week testing (very early infant diagnosis; VEID) compared to standard of care (SoC) at 4-6 weeks only. The study was nested within the cluster-randomized LIFE trial conducted at 28 primary health facilities in Mozambique and Tanzania (7 facilities per arm per country). We evaluated cost and cost-effectiveness of PoC-VEID using Abbott mPIMA in Mozambique and Cepheid GeneXpert in Tanzania. We report empirical costs during the study, simulate costs scaled to routine demand for EID, and assess cost-effectiveness in terms of age at ART initiation.

Results: Estimated cost per PoC-EID test in our study was $39.12 (95% CI: $37.69, $39.99) for VEID versus $40.57 ($40.57, $42.84) for SoC in Mozambique and $36.23 ($34.99, $38.40) for VEID versus $43.88 ($41.12, $45.21) for SoC in Tanzania. Estimated cost per HIV-exposed infant were $85.44 ($84.17, $87.64) for VEID versus $37.05 ($36.47, $38.51) for SoC in Mozambique and $68.34 ($67.15, $71.99) for VEID versus $37.38 ($35.31, $38.82) for SoC in Tanzania. With VEID, HIV-positive infants started ART 3.7 weeks earlier in Mozambique and 5.6 in Tanzania (both $p<0.0001$). Incremental cost effectiveness ratios were $1,103 ($1,018, $1,201) in Mozambique and $1,916 ($1,586, $2,325) in Tanzania. Scaling costs to routine EID demand reduced the test cost by up to 28% in Mozambique and 14% in Tanzania. Utilization of PoC analyzers varied across time and sites, with many sites exhibiting potential to increase cost-effectiveness of PoC analyzers by increasing utilization.

Conclusions: Birth PoC-EID is likely to be cost-effective, depending on the degree to which very early ART improves health outcomes. When considering scale-up of EID programs, cost-sharing across programs or increasing access to testing through hub-and-spoke delivery could further reduce costs.

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Father Engagement and Caregiver Relationship Dynamics Impact Early Child Neurodevelopment

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Background: The role of caregiver relationship dynamics and father engagement factors in child neurodevelopment remain poorly understood. We assessed differences in caregiver factors between children who are HIV-exposed uninfected (CHEU) and children who are HIV-unexposed uninfected (CHUU) and determined associations between caregiver factors and child neurodevelopment among two-year-old children.

Methods: CHEU and CHUU and their mothers were enrolled during 6-week routine postnatal care visits across six sites in Kenya between March-October 2021. Univariable descriptive analyses compared caregiver relationship and father engagement factors between CHEU and CHUU at two years. Neurodevelopment was assessed using the Malawi Developmental Assessment Tool that examines social, language, fine motor, and gross motor skills. Multivariable linear mixed effects models explored associations and clustered by site.

Results: Compared to mothers of CHUU (N=733), mothers of CHEU (N=503) were significantly more likely to be older, have <7 years of education, report moderate to severe household food insecurity, and less likely to still be in a relationship with the child's biological father by 2 years postpartum (72% among CHEU and 80% among CHUU). Among mothers still together with the child's biological father, mothers of CHEU were more likely to be in polygamous marriages, have significantly older partners, report lower satisfaction and stability in their relationships, and have less financially supportive partners. Among all children with neurodevelopment assessments at Year 2, regardless of maternal relationship status, CHEU (N=335) exhibited lower (worse) gross motor scores compared to CHUU (N=456) (adjusted coeff: -0.52, 95%CI: -0.95, -0.08), but comparable social, language and fine motor, after adjusting for maternal age, marital status and education, and child age and sex. Among all children adjusting for CHEU status, lower social, language and fine motor scores (but not gross motor scores) were associated with male child sex, shorter duration of parental relationship, poorer maternal relationship satisfaction, lower frequency of father-child interactions, and father living separately ($p<0.01$).

Conclusion: Gross motor scores were lower among CHEU compared to CHUU, and lower relationship satisfaction and father engagement were associated with multiple neurodevelopmental domains among all children. Caregiver-based interventions may be useful to support families impacted by HIV and relationship instability.

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Role Of Mentor Mothers in the Elimination of Mother-To-Child Transmission of HIV In Military Health Units in Mozambique

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Background: Despite national efforts to prevent mother-to-child transmission (PMTCT) of HIV and a reduction in vertical transmission rates from 14% in 2019 to 10% in 2023, challenges remain. Associated factors include poor treatment continuation among pregnant women living with HIV, as well as cultural, economic, social and structural factors. Jhpiego and the FADM (Armed Forces of Mozambique) introduced the Mentor Mothers (MM) strategy in 2019 in 10 medium or high-volume FADM-supported health facilities (HFs).

Methods: This is a retrospective analysis of the role of MM in reducing MTCT of HIV. The PMTCT cascade was assessed using data from 10 military HFs with MM and 12 HFs without mentor mothers, between the period of 2021 to 2023. Data included 3,116 HIV-exposed infants from HFs with the MM strategy, 190 HIV exposed infants in HFs without the MM strategy. MM are trained HIV-positive women in care who provide support and share experiences and healthy practices with other HIV-positive pregnant or breastfeeding women (PBFW) with HIV- exposed children.

Results: Of 3,116 children exposed to HIV in HFs with MM, 84% (2,626/3,116) of children had PCR tests administered at 4-8 weeks of age. Of these children, 3.1% (99/2626) had a positive PCR result for HIV and of these, 92.9% (93/99) started ART. In comparison, at the HFs without MM, of the 190 HIV exposed children, 67% (128/190) had PCR tests at 4-8 weeks of age. Of these children, 2.6% (5/128) had a positive PCR result for HIV and of these, 60% (3/5) started ART. In HFs with MM, 58% (18,200/30,081) of the partners of PBFW came in for HIV testing, compared to 45% (1,136/2,527) among HFs without MM.

Conclusions: These preliminary findings show an increased coverage of testing for HIV exposed infants, ART initiation for children who tested HIV-positive, and increased coverage of partner testing in HFs using the MM approach. Additional follow-up time and research in more HFs are needed to assess long-term impact and scale up of the intervention.

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A Stakeholder-Selected Implementation Strategy Bundle Improves PrEP Implementation for Women Seeking Maternal and Child Health Services in Western Kenya

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Background: Women remain at substantial risk for HIV acquisition during pregnancy and breastfeeding due to changes in biological and behavioral factors. Although PrEP has been recommended as safe and effective during pregnancy by the WHO and Kenyan government, barriers still exist in its delivery in sub-Saharan Africa. Integration of PrEP during antenatal care in maternal and child health (MCH) clinics remains sub-optimal.

Methods: Between May 2023 and November 2023, we conducted a difference-in-difference study, comparing the 3-month periods before and after implementation, in 8 facilities (4 intervention and 4 comparison) in Western Kenya. We piloted a bundle of 3 implementation strategies selected by stakeholders to enhance delivery: use of PrEP educational materials (illustrated flipbooks, wall charts, FAQ posters), PrEP health talks in waiting bays, and dispensing PrEP in MCH. Absolute changes were evaluated in PrEP penetration, PrEP fidelity, client PrEP knowledge & satisfaction, and timeliness (waiting and service times). Health providers completed a cross-sectional online survey assessing acceptability and appropriateness of the implementation strategies.

Results: A total of 1,821 clients participated in exit surveys (909 in intervention; 912 in comparison periods) and 768 clients participated in time and motion surveys (384 in intervention; 384 in comparison periods). Significant improvements were observed in PrEP penetration, PrEP fidelity, PrEP offer, and client PrEP knowledge ($p<0.05$) while non-significant changes were noted in client satisfaction, client waiting and service times. PrEP penetration increased by 20.9 percentage points ($p<0.001$), PrEP fidelity increased by 32.9 percentage points ($p<0.001$), PrEP offer increased by 9.5 percentage points ($p<0.001$), and client PrEP knowledge increased by 0.91/7 total points ($p<0.001$) in intervention sites compared to comparison sites. We observed non-significant changes in HIV testing (+8.7%; p=0.224), client satisfaction (+0.04/24 total points; p=0.791), service time (+0.17 minute; p=0.162) and waiting time (-0.43 minute; p=0.108) in intervention vs comparison facilities. The implementation strategy bundle was rated highly by the healthcare providers (appropriateness: 20/20; acceptability: 20/20).

Conclusion: A stakeholder-selected implementation strategy bundle that included educational materials and job aids, PrEP health education in waiting bays, and dispensing PrEP in MCH improved PrEP implementation outcomes without affecting client satisfaction, service and waiting times.

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Using Audits of Infants Diagnosed With HIV to Address Missed Opportunities to Eliminate Vertical Transmission of HIV in Lusaka Province, Zambia, March 2021-June 2023.

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Background: Despite ongoing success of the Zambian prevention of mother-to-child transmission (PMTCT) program, many children still acquire HIV vertically. We explored the missed opportunities in the PMTCT program in Lusaka Province, Zambia using preliminary data from the ongoing Audit of infants diagnosed with HIV.

Description: Audits are conducted routinely, on all infants (0-24 months old) diagnosed with HIV in Lusaka Province, to ascertain programmatic gaps contributing to vertical HIV transmission. Trained staff abstract data from medical records of infants diagnosed with HIV using a standardized tool. We analyzed the Zambian Ministry of Health audit data for infants diagnosed with HIV in Lusaka Province from March 2021-June 2023 using R. We describe the programmatic interventions implemented at facility, district and provincial-levels based on the gaps identified.

Lessons Learnt: Audits provided critical information regarding PMTCT missed opportunities in Lusaka Province. Of the 154 infants diagnosed with HIV, 110(73.3%) were diagnosed before their first birthdays, and 147(97.4%) were initiated on antiretroviral treatment (ART). Fifty-six (36.8%) had not received any postnatal prophylaxis (PNP).
Thirty-eight (32.2%) mothers were aged below 25 years, 75(54%) were newly diagnosed with HIV during pregnancy, delivery, or breastfeeding, and 43(32.1%) were not on ART. Among mothers taking ART, 51(53.1%) had reported poor adherence. Over 80% of mothers had no documented viral load (VL) result. Among the 38 mothers with a first VL result available, 24(63%) were unsuppressed. Further, 48% of the mothers' sexual partners had unknown HIV status. Program-level interventions were instituted targeting identified gaps (Figure 1).

Conclusion: The audit identified missed opportunities that included inadequate infant PNP provision, new maternal HIV infections, suboptimal maternal ART adherence and viral suppression, and a high proportion of infants with HIV born to young mothers. Targeted program-level interventions were implemented, and ongoing monitoring will assess progress toward eliminating vertical transmission. This analysis would be beneficial to the whole Zambian PMTCT program.

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Monitoring Trends in Mother-To-Child Transmission of HIV in Nigeria: A Retrospective Six-Year Study

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Background: According to UNAIDS' 2019 report, Nigeria accounts for 41% of vertically transmitted HIV among children in the West and Central African region. This study delves into the evolving trends in transmission rates among infants exposed to HIV.

Methods: A retrospective study was conducted using aggregate data from 539 healthcare facilities across 17 states in Nigeria between July 2017 to September 2022. The analysis focused on the infants exposed to HIV (IEH) (IEH load) and the proportion of those infants with a documented HIV status (transmission rate). The transmission rate was assessed across both urban and rural population settings. Inferential statistics (Kendall's Tau correlation and Kruskal-Wallis H Test) were employed to determine the correlation between the transmission rate, the service level (primary, secondary, and tertiary), and IEH load.

Results: Among the 53,318 IEH, 2,300 were diagnosed with HIV, yielding a transmission rate of 4.3%. In urban health facilities, comprising 68.4% (1,573 infants) of the IEH, the transmission rate was 4.5% (1,573 out of 34,764), while rural health facilities showed a lower rate of 3.9% (727 out of 18,554). Secondary health facilities accounted for 51% (1,178 infants) of HIV cases but had the lowest transmission rate at 3.7% (1,178 out of 31,498). Tertiary facilities exhibited the highest transmission rate at 6.5% (495 out of 7,626), and primary health facilities recorded a rate of 4.4% (627 out of 14,194). Significant differences were observed across service levels (H = 16.8, p = 0.0002246). The transmission rate peaked in 2021 at 6.0% (660 out of 11,004 infants) and decreased to 1.9% (240 out of 12,735 infants) in 2022. A moderate negative correlation was found between IEH load and transmission rate (tau = -0.3405849, p = 8.3e-17).

Conclusions: Urban settings and secondary facilities had the highest number of IEH, but tertiary facilities had the highest transmission rate. The service level had an impact on the transmission rate. The facilities with lower IEH loads recorded higher transmission rates, and this may suggest the need for more resources to care for these infants. To curb the vertical transmission of HIV, strategic and focused interventions are essential.

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Pregnant People Living With HIV Not Accessing Antenatal Care Services: How Many Infant HIV Transmissions Are We Missing?

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Introduction: Despite substantial progress in HIV incidence reduction through Prevention of Vertical Transmission (PVT) programs, child infections still occur. As PVT programs traditionally focus on strengthening facility-based Antenatal Care (ANC) services, this analysis estimates numbers of infants with HIV born to pregnant people (PP) living with HIV (PPLHIV) not accessing ANC services.

Methods: Data were obtained from two 2023 databases: 1) UNICEF Data Warehouse: percent of PP attending first ANC visit (ANC1 coverage), 2) UNAIDS database: number of PPLHIV, number of PPLHIV without antiretroviral therapy (ART) during pregnancy (PPLHIVnoART) and number of infants with HIV (ILHIV) born to PPLHIVnoART (ILHIVnoART). We calculated the percentage of PPLHIVnoART not accessing ANC services (PPLHIVnoANC) and the percentage of ILHIVnoART born to PPLHIVnoANC(ILHIVnoANC) . Assumptions made: ANC1 coverage is equivalent among PPLHIV and PP; PPLHIV only access ART from PVT programs within ANC services, therefore PPLHIVnoANC received no ART; and HIV transmission rates are equivalent among infants of PPLHIVnoART accessing ANC and of PPLHIVnoANC. Countries were grouped regionally: Middle East/North Africa [MENA; 6 countries]; Asia [14]; Central/West Africa [CWA; 23]; Eastern/Southern Africa [ESA; 17]; and Latin America/Caribbean [LAC; 14]).

Results: Of the 1,050,156 PPLHIV from the 74 countries included, 11% (111,827) were PPLHIVnoANC, with rates in MENA of 15% (747/4,982), Asia of 12% (2,968/25,035), CWA of 12% (23,291/188,928), ESA of 10% (81,917/843,991) and LAC of 6% (897/4,514). ILHIVnoART totaled 55,305, of whom 30% (16,591) were ILHIVnoANC. By region, ILHIVnoANC were: MENA 16% (178/1,112), Asia 13% (497/3,892), CWA 28% (5,401/19,068), ESA 35% (10,313/29,757) and LAC 14% (202/1,476). Ten countries, mainly from Sub-Saharan Africa (SSA) showed more than 50% of ILHIVnoART who were ILHIVnoANC .

Discussion: Overall, an estimated one-third of infants identified with HIV acquired during parental pregnancy are born to PPLHIV not accessing ANC services. With these high contribution rates, PVT programs, especially those nearing elimination of vertical transmission, should strengthen community engagement, providing PPLHIV needed PVT services where they are.

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Perception and Acceptability of Point-Of-Care HIV Viral Load and Early Infant HIV Testing Among Postpartum Women Living With HIV in Johannesburg, South Africa

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Background: To prevent vertical HIV transmission, optimised viral load (VL) monitoring among postpartum women living with HIV (WLHIV) and infant HIV testing are essential. We used PCR point-of-care testing (POCT) in a randomised clinical trial in two primary health facilities in Johannesburg, South Africa, and describe participants' acceptance, and perception of advantages and usefulness of POCT.

Methods: Between July 2018–April 2019, 405 postpartum WLHIV aged ≥18 years and their HIV-negative infants (PCR-confirmed at enrolment) were enrolled at their 6–14-week immunization visits; 204 were randomised to Arm 1 (standard-of-care (SOC) laboratory-based VL testing at enrolment, 6, 12 and 18 months), and 201 to Arm 2 (SOC laboratory-based VL testing plus additional POC GeneXpert HIV-1 VL testing at enrolment, 6, 9, 12, 15 and 18 months). All infants had SOC tests and POC GeneXpert HIV-1 Qual testing at 6, 9, 12, 15 and 18 months. Women completed a structured interviewer-administered questionnaire at their 12-month study visit with 5-point ordinal Likert scale and multiple choice questions on infant HIV POCT (both Arms) and maternal VL POCT (Arm 2).

Results: Among 405 enrolled WLHIV, 275 (68%) completed the questionnaire: Arm 1: 140; Arm 2: 135. Of 275 respondents, 57.8% were non-South African, 66.9% were 18–34 years and 33.1% were ≥35 years. Most VL POCT (91.8%) and infant HIV POCT (89.8%) results were available within two hours. Most respondents felt comfortable or very comfortable with an onsite VL POCT (130/135, 96%) and infant HIV POCT (255/275, 92.7%). Perceived advantages of same-day on-site VL POCT included: feeling they were doing very well with their treatment (48.9%); knowing VL sooner (45.9%); and providing peace of mind (40.7%). For both infant HIV and postpartum VL POCT, >95% agreed or strongly agreed that the time to results was reasonable, were willing to use POCT, and understood test results for themselves and/or their child.

Conclusion: POC infant HIV and maternal VL testing provided most respondents with same-day results. POCT was acceptable to respondent postpartum women after 3 POCT intervals were completed. Overall, perception of POCT was positive and respondents reporting several perceived advantages of on-site POCT.

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Differences in Risk Factors Between High and Low Vertical HIV Transmission Settings: Implications for Elimination of Pediatric HIV

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Background: Roughly 1.3 million infants are exposed and 150,000 newly diagnosed with HIV annually. Estimates of vertical HIV transmission (VHT) vary by setting. We assessed risk factors for VHT among infants born to women living with HIV (WLWH) in Tanzania and Mozambique.

Methods: From October 2019-August 2021, we collected data from pregnant WLWH who participated in the LIFE study at 28 primary health facilities in Tanzania and Mozambique. VHT was assessed up to month 3 for all infants and up to month 18 for a subset of infants. Demographics and clinical characteristics were collected to assess risk factors for VHT, including maternal HIV viral load measurements at baseline and month 3. Additionally, facility-level programmatic factors including number of staff and annual HIV-positive deliveries were collected. We used mixed effects models adjusted for health facility clustering to calculate odds ratios (OR) for VHT.

Results: In total, 6505 WLWH and their 6602 infants were included in the study with 1296 infants participating in the month 18 subset. VHT up to month 18 was 2.92% (95% CI: 2.42-3.49) in Mozambique, significantly higher than the 0.82% (95% CI: 0.51-1.24) observed in Tanzania (OR: 3.66, 95% CI: 2.31-6.12). On average, Mozambican mothers were significantly younger, attended antenatal care less frequently, and had been on antiretroviral treatment for a shorter period. Maternity staff per 100 HIV-positive deliveries was 9.9 (SD 5.0) in Tanzania and 2.3 (SD 1.0) in Mozambique ($p<0.0001$). After adjusting for these factors, virologic non-suppression (>1000 copies/ml) at delivery was the principal risk factor for transmission (adjusted OR: 28.3, 95% CI: 15.7-50.9). In Mozambique, 31.0% of mothers were not suppressed at delivery compared to 8.1% in Tanzania; only 10.4% infants who acquired HIV had mothers who were virally suppressed at delivery.

Conclusions: We observed a striking difference in VHT between countries. Lack of viral suppression in the early postpartum period was the main risk factor for VHT, and we observed differences in programmatic factors between countries. These results highlight the need for a better understanding of the individual, community, and health system factors associated with lack of viral suppression in pregnant and lactating WLWH.

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Evaluating Progress Towards Triple Elimination of HIV, Syphilis and Hepatitis B in Uganda, Tanzania, Eswatini, Kenya and Cameroon

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Introduction: In 2022 WHO launched the Triple Elimination Initiative that focuses on prevention of vertical transmission of HIV, syphilis and hepatitis B virus (HBV). While much progress has been made to support routine screening and treatment of HIV in antenatal care (ANC), testing and treatment for syphilis and HBV has lagged behind. We describe progress made towards triple elimination at sites supported by the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) in Uganda, Eswatini, Cameroon, Kenya and Tanzania.

Methods: Retrospective routinely collected ANC program data for 12 consecutive months between October 2021 – September 2023 were reviewed for EGPAF supported sites in each of the five countries. Aggregate cross-sectional data on testing and treatment of HIV, syphilis and HBV was abstracted from the national health management information systems.

Results: A total of 1.2 million ANC Clients enrolled in ANC over a 12-month period at 3,049 health facilities across the five countries. HIV testing coverage was quite high (96-99%) with variability in HIV prevalence in pregnant women ranging from 2.3% in Tanzania to 28% in Eswatini. Treatment coverage for HIV positive women (newly identified and known HIV positive) ranged from 89.6% in Cameroon to 99.3% in Kenya. Suboptimal testing for syphilis was reported in Cameroon and Eswatini (52% and 30% respectively). However, treatment coverage for women testing positive for syphilis was notably high in Tanzania and Kenya (>100%). HBV testing was not routinely done in Tanzania or Kenya; however testing coverage in Cameroon, Eswatini and Uganda ranged from 14% - 59%.

Conclusions: To achieve the ambitious triple elimination initiative efforts by 2030, countries need to leverage the HIV platform to support further integration of routine testing and treatment of syphilis and HBV. Efforts focused on integrated models of care to expand access and overcome existing public health barriers need to be prioritized.

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HIV Retesting Among Pregnant and Breastfeeding Women in the Southern Highlands Zones, Tanzania

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Background: Repeat HIV testing during pregnancy, labor and breastfeeding identifies women with incident infection, those living with HIV but unaware of their status, and infants at risk of vertical transmission. Based on World Health Organization recommendations, Tanzania adopted and scaled up HIV retesting among pregnant and breastfeeding women (PBFW) in 2022. We present HIV retesting data for women receiving maternity and child health (MCH) services at healthcare facilities in the southern highlands (SHL) zone in Tanzania.

Materials and Methods: We reviewed routine program data on maternal HIV retesting from 394 facilities supported by PEPFAR through the U.S-Military HIV Research Program in Katavi, Mbeya, Songwe and Rukwa regions. From January to December 2023, a mentorship approach was utilized to support the scale-up of HIV retesting at various points in the MCH unit.

We report numbers of women eligible for retesting following their first antenatal care (ANC) visit; those retested at subsequent ANC and postnatal visits and the proportion newly diagnosed with HIV following retesting at, ANC, labor, and delivery and postnatally.

Results: A total of 193,561 women entering ANC who were eligible for testing were enrolled; 2,203 (1.14%) were newly diagnosed and linked to ART services. A total of 160,444 retests were subsequently done in the third trimester, labor/delivery and postnatally; 244 (0.2%) were newly diagnosed following retesting and were initiated on ART.

Between October-December2023, we started disaggregating maternal retesting data by period (during labor and delivery or postnatal). Among 52,248 women retested during this period, 27,355 (52%) were retested during labor and delivery and 24,893 (48%) women during the postnatal period; 83 women tested positive upon retesting (27 during labor and delivery and 56 postnatally) and were initiated on ART.

Conclusion: Maternal retesting identified women who seroconverted after testing negative for HIV at their initial ANC visit. Sustained collaboration and coordination between healthcare providers at various service delivery points is essential for timely case dentification among PBFW to prevent vertical transmission. We suggest continued efforts in tracking women who miss retesting to enable every eligible woman to be HIV retested as per the national HIV testing guideline.

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Assessing 24-Month Treatment Outcomes of Multi-Month Dispensing of Antiretroviral Medications Among Children Living With HIV: A Retrospective Study in Southern Nigeria

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Background: WHO recommends multi-month dispensing (MMD) of antiretrovirals among children living with HIV (CLHIV), however, there is limited data on outcomes of MMD among CLHIV in Sub-Saharan Africa. This study assessed 24-month treatment outcomes of MMD among CLHIV in Southern Nigeria.

Method: This retrospective cohort analysis used data from electronic medical records of CLHIV (5-14 years old) receiving ART as of October 2020 and followed up for 24 months at 153 health facilities supported by PEPFAR/USAID-funded ECEWS ACE-5 project in Akwa Ibom and Cross River States. CLHIV were categorised by age at treatment commencement into 5-9 and 10-14 years; and by ARV dispensing frequency during the period into MMD3 (consistently received 3-months refills), MMD6 (consistently received 6-months refills), mixed-MMD (alternated between 3- and 6-months refills), and no-MMD (received <3-months refills at least once). We compared 24-month outcomes for retention (not late for a refill for up to 28 days) and undetectable (< 50 copies/ml) viral load (VL) among MMD categories using logistic regression.

Results: The study included 1,652 (Males:844, Females:808) CLHIV who received MMD, 51.5% (851) were aged 5-9 years. MMD distribution was 33.6% (n=555) mixed-MMD, 29.5% (n=487) no-MMD, 19.3% (n=319) MMD6, and 17.6% (n=291) MMD3. Overall retention 90.3% (1492/1652) at 24 months, and undetectable VL was 89.1% (1178/1322) among those who had VL tests done at 24 months (1322/1652). CLHIV on mixed-MMD (OR:1.95, 95%CI:1.29–2.95, p<0.01) and MMD6 (OR:3.56, 95%CI:1.93–6.58, p<0.01) were more likely to be retained in care than no-MMD, and those on MMD6 were more likely to have undetectable VL (OR:2.05, 95%CI:1.19–3.53, p=0.01) than other categories.

Conclusion: CLHIV had optimal treatment outcomes after 24 months of multi-month ARV dispensing. Programs can consider the systematic scale-up of MMD among CLHIV and evaluate longer-term outcomes.

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Mother-Child Dyads Living With HIV: U(Ndetectable)= U(Ndetectable)?

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Background: Globally, children living with HIV (CLHIV) continue to lag behind UNAIDS targets for viral suppression (VS). We assessed VS among young CLHIV in a setting with early infant HIV testing (at birth, age 10 weeks and 6 months), early antiretroviral therapy (ART) initiation and protease inhibitor-based first-line ART.

Methods: We analysed routinely-collected mother-child data for CLHIV born May 2018 to October 2022 in the Western Cape province, South Africa (followed through mid-June 2023). We used logistic regression to assess associations between child and maternal viral load (VL) results at 12 and 24 months after child ART start, adjusted for child sex, birthyear, severity of child immunodeficiency at ART start, maternal age, and timing of maternal HIV diagnosis.

Results: We included 2219 CLHIV; 30% were diagnosed with HIV at birth (≤7 days), 41% before age 1 year (8-365 days) and 29% at age >1 year. Overall, 5% (n=112/2219) of CLHIV died, a third of whom had not started ART; 90% of CLHIV (n=1990) started ART, at median age 5 months (IQR 1-16). Median follow-up from ART start was 26 months (IQR 14-40). Among CLHIV with available VL at 12 months (n=853/1582), 24 months (n=614/1129) and 36 months (n=350/658) after ART start, 36%, 43% and 48% were virally suppressed, respectively (VL<100 copies/ml). VS among children at 12 and 24 months was more likely if maternal VL was <100 vs ≥100 copies/ml at 12 months (adjusted odds ratio(aOR)=3.5; 95% CI 1.9-6.5) and 24 months (aOR=6.1; 95% CI 2.8-13.1) after child ART start. Children with no/mild vs advanced/severe immunodeficiency at ART start were more likely to achieve VS at 12 months (aOR=2.3; 95% CI 1.3-4.2) but not at 24 months. CLHIV with missing VL at 24 months (46%) were more likely to have a gap of >6 months between healthcare encounters than those with VL≥100 copies/ml or VL<100 copies/ml (78% vs 28% vs 14%, respectively; p<0.001).

Conclusions: Less than half of children on ART achieved VS, and children were more likely to achieve VS if their mothers were also virally suppressed. Significant efforts are needed to support mother-child dyads to achieve optimal VS.

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HIV-Exposed Infant Final Outcomes in Prevention of Mother-to-Child Transmission Programs across 14 CDC-PEPFAR-supported Countries, FY2020-FY2023

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Background: Infant final outcome (FO) is the documentation of an HIV-exposed infant's (HEI) HIV status at 18 months of age and/or six weeks after cessation of breastfeeding. Cohort monitoring in prevention of mother-to-child transmission (PMTCT) programs allows for longitudinal tracking and monitoring of mothers and infants throughout the exposure period, ensuring they remain in care. Infant FO measures success of PMTCT programs and progress toward elimination of mother-to-child transmission. This analysis describes changes in completeness of birth cohort registration and infant outcomes.

Methods: We analyzed U.S. President's Emergency Plan for AIDS Relief (PEPFAR) Monitoring, Evaluation, and Reporting indicators from 14 Centers for Disease Control and Prevention (CDC)-PEPFAR supported countries with FO data reported from Fiscal Years (FY) 2020-2023 (October 2020-September 2023). We assessed completeness of birth cohort registration across four FYs by comparing number of HEI registered in the birth cohort to number of pregnant women living with HIV (PWLHIV) in the same period, and infant FO (known HIV-positive, known HIV-negative, unknown status, and died with unknown status) in FY2023, and calculated absolute percent change (APC) from FY2020-FY2023.

Results: In FY2023, 203,278 HEI born in FY2021 were recorded in the cohort, compared to 235,207 PWLHIV (86.4% completeness). FO among HEI in the cohort were as follows: 169,917 (83.6%) had a known status (3,878 (2.3%) HIV-positive, 166,039 (97.7%) HIV-negative); 30,691 (15.1%) had an unknown status; and 2,670 (1.3%) died with unknown status. From FY2020-FY2023, completeness of birth cohort registration increased from 78.4% to 86.4%% (APC: 7.9%), with variation across countries (APC range: +126.5% to -20.9%). The proportion of infants with unknown and positive status decreased (APC: -10.8% and -1.3%, respectively). In FY2023, 43% (8/14) of countries reported <15% unknown status. The proportion of infant deaths increased from 1.2% to 1.3% (APC: 0.1%), with 36% (5/14) of countries reporting an absolute increase of >0.5%.

Conclusions: Completeness of birth cohort registration improved but is inconsistent. Among infants registered in the birth cohort, the proportion with known status improved and the proportion with positive status declined. Systematic efforts to support mother-infant retention, longitudinal monitoring, and documentation until FO are needed to assess and improve maternal and infant outcomes.

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HIV Treatment Adherence Challenges in Postpartum Women Living With HIV in the OPPTIM Study, Johannesburg, South Africa

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Background: Adherence to HIV treatment is challenging for postpartum women living with HIV (WLHIV), with suboptimal adherence resulting in increased viral load (VL) with vertical and horizontal HIV transmission. We used data from the OPPTIM study to describe adherence in postpartum WLHIV.

Methods: Postpartum WLHIV and their HIV-negative infants were enrolled July 2018 – April 2019, at the child's 6/10/14-week immunization visit from two clinics in Johannesburg, South Africa. Women were randomized to arm 1 (standard-of-care VL testing every 6-months) or arm 2 (point-of-care VL testing every 3-months), with follow-up through 24 months. Sociodemographic and adherence questionnaires (30-day visual analog scale, <95% considered sub-optimal adherence) were administered at each visit. We fit a multiple logistic regression model examining risk factors for sub-optimal adherence at each visit, with standard errors for the model adjusted for correlation among multiple visits for each woman.

Results: Among 405 WLHIV participants (arm 1, 204; arm 2, 201) with 1445 visits, sub-optimal adherence was reported at 306 (21.2%) visits, with no statistically significant difference between arms. Main reasons for <95% adherence at any visit included forgetting (33.1%), work commitments (11.4%), not being at home (9.2%), insufficient time (8.5%), and taking medication late (7.7%).
At any visit where <95% adherence was reported, 38/299 (12.7%) had a VL ≥1000 cps/ml. Conversely, in 63/1123 (5.6%) visits with ≥95% adherence the VL was ≥1000copies/ml. Using a cutoff of VL <50 copies/mL, 114/299 (38.1%) of WLHIV with <95% adherence had VL ≥50 copies/ml compared to 29.3% (329/1123) of women reporting ≥95% adherence.
Risk factors for sub-optimal adherence included being employed (adjusted odds ratio (AOR)=1.41 (95% confidence interval (CI) 1.01, 1.96)) and having a non-monogamous partner (AOR=1.60 (95%CI 1.09, 2.37)). Breastfeeding (AOR=0.62 (95%CI 0.42, 0.92)) and first/second trimester ANC booking (AOR=0.42 (95%CI 0.23, 0.75); AOR=0.47 (95%CI 0.27, 0.82) respectively) were protective.

Conclusions: In this study, WLHIV reported sub-optimal adherence at 21.2% of visits, reasons representing complexities faced by postpartum women. Additionally, almost one-third reporting ≥95% adherence had VL≥ 50 copies/ml, which suggests that reliance on self-reported adherence is insufficient. VL monitoring and adherence support is essential in the postpartum period.

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Characterization of HIV-specific T cell responses among early treated children living with HIV

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Background: Early initiation of antiretroviral therapy (ART) in infants reduces HIV-related morbidity and mortality. However, the short period of exposure to HIV viremia may limit the development of HIV-specific immune responses. This study aimed to characterize HIV-specific antibody and T cell responses that persisted for years in children who initiated ART early.

Material and Methods: Forty children(6-10 years old) who initiated ART within 6 months of age were enrolled. We compared immune responses in children with continuous viral suppression (VLsuppress; HIV RNA <200 copies/mL) with those of children with at least one plasma viral load >200 copies/mL after 6 months of ART (VLfailure)(n=20 each). HIV antibodies were detected by chemiluminescent microparticle immunoassay. HIV-specific CD8+ and CD4+ T cell responses were measured by multiparameter flow cytometry with activation-induced marker and intracellular cytokine staining after stimulation with Env, Nef, Gag, and Pol peptide pools. Children were considered to be peptide responders if they had >0.02% interferon(IFN)-ɣ+ cells.

Results: The median age was 8.3 years. The current ART regimens were dolutegravir-based in 34 (85%). The median CD4 and CD8 count were 832 and 925 cells/mm³. The median (interquartile range,IQR) age at ART initiation were 63 (37-105) in VLsuppress and 83 (42-89) days in VLfailure(p=0.80). Last HIV RNA results were <200 in all VLsuppress and 19(95%) VLfailure. Only 7(35%) children in VLsuppress had detectable HIV antibodies, while antibodies were readily detected in 17(85%) VLfailure (p=0.003). Env peptides most frequently induced IFN-ɣ+CD8+ and IFN-ɣ+CD4+ T cell responses in children of both groups (45% Vs 50% and 90% Vs 95%,respectively). Children in VLfailure more frequently responded to Pol (IFN-ɣ+CD8+ T cell responses in 45% Vs 15%, p=0.04), Gag (IFN-ɣ+CD69+CD8+ T cell responses in 45% Vs 15%, p=0.04), and Nef peptides (IFN-ɣ+CD107a+CD8+ T cell responses in 30% Vs 5%, p=0.09). Children in VLfailure also had more response to Gag peptide (IFN-ɣ+CD4+ T cell response in 50% Vs 15%, p=0.04).

Conclusions: HIV-specific immune responses were less frequently detected in early-treated children with continuous virological suppression. These data highlight interventions to increase the frequency and breadth of HIV-specific immune responses as part of HIV remission strategies for these children.

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HIV Outcomes Among Children in Seven Sub-Saharan African Countries Implementing PEPFAR's "Accelerating Progress in Pediatrics and Prevention of Mother to Child Transmission of HIV" Initiative, October 2020 to September 2023

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Background: To address gaps among children living with HIV (CLHIV), the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) introduced the Accelerating Progress in Pediatrics and Prevention of Mother-to-Child Transmission of HIV (PMTCT) (AP3) effort in seven countries (Democratic Republic of the Congo, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia) that accounted for 53% of the global pediatric treatment gap. Countries utilized a framework with six core pillars to achieve three objectives: 1) reduce new child infections, 2) identify and link CLHIV to antiretroviral therapy (ART), and 3) increase rates of pediatric viral load suppression (VLS) (<1000 copies/mL). This analysis evaluates progress toward achieving objectives 2 and 3.

Methods: We analyzed annual PEPFAR monitoring data for children (<15 years) from the AP3 countries. We compared baseline data from October 2020-September 2021 (pre-AP3) with October 2022-September 2023 (AP3 implementation) for the following indicators: number of children who received an HIV test, number of children diagnosed with HIV, number of children newly enrolled on ART, and VLS among children on ART. We describe percent change for HIV tests, HIV diagnoses, and new on ART, and differences in percentage points for VLS.

Results: During AP3 implementation, 5,062,642 children were tested for HIV which represented a 52% increase compared to pre-AP3 with six of seven countries reporting an increase (range: -24% to 147%). The number of children diagnosed with HIV decreased by 18% (53,279 to 43,501) with six of seven countries reporting a decrease (range: -35% to 11%). The number of children newly enrolled on ART decreased by 19% (60,173 to 48,472). VLS increased from 84% to 88%, with four of seven countries reporting ≥90% after one year of AP3 implementation (range: 86% to 95%).

Conclusions: Although pediatric HIV outcomes varied, AP3 countries saw overall gains in HIV testing and VLS rates among CLHIV. Effective case finding and continued strong linkage are needed to bridge remaining gaps identified within AP3 to curb the pediatric HIV epidemic. Additional analyses are necessary to understand factors contributing to differences in progress across countries and to describe long-term impacts of the AP3 program on HIV outcomes for CLHIV.

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If You Want to Go Far, Go Together: The Impact of Comprehensive Family-Centered Care on HIV Outcomes Among Children and Adolescents in Six High Burden USAID-PEPFAR Supported States of India

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Background: Globally, there are approximately 1.5 million children living with HIV (CLHIV) <15 years and India with 68,000 is home to the largest population of CLHIV outside of sub-Saharan Africa. While the government provides antiretroviral treatment (ART) at no cost to all people living with HIV, CLHIV lag adults in reaching UNAIDS 95-95-95 goals.

Methods: Since October 2019, the USAID-PEPFAR-funded ACCELERATE project has been supporting the Orphans and Vulnerable Children (OVC) program in six states (Andhra Pradesh, Maharashtra, Manipur, Mizoram, Nagaland and Telangana). The OVC program addresses clinical and socioeconomic needs of children and adolescents living with HIV <18 years (C/ALHIV) and their families. Comprehensive services include: (1) risk assessment for HIV testing referral, (2) facilitating home delivery of ART, especially during periods of conflict/unrest and other public health emergencies, (3) reminder for viral load testing, (4) education and nutrition support, and (5) access to social protection schemes and other government services. We present data from the OVC program and the impact on treatment outcomes for C/ALHIV over a 5-year period.

Results: From October 1, 2019 to March 31, 2024, the OVC program expanded from 10 to 50 districts. Concurrently, the total number of C/ALHIV enrolled in the program increased from 135 to 8,766, with the proportion knowing their HIV status increasing from 24% to 97% and on ART from 95% to >99%. About 21% (n=1,815) are ≤10 years, and 47% (n=4,116) were assigned female sex at birth. Viral load coverage for C/ALHIV supported in the OVC program increased from 16% (21/128) to 80% (7,024/8,771) and viral suppression from 10% (2/21) to 93% (6,543/7,024) over the five-year period. As of March 31, 2024, viral suppression for C/ALHIV <5 years, 5-9 years, 10-14 years and 15-17 years is 84%, 90%, 94% and 95%, respectively.

Conclusion: A multi-faceted family-based child-centric OVC intervention increased known HIV status, ART uptake, access to viral load testing and viral suppression among C/ALHIV in six high burden Indian states. This type of comprehensive model can be replicated across India and globally to improve viral suppression in sub-populations that face challenges with adhering to ART, particularly younger children.

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Lower Working Memory and Processing Speed Scores Among Children and Youth With HIV Exposure Compared to Unexposed Children and Youth

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Background: Recent studies suggest that HIV exposure during pregnancy is associated with worse neurocognitive outcomes. Studies on cognitive outcomes among school aged children with HIV exposure and living without HIV (CHEU) in sub-Saharan Africa are limited and evidence for cognitive differences when compared to children unexposed to HIV (CHUU) is mixed.

Methods: In a cross-sectional study, we recruited Kenyan CHEU and CHUU aged 7 to 18 years. Using the NIH Toolbox African Languages cognitive battery, we assessed working memory, episodic memory, attention and inhibitory control, cognitive flexibility, and processing speed. Assessments were administered in either Kiswahili or Dholuo. We compared domain scores between groups and determined correlates of lower scores using linear regression, with models adjusted for age and socio-demographic factors that differed in the 2 groups.

Results: Overall, 219 and 209 CHEU and CHUU, respectively, were enrolled. The median age was 12 years (IQR: 9.1, 14.0) for CHEU and 12.8 (IQR: 9.2, 15.0) for CHUU. CHEU were more likely to be orphaned and vulnerable children (OVC) and to have mild food insecurity.

Compared to CHUU, CHEU had significantly lower scores in working memory (age adjusted coefficient 1.3, 95% CI 0.5, 2.1, p = 0.001), and processing speed (age adjusted coefficient 4.65, 95% CI 2.3, 7.0, p < 0.001). These differences persisted in separate models adjusted for age and food security as well as age and OVC status.

There were no differences in the other domains (episodic memory, attention and inhibitory control, and cognitive flexibility).

Conclusion: These findings suggest that CHEU may experience deficits in working memory and processing speed. These differences persisted after adjustment for socio-demographic factors suggesting other factors, including biological factors, may play a role. Further work to determine the impact of these deficits on function and other potential cofactors is warranted.

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Wezesha Watoto: Implementation of Clinic-Based Neurodevelopmental Screening in Children Born to Mothers Living With HIV in Kenya

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Introduction: Children with perinatal HIV exposure have worse neurodevelopment compared to peers without exposure. Little is known about the implementation of neurodevelopmental screening programs in clinical settings with high rates of perinatal HIV exposure. This study aimed to evaluate the implementation outcomes of a neurodevelopmental screening program for children born to mothers living with HIV within a maternal-child health (MCH) clinic in Kenya.

Methods: This mixed-methods implementation study took place in Eldoret Kenya, within the Academic Model Providing Access to Healthcare (AMPATH) from 9/2021-8/2023. Neurodevelopmental screening was implemented within a public MCH with integrated HIV care, for children ages 18-36 months with perinatal HIV exposure. During the first 12 months, intensive program oversight occurred, with minimal research involvement during the final 12 months. A 12-item tool was locally developed, screening for cognition, language, motor, and social development. Feasibility, sustainability, and fidelity were measured with weekly time-motion analysis of clinic flow and clinic record review. Acceptability, feasibility, and sustainability were further evaluated with semi-structured interviews of parents and clinic staff, completed at baseline and every 6 months until 24 months post-implementation. Mixed methods data were analyzed using descriptive statistics, thematic coding, and triangulation.

Results: 405 children were screened (80% of eligible), with screening rate consistent over 24 months. Average time to complete screening decreased from 7 minutes to under 5 minutes. Overall facilitators to screening included staff teamwork and parent cooperation, with barriers including lack of time and child's mood. Throughout its implementation, parents desired screening and appreciated staffs' concern for their child's development. Clinic staff emphasized the need for motivating incentives for children and staff and clarity in referral resources. By 6 months, staff noted screening had become routine. They desired feedback on their performance and provided ideas for improvement. By 12 months, staff desired further training on neurodevelopment and identified it as a necessity for sustainability of screening efforts. By 24 months, staff desired to expand screening to all children at the clinic.

Conclusions: The integration of a neurodevelopmental screening program is acceptable, feasible, and potentially sustainable. Regular retraining, staff feedback, and clear referral resources may optimize integration.

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Maternal Eicosanoids Mediate the Association Between in Utero HIV Exposure and Lower Insulin Sensitivity in Early Childhood in Botswana: Results From the Tshilo Dikotla Study

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Background: Children with perinatal HIV exposure and uninfected (CHEU) have early life metabolic perturbations compared to those without perinatal HIV exposure (CHUU); little is known about possible in utero mechanisms.

Methods: The Botswana-based Tshilo Dikotla study enrolled pregnant persons with HIV (PWH) and HIV-seronegative pregnant individuals, and their children. Maternal fasting plasma collected at 24-28 weeks' gestation was assayed for metabolites, lipid subspecies, and eicosanoids via liquid chromatography mass spectrometry. Homeostasis Model Assessment for Insulin Resistance (HOMA-IR), a measure of insulin sensitivity, was assessed in children after a standardized 4-hour fast at 24 months-of-life. To assess whether the maternal metabolome/lipidome mediated the effect of in utero HIV/antiretroviral (ARV) status on child HOMA-IR, we conducted multivariable mediation analyses using dimension reduction, first categorizing all analytes into groups based on physiologic pathways and generating mediator group effects (MGEs) via Principal Direction of Mediation. MGEs were then considered in a high-dimensional mediation analysis using the HIMA R package. A similar approach was used within the eicosanoid subgroup with further classification based on pathway precursors.

Results: Overall, 185 women/child pairs (126 PWH/CHEU) were included. Among PWH, 95% had HIV RNA <40 copies/mL at enrollment; all PWH received tenofovir and lamivudine or emtricitabine plus dolutegravir (56%) or efavirenz (44%). CHUU breastfed for longer than CHEU (40 vs 23 weeks). Maternal BMI and gestational diabetes, child sex, preterm birth, small-for-gestational-age, and child dietary intake were similar between groups. Maternal eicosanoids mediated 82% of the relationship between in utero HIV/ARV exposure and higher child HOMA-IR (α=0.23 for effect of in utero HIV/ARV on eicosanoid MGE, β=0.33 for effect of eicosanoid MGE on HOMA-IR adjusting for in utero HIV/ARV, γ=0.09 for total effect of in utero HIV/ARV on HOMA-IR, $\alpha*\beta$=0.08 for mediation effect, p=0.016). Pro-inflammatory eicosanoids originating from arachidonic acid (AA) and anti-inflammatory eicosanoids originating from docosahexaenoic acid (DHA) were most important in mediating the overall relationship between in utero HIV/ARV exposure and higher child HOMA-IR.

Conclusion: Eicosanoids, whose precursor is AA or DHA, reflect a mixed pro- and anti-inflammatory intrauterine environment that mediates the association between in utero HIV/ARV exposure and lower insulin sensitivity in early childhood.

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Lower Height-For-Age and Weight-For-Age Z Scores Among HIV Exposed Children Aged 3-10 Years

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Background: Despite effective antiretroviral therapy, children born to women living with HIV but who remain uninfected (CHEU) have poorer growth compared to children born to women living without HIV (CHUU). Few studies have compared growth beyond early childhood.

Methods: In a cross-sectional study, we enrolled CHEU and CHUU aged 3-10 years in Kenya. Growth z-scores were calculated using the WHO growth standards (weight-for-age [WAZ], height-for-age [HAZ], body mass index [BMIZ] [age 5-10] and head circumference-for-age [HCZ] [age 3-5]). Growth faltering was defined as Z-scores of ≤-2 standard deviations. We compared HEU/HUU growth Z-scores and growth faltering prevalence using mixed effects linear regression models and generalized estimating equations adjusting for socio-demographic characteristics, food security and enrollment site.

Results: We enrolled 1781 CHEU and 199 CHUU. The median age was 6.5 years (IQR: 5, 9) for CHEU and 5.9 (IQR: 4, 8) for CHUU. CHEU were more likely to be orphaned and vulnerable children (OVC) and to have breastfed for shorter period. CHEU mothers were older, had fewer years of education, and were more likely to be single parents and have severe household food insecurity.

CHEU had significantly lower HAZ (adjusted mean difference [aMD] -0.39 95%CI -0.64, -0.14, p=0.002) and WAZ (aMD -0.26 95%CI -0.44, -0.08, p=0.004) than CHUU. HCZ was lower among CHEU than CHUU in unadjusted models (MD -0.28, 95%CI -0.52, -0.05, p=0.017). There were no differences in BMIZ.

CHEU had 1.8 times higher prevalence of stunting (HAZ ≤-2) in unadjusted models, but the effect was attenuated after adjustment (adjusted prevalence ratio 1.54, 95%CI 0.90, 2.65, p=0.116). There were no differences in the prevalence of Z-scores ≤-2 for WAZ, BMIZ or HCZ.

Among CHEU, poorer growth was associated with having a single parent, severe food insecurity, OVC and low birth weight (<2500grams).

Conclusion: CHEU had poorer weight and length growth than CHUU. Sociodemographic factors contributed to CHEU growth compromise as demonstrated by attenuation of associations in adjusted models and significant influence of orphanhood, low birth weight, and food insecurity. The persistent association of CHEU with poor growth after adjustment suggests potential role of biologic factors.

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Increased Risk of Stunting at Birth among Newborns Exposed to HIV: Insights from a Birth Defects Surveillance Project in Uganda

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Background: Globally, reported birth stunting (BS) rates are high in both newborns with and without exposure to human immunodeficiency virus (HIV) (10%-38%). Birth stunting increases risk of childhood stunting, but data on prevalence and risk factors is sparse. We determined the prevalence, and factors associated with BS from a birth defects surveillance program at four hospitals in Kampala, Uganda.

Material and Methods: We analyzed data collected between Aug 2015–Dec 2021. Maternal variables analyzed included HIV and antiretroviral treatment (ART) status, age, parity and number of antenatal care (ANC) visits. Using the Fenton 2013 growth reference chart, we defined newborns with length-for-gestational age more than 2 standard deviations below the mean (<-2SD) as stunted. Prevalence of stunting was calculated as percentage of newborns with stunting among all newborns. Bivariable models estimated the association between maternal and newborn characteristics and BS. Variables with p<0.2 in bivariable analyses were included in a multivariable logistic regression model. We excluded multiple births, newborns with: birth defects; missing birth length measurements or gestational age (GA); and with birth weight (BW)<227 grams.

Results: The analysis included 152,823 mother-newborn pairs. The median maternal age was 26 years [interquartile range (IQR):23-30], 7.3% (n=11,220) of mothers were living with HIV (LWH) and among them, 96.1% (n=10,788) were on ART. Overall prevalence of BS was 6.9% (n=10,599). Among newborns with stunting, median GA and BW were 40 weeks (IQR:38–41) and 2,805g (IQR: 2,310–3,200), respectively. Maternal factors associated with BS were: HIV status [LWH v. not LWH adjusted odds ratio (AOR):1.37, 95% confidence interval (CI):1.28-1.47], maternal age [<20 v. 20–34 years AOR:1.10, 95%CI:1.02-1.18], parity [primiparous v. parity 2-4 AOR:1.23, 95%CI:1.18-1.29], and number of ANC visits [none v. 4+ AOR:1.56, 95%CI:1.38-1.76; 1-3 visits v. 4+ AOR:1.14, 95%CI:1.09-1.18]. Being on ART was not an associated factor.

Conclusions: BS in this study was lower than observed in other countries. However, approximately 1 in 14 newborns were stunted. Prevention of teenage pregnancies and ensuring early enrollment of pregnant women in ANC might help reduce BS. Interventions directed towards pregnant women LWH and those with a first pregnancy might also be helpful.

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Similar One Year Mortality Among HIV Exposed Uninfected and HIV Unexposed Children in Kenya

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Background: Children who are HIV exposed uninfected (CHEU) are at high risk of mortality compared to children who are HIV unexposed (CHUU). Newer antiretroviral therapy (ART) (including dolutegravir-based regimens) and extended breastfeeding guidelines may improve outcomes for CHEU. We compared mortality among CHEU and CHUU in the first year of life.

Methods: Mother-child pairs were enrolled at 6 weeks of age in 7 maternal and child health clinics in Nairobi, Kisumu and Homa Bay and followed up at 6 and 12 months of life. Child mortality was ascertained through maternal/caregiver reports. We used Cox proportional hazards regression to compare estimates of mortality between CHEU and CHUU. Among CHEU, we compared hazard ratios (HR) for death between CHEU whose mother started ART pre- or post-pregnancy.

Results: Of 980 CHEU and 983 CHUU followed for a year, there were no differences in child sex (50% vs 52%) having a biological mother (>99% for both). Compared to CHUU, CHEU were more likely to have a deceased or absent father (10% vs 5%) and be exclusively breastfed at 6 weeks (98% vs 96%). CHEU mothers were older (31 vs 26 years), had lower education (47% vs 29% had only primary education), and had higher household food insecurity (19% vs 9%). Among CHEU, 85% had started ART pre-pregnancy.
Overall, 7/980 (0.7%) CHEU and 12/983 (1.2%) HUU children died by 1 year of age. There were no statistically significant differences in mortality by HIV exposure (unadjusted HR: 0.58, 95%CI: 0.23-1.48; p=0.256). Comparing CHEU whose mothers started ART pre-pregnancy to those who started ART during or after pregnancy, there were no differences in mortality (2/146 [1.4%] vs 4/792 [0.5%], respectively; p=0.25). Overall, the HR for mortality was higher for male compared to female children (15/965 [1.6%] vs 4/998 [0.4%], respectively, HR: 3.90 95%CI: 1.29-11.75; p=0.016).

Conclusion: In this large cohort, we found no mortality differences between HEU and HUU in the first year of life. Mortality was lower in our cohort than national averages likely because our study enrolled infants aged 6 weeks. We observed higher post-neonatal mortality among male children; this finding warrants further exploration.

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HIV Exposure and Neonatal Sepsis: A Descriptive Etiological Study of 4775 Children

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Introduction: Low- and middle-income countries lack data on culture confirmed sepsis in infants exposed to HIV in utero (HEU) despite the reported heightened risk of infectious morbidity when compared to the HIV Unexposed Uninfected counterparts. This study describes the culture confirmed sepsis and antibiotic resistance patterns among HEU in a large etiological cohort study in Kampala, Uganda.

Methods: This was a prospective birth cohort study based at two Ugandan sites as part of the Seroepidemiology of maternally derived antibody against Group B Streptococcus (GBS) -PROGRESS study. The study had two entry points, women and their infants consenting at birth (birth cohort), and any infant with signs of infection presenting before they are 3 months old (active surveillance cohort). Any infant presenting with signs of sepsis to either of the study hospitals had blood cultures and nasopharyngeal swabs taken to determine the etiology of neonatal and young infant sepsis. Blood cultures were processed using the BACTEC system and identification confirmed by MALDI-TOF. Antibiotic sensitivity was undertaken using disk diffusion. Descriptive analysis was done in Stata 17.0.

Results: Among 4775 blood cultures, 487 were obtained from HEUs. Nine HEU Infants' (1.9%) had positive blood cultures compared to 3.4% (145/4288) among the HUUs (p=0.117). HEU babies had lower admission rates the first weeks of life, however a higher proportion (14.4%) of the HEU babies died vs HIV-unexposed, uninfected (HUU) (10.3% p = 0.005). The majority of the organisms isolated were Escherichia coli, Group B streptococcus and Enterococcus species and these organisms' demonstrated resistance to the common antibiotics (Aminoglycosides, Macrolides, Penicillins and Cephalosporins) being used for management of suspected sepsis.

Conclusion: Proportions of positive blood cultures and isolated organisms among neonates with suspected sepsis do not seem to vary among HEUs and HUUs. Future work is needed to investigate why mortality among HEUs persists.

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The Impact of Maternal HIV Infection and Anemia Together With Placental Insufficiency on Neurodevelopment and Anemia in South African Children

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Background: Anemia is a major global health concern affecting women and children, and is known to be associated with delayed neurodevelopment in children. Risk factors for anemia include nutrient deficiencies and infections such as HIV and tuberculosis. We determined associations between maternal anemia and child neurodevelopment and anemia among 18-month-old children exposed to maternal HIV-infection and placental insufficiency.

Methods: Placental insufficiency was detected by an abnormal umbilical artery resistance index (UmA-RI) on Doppler ultrasound at 28-34 weeks' gestation. The cross-sectional study was conducted at Kalafong hospital in 2021 among 260 mother-child pairs, grouped into: HIV-unexposed-uninfected children (CHUU) with normal UmA-RI (CHUU/N-RI; n=178; control group); HIV-exposed-uninfected children (CHEU) with normal UmA-RI (CHEU/N-RI; n=47); CHUU with abnormal UmA-RI (CHUU/AbN-RI; n=20), and CHEU/AbN-RI; n=15. Maternal and children's hemoglobin concentration were tested using HemoCue® Hb 201+ System Analyzer. Bayley-III was used to assess children's cognitive, motor, and language development at the corrected age. Chi-squared and Fishers exact tests were used to compare group outcomes, and Pearson correlation test to determine associations.

Results: Mothers in the CHEU/N-RI group had lower mean hemoglobin values than their control group counterparts (12.4±1.7g/dL vs 12.8±1.5g/dL; p=0.022). A higher percentage (30.0%) of CHUU/AbN-RI mothers were mildly anemic than mothers in the CHUU/N-RI group (9.1%); p=0.020. In children, CHUU/AbN-RI had a mean hemoglobin value of 10.9±1.4g/dL, indicating mild anemia. In the CHEU groups, child hemoglobin concentrations were positively correlated with maternal hemoglobin concentrations (r=0.29; p=0.028). CHEU/AbN-RI had significantly lower length-for-age z-scores than CHUU/N-RI (-1.3±1.3 vs -0.1±1.3; p=0.001). Bayley-III test demonstrated lower mean cognitive scores in CHEU/AbN-RI and lower mean motor scores in CHUU/AbN-RI compared to CHUU/N-RI: 93.9±12.9 vs 100.0±10.6; p<0.001 and 97.9±11.6 vs 99.9±11.7; p=0.023, respectively. There were no correlations between maternal hemoglobin concentration and neurodevelopment among the CHEU and abnormal UmA-RI groups.

Conclusion: Findings suggest that maternal HIV exposure coupled with placental insufficiency are risk factors for cognitive deficits, and that placental insufficiency is an independent risk factor for motor deficits. Child development was not associated with maternal hemoglobin levels. Child health programmes need to prioritize CHEU and children with placental insufficiency as at-risk groups for cognitive and motor delays.

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Association Between Infant Feeding Practices and Infant Growth by Maternal HIV and Antiretroviral Therapy Status: A Prospective Study in Cape Town, South Africa

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Background: Infants who are HIV-Exposed Uninfected (HEU) may experience more adverse growth outcomes than HIV Unexposed Uninfected (HUU) infants. Breastfeeding (BF) is crucial for infant health and development providing infants with nutrients for optimal growth irrespective of maternal HIV/Antiretroviral therapy (ART) status. In a cohort of mother-infant pairs enrolled from the same community in Cape Town, South Africa, growth parameters were compared between infants who were HEU and HUU from birth to 12 old investigating associations with infant feeding practices (BF and complementary feeding) under the current era of universal ART in pregnancy.

Methods: Data collected at enrolment (during pregnancy) and at postpartum visits: 7 days, 10 weeks, 6 and 12 months were included. To convert infant weight and length at birth to weight-for-age z-scores (WAZ) and length-for-age z-scores (LAZ) scores Intergrowth-21st software was used; World Health Organization (WHO) Anthro survey analyzer tool was used to obtain WAZ, LAZ and Weight-for-length z-scores (WLZ) at 10 weeks, 6 and 12 months. Linear mixed effects (LME) models were fit to compare WAZ, LAZ and WLZ between HEU and HUU infants and associations with BF, complementary feeding and household food security variables.

Results: We included 796 mother-infant pairs, 400 (50%) were HUU and 396 (50%) were HEU by study design of whom 210 (53%) were exposed to both HIV and ART at conception while 186 (47%) were exposed to ART after conception but during gestation. Median duration of BF was shorter among HEU than HUU infants [73 days; IQR 12-222 vs 209 days; IQR 72-365 ($p < 0.001$]). WAZ and LAZ on average were lower in HEU than HUU infants [$\beta = -0.147$; 95% CI: -0.327, 0.033] and [$\beta = -0.146$; 95% CI: -0.339, 0.471])] after adjusting for covariates.

Conclusion: Lower WAZ and LAZ for infants who were HEU compared to HUU average across all LME models even after accounting for covariates suggest that public health interventions be aimed at strengthening the feeding and other health needs of these infants to ensure optimal growth.
Keywords: HIV Exposed Uninfected, HEU, infant growth, feeding practices, weight-for-age, length-for-age, South Africa

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Universal HIV Testing of Children at 18 Months of Age in South Africa: A Novel Policy as the Last Mile to Close the Pediatric Case Finding Towards HIV Epidemic Control

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Background: South Africa is the first country to adopt a policy on universal HIV testing for all children aged 18 months aligned to the Vertical Transmission Program and the Expanded Programme on Immunization. This policy was adopted in 2019 and is aimed at improving the pediatric HIV case finding in facilities and communities. Based on NAOMI HIV estimates, South Africa has the largest pediatric HIV epidemic globally, with an estimated 152,984 children <15 years living with HIV in 20241.

Methods: We conducted a retrospective review of program data from 2018 to 2023, District Health Information System (DHIS II). Data is based on the Government of South Africa financial year (April to March). Data was for children aged 18 months: i) HIV tests, ii) Hexa-4 vaccinations, iii) live births 18 months prior to the review period, and iv) census estimates for age one year.

Findings: There was a 48% increase in the number of children tested annually from 238,392 in 2018 to 352,827 in 2023. The proportion of children with a recorded vaccination who were tested for HIV increased from 32% in 2018 to 45% in 2023, while HIV positivity decreased from 0.6% to 0.3% over the same period. Over the five-year period, 36% (1.35 million) of the 3.8 million children receiving the Hexa-4 vaccine were tested for HIV. The Hexa-4 vaccination coverage was 69.7% compared to the estimated population.

Conclusion: Our findings indicate scale-up of integrated EPI and HIV testing services at 18 months of age. However, these data also highlight missed opportunities for universal testing currently. This novel policy is critical to closing the pediatric HIV case finding gaps, key on identifying slow progressors, and children with disadvantaged backgrounds who do not present to the healthcare facilities.

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Closing the Pediatric HIV Treatment Gap in Tanzania: Where are the Children Living with HIV?

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Background: To end HIV as a public health threat by 2030, high antiretroviral therapy (ART) coverage for all people living with HIV (PLHIV) is vital. By the end of 2021, approximately 86% of all PLHIV in Tanzania were estimated to be on ART compared to only 73% of Children Living with HIV (CLHIV) below 15 years of age (Spectrum 2022). To close this treatment gap among CLHIV, the US President's Emergency Plan for AIDS Relief (PEPFAR) Tanzania implemented the Accelerated Progress in PMTCT/Pediatric ART (AP3) initiative, which included the enhancement of pediatric index testing to improve case identification at 433 selected high-volume health facilities from July 2022 to September 2023.

Description: Pediatric index testing for HIV was strengthened across these health facilities through the deployment of 103 additional HIV testers and training of 160 providers as mentors to provide continuous technical assistance for pediatric case identification. Index testing cascade data were routinely reviewed to rapidly identify and remediate gaps.

Lessons Learnt: From pre-AP3 (July 2021 - June 2022) to post-AP3 (July 2022 - June 2023) implementation, more women living with HIV were offered and accepted index testing with an increase from 36,272 to 49,719 offered and 35,528 to 49,273 accepting index elicitation. The number of children elicited and tested increased from 47,870 to 65,951 elicited and 42835 to 62,493 tested, equivalent to 38% and 46% increase respectively. However, the number of CLHIV newly identified as living with HIV, declined from 1,587 in pre-AP3 to 1,417 in post-AP3. The proportion of elicited pediatric contacts that were tested increased from 90% to 95%.

Conclusion: Implementation of the AP3 initiative in Tanzania was associated with an increase in elicitation and testing of pediatric contacts of PLHIV, but it didn't result in an increase in the number of CLHIV diagnosed. Better strategies for identification of CLHIV are urgently needed . Additionally, on reaching the last mile for the HIV epidemic control, there will be less CLHIV to identify. Thus, the review of CLHIV estimates is beneficial in establishing the actual gap for facilitating strategic HIV programming plans for case finding.

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Rising Pediatric HIV Diagnoses and Missed Opportunities for Testing and Prevention in Indiana, United States

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Background: Although HIV rates have significantly declined in the US, progress slowed due to COVID-19 pandemic-related disruptions and exacerbated health inequities. Impacts on pediatric HIV diagnoses are not fully known. Riley Hospital for Children at Indiana University Health (IUH) is the sole pediatric HIV treatment site for children and adolescents with HIV (CAHIV) in Indiana, a state with challenging health inequities and underfunded public health services. We sought to assess trends in pediatric HIV diagnoses pre-/post-2020, and to characterize recent missed opportunities for prevention or diagnosis.

Methods: We conducted a retrospective cohort study of CAHIV aged <18 years, treated at IUH, diagnosed with HIV from January 2009–December 2023. Demographic data, transmission route, risk factor(s), and diagnosis year were abstracted. For CAHIV diagnosed 2020 onwards, we systematically categorized missed opportunities for prevention or earlier diagnosis. We conducted an interrupted time series analysis using an autoregressive integrated moving average (ARIMA) model to assess pre-/post-2020 trends in diagnoses.

Results: We identified 126 CAHIV, with perinatal (73%) or non-perinatal (27%) acquisition; age at diagnosis 0-9 (44%), 10-17 (32%), or unknown (17%); and 44% female, 68% Black/African-American, 18% white, and 10% Asian as assigned in EMR. All diagnoses in 2023 (n=9) were significantly higher than 5.6/year pre-pandemic (95% prediction interval 2.6-8.5); and non-perinatal diagnoses in 2022 (n=6) and 2023 (n=5) were significantly higher than 1.4/year pre-pandemic (95% prediction interval 0-3.4). Post-pandemic missed opportunities for those with perinatal HIV (n=8, 50% US-born) occurred across the mother-infant prevention/care cascades. Among 14 CAHIV with non-perinatal diagnoses post-2020, risk factors included sexual/gender minority status (57%), heterosexual sex (29%), and abuse (29%). Missed opportunities included no PrEP despite known risk factors (79%) and/or prior medical encounters without HIV testing (65%)—despite testing indications including age ≥13 (78%), symptoms (44%), and risk factors (89%).

Conclusions: Pediatric HIV diagnoses increased after 2020, with major gaps noted in adolescent HIV testing and prevention among vulnerable populations. Perinatal diagnoses in US-born infants signal persistent gaps in perinatal prevention. Redoubled efforts and novel approaches are needed to strengthen public health, health system, and provider education interventions to prevent new pediatric HIV in the US.

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The Reduced Impact of HIV in the Pediatric Inpatient Sector: Operational Results From a Breastfeeding Infant Ward in Mozambique

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Background: Mozambique has made impressive strides in its pediatric HIV and prevention of mother-to-child transmission (PMTCT) programs through decentralization, optimization of pediatric antiretroviral treatment (ART), implementation of Option B+, and introduction of point-of-care nucleic acid testing (PoC-NAT) for Early Infant Diagnosis (EID), with improved ART coverage and outcomes, and decreased vertical transmission. However, limited data is available to understand the impact of these advancements in the inpatient sector.

Methods: Infants hospitalized from 2020-2023 on the Infant Ward at Hospital Central de Maputo, the largest academic and referral hospital in Mozambique, were included. Routine data on provider-initiated testing and counseling (PITC) and PoC-NAT were collected retrospectively from the ward discharge register. Pearson's Chi-squared tests were used to evaluate temporal trends.

Results: Among the total of 4,291 discharges, the median age was 5 months (IQR 2-8 months) and 40.9% were female. There were 845, 812, 1231, and 1416 admissions in 2020, 2021, 2022, and 2023, respectively. HIV serostatus was confirmed for 98.5% of patients over the four-year study period. The proportion of infants with HIV declined significantly from 5.7% in 2020, 4.8% in 2021, 1.9% in 2022, to 1.6% in 2023 (p<0.001), as did the proportion of HIV-exposed uninfected infants declining from 13.4% in 2020, 12.0% in 2021, 9.1% in 2022, to 9.8% in 2023 (p=0.007). The proportion of mothers newly diagnosed with HIV through inpatient PITC declined significantly from 2.5% in 2020, 1.7% in 2021, 0.5% in 2022, to 0.4% in 2023 (p<0.001), with 72.7% of their infants having subsequent positive inpatient POC-NATs (all years). The positivity of PoC-NAT for all HIV-exposed infants receiving inpatient EID decreased from 22.2% in 2020, 18.8% in 2021, 6.5% in 2022, to 7.5% in 2023 (p<0.001). HIV-associated mortality was 15.2%, 10.6%, 17.9%, and 16.7% in 2020, 2021, 2022, and 2023, respectively (p=0.704).

Conclusions: The burden of HIV on inpatient infant care has decreased dramatically, but routine PITC of breastfeeding mothers and PoC-NAT for exposed infants are critical backstops to outpatient EID programs for case-finding. Inpatient mortality remains stubbornly high in infants living with HIV, highlighting the importance of the recently-launched national advanced HIV disease program.

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Effectiveness of Symptom-Based Diagnostic HIV Testing Versus Targeted and Blanket Provider-Initiated Testing and Counseling Among Children and Adolescents in Cameroon

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Background: The WHO recommends the concurrent implementation of targeted (tPITC) (or index case testing) and blanket provider-initiated testing and counseling (bPITC) (or systematic HIV testing) for HIV case-finding in generalized HIV epidemics. This study assessed the effectiveness of this approach compared to the concurrent implementation of symptom-based diagnostic HIV testing (DHT) and tPITC in Cameroon.

Methods: In three hospitals where DHT was the standard practice, tPITC and bPITC were implemented. HIV-positive parents in care were invited to have their biological children (6 weeks to 19 years) tested for HIV (tPITC). Concurrently, similarly-aged children/adolescents at the outpatient departments were systematically offered HIV testing (bPITC). The mean monthly number of children HIV- tested, tested HIV+, and ART-enrolled were used to compare the outcomes of different HIV testing strategies before and after the intervention.

Results: Comparing DHT to bPITC, there was a significant increase in the mean monthly number of children/adolescents tested for HIV (223.0 vs. 348.3, p = 0.0073), but no significant increase in the mean monthly number of participants testing HIV-positive (10.5 vs. 9.7, p = 0.7574) or ART-enrolled (7.3 vs. 6.3, p = 0.5819). Comparing DHT to tPITC, there was no significant difference in the mean monthly number of children/adolescents tested for HIV (223 vs. 193.8, p = 0.4648), testing HIV-positive (10.5 vs. 10.6, p = 0.9544), or ART-enrolled (7.3 vs. 5.8, p = 0.4672). When comparing DHT versus bPITC+tPITC, there was a significant increase in the mean monthly number of participants tested for HIV (223.0 to 542.2, p < 0.0001), testing HIV-positive (10.5 vs. 20.3, p = 0.0256), and ART-enrolled (7.3 vs. 12.2, p = 0.0388).

Conclusions: The concurrent implementation of bPITC+tPITC was more effective than DHT alone regarding HIV testing uptake, case detection, and ART enrollment. However, since DHT and bPITC had comparable outcomes regarding case detection and ART enrollment, bPITC+tPITC may not be efficient. Therefore, this study does not support the concurrent implementation of bPITC+tPITC in Cameroon. Instead, the consistent concurrent implementation of DHT+tPITC could effectively and efficiently accelerate HIV case detection and ART coverage among children/adolescents in this country and similar relatively low-HIV prevalence contexts.

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Results From Index Testing to Reach Children of Key Populations: A Multi-Country Analysis

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Background: Reaching children of key population (CKP) with HIV services is key to addressing their vulnerability because stigma, discrimination, exposure to risk behaviors among others. We describe index testing data and services for key populations living with HIV (KPLHIV) under U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through U.S. Agency for International Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project to reach their biological children (23 countries: Africa, Asia).

Material and methods: HIV index testing services were offered in health facilities, community-clinics, hotspots (community areas at high HIV transmission-risk). KPLHIV were offered index testing through cadres of trained peer outreach workers, counselors, and clinical providers. These cadres were engaged to reach the CKP, upon KPLHIV consent. Using routinely collected aggregated data, we analyzed the number of KPLHIV who were offered index testing, those who accepted, the number of biological children under 15 who were elicited, tested, and tested positive and calculated acceptance rate among KPLHIV, elicitation ratio, testing and case finding rate among CKP. We used project reports to extrapolate the challenges in reaching CKP.

Results: Between October 2022 and September 2023, EpiC offered index testing to 34,528 KPLHIV among whom 51% (17,513) accepted and elicited 2,843 biological children under the age of 15, among whom 1,986 (70%) were tested; CKP case finding was 10% (199). Comparing Asian to African countries, acceptance rate among KPLHIV (36% versus 74%, respectively) and elicitation ratio (0.1 versus 0.2, respectively) were lower, while testing rate was higher (87% versus 65%, respectively). Challenges in reaching CKP included: KPLHIV hesitancy to disclose their children because of stigma and discrimination, criminalization; low HIV literacy; and CKP living with other caregivers at distant locations.

Conclusions: Although overall case finding rate among CKP was high, acceptance rate among the KPLHIV was low and CKP testing rate wasn't optimal. More investments are required to create enabling environments that facilitate access to index testing services by KPLHIV and their children and resourced, differentiated, and flexible operations that can reach CKP who are not staying with their KP parents. Cultural differences should be accounted when designing index testing interventions.

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Optimizing HIV Case Identification Among Children Through Ethical Index-Testing in Ghana

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Background: Health systems across many countries especially in sub-Sharan African region are weak and fail to provide adequate HIV services. Index testing approach to HIV case identification provides the opportunity to involve both healthcare providers in health facilities and community actors to offer HIV testing services to persons whose partner(s) are diagnosed HIV positive through index testing. The USAID Care Continuum Project in partnership with the Ghana Health Service trained healthcare providers including Community Health Nurses (CHNs) and Civil Society Organizations (CSOs) field staff to trace index clients' contacts and offer HIV testing services. This abstract access uptake of index testing by HIV positives parents and positivity rate among their children 15 years and below using facility and community actors.

Methods: Client service data drawn from 120 health facilities across Western, Western North and Ahafo regions in Ghana for twelve-month period (October 2021 to September 2022). Index1testing data for the period were analyzed with descriptive statistical analytical framework with key indicators being the number of clients aged 15 and below whose contacts were elicited through index biological parents, tested for HIV (using the national HIV testing algorithm), new positives and known positives.

Results: A total of 467 HIV positive clients were offered index-testing with 383 clients accepted the Index-Testing and provided the contact of their sexual partner(s) and biological children 15 years and below. The results indicate that a total of 2,781 clients aged 15 years and below contacts were elicited and 2,084 were tested for HIV successfully. Among the 388 children client that tested HIV positive through index-testing, 318 (82%) were new positives with known HIV positive clients making-up the remaining 18% and new positivity rate of 15.3%.

Conclusion: The high positivity rate among children identified through Index-Testing demonstrates the importance of the Index Testing approach for pediatric HIV case identification. The authors argue that involving CHNs and CSO field staff in contact tracing for index clients' partners and biological children is an effective way to optimize case identification in children.

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Increased Biomarkers of Cardiovascular Disease in a Long-term Survivor Cohort of Young Adults Living With Perinatal HIV With Virologic Non-suppression or Metabolic Syndrome

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Background: With age and duration on antiretroviral therapy (ART), young adults with perinatally acquired HIV (YA-PHIV) are at risk for cardiovascular disease. Inflammatory biomarkers including high sensitivity C-reactive protein (hs-CRP), interleukin (IL)-18, and soluble CD163 (sCD163) have been associated with increased cardiovascular morbidity and mortality. We assessed biomarker levels and their association with HIV viremia and metabolic syndrome in a long-term cohort of YA-PHIV.

Methods: YA-PHIV who started ART in pediatric clinics at 5 sites in Thailand aged between 18-25 years were recruited from November 2020-July 2021. Clinical assessments and blood sampling for hs-CRP, IL-18, and sCD163 levels were performed. Metabolic syndrome was defined using National Cholesterol Education Program-Adult Treatment Panel III criteria. The hs-CRP levels between 1.0 to < 3.0 and ≥ 3 mg/L were defined as intermediate and high risk for cardiovascular disease, respectively. Biomarker association with HIV viremia and metabolic syndrome were assessed using Mood's median non-parametric test.

Results: Of the total 347 YA-PHIV, 187 (54%) were biological females. At enrolment, median age and duration on ART were 21.8 years (interquartile range, IQR 20.1-23.5) and 16.7 years (IQR 13.4-18.4), respectively. Their median CD4 was 564 cells/mm3 (IQR 356-753), 14% had CD4 count <200 cells/mm3, 19% had HIV-RNA >1,000 copies/mL, and 7.8% had metabolic syndrome.

Overall, 25% had hs-CRP levels associated with intermediate and 26% with high risk for cardiovascular disease; levels were similar (24% and 23%) in those with HIV-RNA <1,000 copies/mL. The median serum IL-18 was 82.4 pg/mL (IQR 33.8-151.9) and sCD163 was 53.6 ng/mL (IQR 31.1-90.1). YA-PHIV with HIV-RNA >1,000 had significantly higher hs-CRP (p=0.001), IL-18 (p <0.001), and sCD-163 (p=0.003) than those with HIV-RNA <1,000 copies/ml. YA-PHIV with metabolic syndrome were more likely to have higher median hs-CRP(p=0.008) and a trend toward higher sCD163 (p=0.07) than those without, but there was no difference in IL-18 levels. Higher median IL-18 was observed in males than females.

Conclusions: YA-PHIV with HIV-RNA >1,000 copies/ml had increased biomarkers of cardiovascular disease, and those with metabolic syndrome had increased hs-CRP and sCD163. Further research on the predictive value of these biomarkers on cardiovascular outcomes in aging YA-PHIV is warranted.

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High Probability of Treatment Failure After HIV Care Transition Among Adolescents Living With HIV in Kenya

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Background: The impending transition of five million adolescents with HIV (AWH) globally to adult HIV care requires urgent attention given the known service disengagement risks and suboptimal clinical outcomes. To address limited data on AWH transition of care in high-burden settings, we evaluated post-transition outcomes among AWH in an ongoing trial in south-western Kenya.

Methods: A total of 880 participants ages 14-24 years were enrolled at three high-volume public facilities in Kisumu County, Kenya between April 2021 and March 2022 in the Adapt for Adolescents study (A4A). We present secondary analysis among AWH who transitioned during study follow-up. A survival analysis to estimate the probability of no failure after transitioning was conducted. Failure was defined as either a high viral load (> 200 copies/ml) or missing scheduled visits by > 14 days post-transition. A Kaplan-Meier estimator was used for estimating the survival curve and point estimates of the probability of survival 6 months and 48 weeks post-transition.

Results: A total of 65 AWH (7.4%) transitioned to adult care during study follow-up, 44 (67.7) were female and median age was 19.0 (intraquartile range 18.0-21.0). By 6 months, 19 (29.2%) participants had a failure event (8 [12.3%] viral load failure and 11 [16.9%] visit lapse), resulting in probability of no post-transition failure by 6 months of 69.5% (CI 58.1-81.0%). By 48 weeks post-transition, 23 (35.5%) participants experienced any failure event (8 12.3%] viral load failure and 15 visit lapses [23.1%]); probability of non-failure estimated to be 60.4% (CI 47.3-73.4%).

Conclusions: Preliminary findings suggest a high likelihood of treatment failure or disengagement post-transition among AWH in Kenya. Additional research is required to identify risk factors linked to these adverse outcomes and assess tailored programs to mitigate post-transition failure, improving AWH survival rates.

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Results of the CombinADO Implementation Science Study, a Multicomponent, Youth-Focused, Youth-Informed Intervention to Improve Viral Suppression Among Adolescents and Young Adults Living With HIV in Mozambique

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Background: Adolescents and young adults living with HIV (AYAHIV) lag behind adults in achievement of 95-95-95 targets. The 2021 Mozambique Population HIV Impact Assessment estimated that for young people aged 15-24 years, the 95-95-95 target achievements were 54-53-42 underscoring the need for interventions to improve AYAHIV outcomes.

Methods: From 2021–2023, the CombinADO study was implemented in adolescent-friendly services at 12 health facilities (HF) in Nampula, Mozambique. Using a cluster randomized trial design, we compared the effectiveness of the CombinADO strategy, a human-center designed multilevel intervention to improve HIV outcomes among AYAHIV, to an enhanced standard of care (eSOC) on the primary outcome of VS (viral load<50 copies/mL). The CombinADO strategy consisted of an empathy-building community campaign (billboards, radio ads), youth-friendly clinic experience (treatment and self-reflection toolkits, motivational video/wall, mental health screening, peer support) and AYAHIV/caregiver support groups. Generalized estimating equations were utilized to evaluate the impact of the intervention and covariates on VS, reporting adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Results: Outcomes were assessed among 1380 AYAHIV at 12 HF: 67% female; 25% 10–14y, 36% 15–19y, 39% 20–24y. There were no differences in participant characteristics between CombinADO vs eSOC sites. VS<50 copies/mL was 54%, with no differences by intervention condition (eSOC 55% vs CombinADO 54%). VS at different thresholds did not vary by intervention condition (<200 copies/mL: 71%, <1000 copies/mL: 81%). Females were more likely to achieve VS (56%) than males (50%), and VS rates increased with age (43% 10–14y, 53% 15–19y, 63%, 20–24y). Age and sex-aORs showed that individuals in the highest socioeconomic category were twice as likely to achieve VS (aOR: 2.04, 95% CI: 1.38-2.04, p<0.001) versus the lowest category. Increased self-reported adherence, HIV knowledge and adherence self-efficacy measures were significantly associated with VS, though these were not different by intervention condition.

Conclusions: Overall rates of VS in this population of young people on dolutegravir-based ART were low but implementation of the CombinADO strategy did not result in higher rates of VS among AYAHIV attending adolescent-friendly services compared with an eSOC. Ongoing analyses are exploring other outcomes for AYAHIV including retention, adherence and mental health.

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Clinical Outcomes Post Transition for an Innovative Service Aiming to Reach a Vulnerable Population

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Background: Transition to adult care has been associated with increased loss to follow up, morbidity and mortality. Youth friendly services (YFS) may improve post transition outcomes for youth living with perinatally acquired HIV (YPaHIV). We present outcomes for YPaHIV attending an open access YFS with integrated social/peer support, mental and sexual health services.

Methods: Electronic case note review of all individuals registered for NHS care at a London HIV centre in 2023. Data included; demographics, antiretroviral therapy (ART), HIV viral load (VL), CD4 count, mortality and co-morbidities. Not engaged in care defined as no attendance within 8 months.

Results: 222 YPaHIV were registered on 01.01.2023. During 2023 there were 2 unexplained sudden deaths; pulmonary embolus (age 31), autopsy cause not ascertained (age 24), both CD4 >400 cells/ul and VL <200 c/ml, and 8 transfers of care to; Ukraine (1), Romania (1), Zambia (1) & UK (5). Of 212 remaining in care to 31.12.2023: 119 (56%) were female, 180 (85%) black ethnicity, median age 27.1 years (IQR 24.2 -30.7) with 7 (3.1%) not seen within 8 months. At latest visit 191/212 (90%) VL <200c/ml with 180 (85%) VL <50, median CD4 628 cells/uL (IQR 432-784) with 30 (14%) having a CD4 <350 of whom 13 (6%) had a CD4 <200. Current ART; integrase+2 nucleoside reverse transcriptase inhibitors (NRTI);143(67%), protease inhibitor+2NRTI; 30(14%), nonNRTI+2NRTI; 19(9%), complex triple+ class ART 19(9%) and long acting 4(2%). Co-morbidities included hepatitis co-infection 9 (4%) (7 HBV, 2 past HCV) and prior/current malignancy 8 (4%); lymphoma (6), Kaposi (2). Four (2%) are under consideration for solid organ transplant; lung (2), renal (1), liver (1) with 2 having prior bone marrow transplantation for lymphoma (1) and thalassaemia (1). Sixteen (7.5%) had 1 or more episode of psychosis. 20/119 (17%) young women have had children; all infants tested HIV-negative.

Conclusion: Clinical outcomes of a multi-disciplinary specialist service dedicated to deliver care to a particularly vulnerable group demonstrate good engagement for the majority. Whilst viral suppression and immune function are encouraging, complex comorbidities are emerging with ageing and highlight the importance of global data disaggregated by route of transmission in adulthood.

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HIV Reservoir and Premature Aging: Risk Factors for Aging-Associated Illness in Adolescents and Young Adults with Perinatally Acquired HIV

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Background: Despite receiving antiretroviral therapy(ART), an increasing number of adolescents/young adults with perinatally acquired HIV(PHIVAYA) are at risk of developing premature senescence and aging-associated illnesses. Thus, it has become imperative to assess aging biomarkers and their correlation with the HIV reservoir to characterize and monitor these individuals.

Methods: Fifty-five PHIVAYA with median [interquartile range-IQR] age of 23 [20-27]years] under ART, and 23 aged-matched healthy controls were enrolled. The immunophenotype was studied by flow cytometry. Relative telomere length and HIV-DNA in peripheral blood mononuclear cells(PBMC) were measured using PCR and ddPCR, respectively. Circulating levels of pathogen(PAMPs) and damage associated molecular patterns(DAMPs) were measured by PCR. Pro-inflammatory IL-6, IL-8, TNF-, and circulating denervation biomarkers, NCAM1 and CAF, associated with sarcopenia, were measured by ELISA. Statistical analyses were performed using RStudio software, data were compared by adjusting for age between PHIVAYA and controls, and for age, time on ART and time of ART initiation among PHIVAYA.

Results: PHIVAYA had significantly higher percentages of activated, senescent, and exhausted CD4 and CD8 cells, higher levels of circulating PAMPs(16S rDNA), DAMPs(mtDNA), pro-inflammatory cytokines, and denervation biomarkers, but shorter telomeres than controls. HIV-DNA showed significant positive correlation with activated, senescent, and exhausted CD4 and CD8cells, and with circulating biomarkers, while inversely correlated with regulatory T cells and telomere length. Notably, 6 Early Suppressed(ES)-PHIVAYA, who achieved and maintained undetectable viremia over time with no more than one annual blip (from 50 to400 HIV-RNA copies/ml), had significantly lower HIV-DNA reservoir, lower percentages of senescent and exhausted CD4 and CD8cells, lower levels of circulating inflammatory and denervation biomarkers, but longer telomeres compared to other PHIVAYA subgroups (35 Late Suppressed[LS], who maintained viral suppression in the last 10years, and 14 Not Suppressed[NS] with transient detectable viremia >1000HIV-RNAcopies/ml plasma).Of interest, levels of most cellular and circulating aging markers of ES-PHIVAYA did not significantly differ from controls, except for DAMPS.

Conclusions: Our findings underline the importance of starting early ART and maintaining undetectable viremia to limit the viral reservoir and to counteract premature aging. These findings also introduce new approaches for minimally invasive monitoring of individuals at high risk of developing aging-related illnesses.

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Potentially Traumatic Exposures Among Youth Living With HIV in the Global Adolescent and Young Adult Network of IeDEA (AYANI)

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Background: Youth living with HIV (YLHIV, ages 15-24) may face potentially traumatic exposures (PTEs) from violent and life-threatening experiences. Limited data exist regarding the burden and type of PTEs experienced by YLHIV, as well as associations with mental health and medication adherence.

Methods: A cross-sectional analysis was conducted among YLHIV across 15 sites in the Adolescent and Young Adult Network of IeDEA. Lifetime PTEs were ascertained from the Life Events Checklist (LEC-5), adapted WHO Sexual Health Survey, and sociodemographic variables. PTEs were grouped by type and assessed for associations with symptoms of post-traumatic stress disorder (PTSD; PTSD Checklist DSM-5 ≥31 or Child PTSD Symptom Scale ≥11), moderate-to-severe depression (Patient Health Questionnaire-9 ≥10), and moderate-to-severe anxiety (Generalized Anxiety Disorder-7 ≥10); missed medication doses (≥1 past-month); and non-suppressed viral load (≥200 copies/ml).

Results: Among 666 YLHIV (52% female, median age 19.0, IQR 18.0-22.0), PTEs included physical (21%), sexual (17%), or witnessed violence (26%), war/captivity/severe human suffering (20%), severe illness (48%), disaster(s)/accident(s) (49%), or other identified event(s) (11%). Overall, 79% experienced ≥1 PTE. Among 111 YLHIV who experienced sexual violence, gender was self-identified as woman (64%), man (24%), or other identities (12%), and sexual orientation was heterosexual (69%), homosexual (9.9%), bisexual/pansexual (11%), or other (9.9%). Physical or sexual violence was associated with symptoms of PTSD (OR 2.7, 95% CI 1.6-4.6 and OR 4.0, CI 2.3-6.9, p<0.001, respectively); depression (OR 3.7, CI 2.2-6.4 and OR 4.1, CI 2.3-7.1, p<0.001, respectively); and anxiety (OR 2.1, CI 1.2-3.8, p<0.05, and OR 2.7, CI 1.5-4.8, p<0.001, respectively). Physical violence was additionally associated with missed doses (OR 1.9, CI 1.3-2.8, p<0.05). Experiencing both physical and sexual violence (6.1%) was associated with PTSD (OR 5.1, CI 2.6-10.4, p<0.001), depression (OR 6.2, CI 3.1-12.7, p<0.001), anxiety (OR 3.2, CI 1.5-7.1, p<0.05) and missed doses (OR 2.8, CI 1.4-5.7, p<0.05). Experiencing other PTEs was associated with PTSD (OR 1.9, CI 1.0-3.8, p<0.05) and depression (OR 3.2, CI 1.7-6.0, p<0.001). PTEs were not associated with viral non-suppression.

Conclusions: PTEs are prevalent among YLHIV globally and are associated with poor mental

health and missed doses. Interventions to address trauma among YLHIV are needed.

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Prevalence and Associated Factors of Moderate-To-High Suicidal Risk Among Thai Adolescents and Young Adults Living With HIV

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Background: Adolescents and young adults living with HIV (AYA-HIV) may be at increased risk for suicidality, including suicidal ideation and suicide attempts. However, this has not been well-investigated in resource-limited settings in Asia. We aimed to assess prevalence and factors associated with moderate-to-high suicidal risk among Thai AYA-HIV compared with HIV-negative AYA.

Methods: From December 2022 to October 2023, a prospective cohort study was conducted with AYA-HIV (aged 15-24 years) and age- and sex-matched HIV-negative AYA across 3 sites in north and northeast Thailand. Participants were assessed for suicidal risk using a cross-culturally validated Thai version of the Columbia-Suicide Severity Rating Scale. Moderate-to-high suicidal risk was defined as having a history of active suicidal ideation with specific method, intention, or plan (lifetime and/or within 1 month) with/without a history of suicide attempts (lifetime and/or within 3 months). Other parameters were assessed using validated Thai versions of standard questionnaires (including depression, anxiety, alcohol use, social support, self-esteem, resilience, HIV-related stigma). Prevalence of moderate-to-high suicidal risk were compared using Chi-squared tests. Logistic regression analysis was performed to identify factors associated with moderate-to-high suicidal risk.

Results: A total of 200 AYA-HIV and 200 matched HIV-negative AYA were enrolled (median age 22 years, 59% male). Among AYA-HIV, 60% had perinatally acquired HIV, 100% were on antiretroviral therapy (60% integrase inhibitor-based regimens), 86% were virally suppressed (viral load <50 copies/mL). Almost all HIV-negative AYA (98%) reported no or low self-perceived HIV risk. Overall, 12 (6%) AYA-HIV and 6 (3%) HIV-negative AYA reported moderate-to-high suicidal risk (P=0.15). On multivariable analysis, average relationships with primary caregivers (adjusted odds ratio [aOR] 33.1; 95%CI: 1.2-917.8) and poor relationships (aOR 143.3; 95%CI: 1.5-13,770.5) compared to good relationships, documented history of depression (aOR 43.5, 95%CI: 1.3-1,517.7), recent passive thoughts of death or self-harm (aOR 104.0; 95%CI: 3.8-2,813.5), and low self-esteem scores (aOR 0.7; 95%CI: 0.6-0.9, per one point increase) were significantly associated with moderate-to-high suicidal risk.

Conclusions: Prevalence of moderate-to-high suicidal risk was relatively low in our cohort, and did not significantly differ by HIV status. Monitoring mental health is a key component of comprehensive care for aging AYA-HIV.

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High Incidence of Tuberculosis in Young Children Living With HIV in the Western Cape, South Africa

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Background: We examined tuberculosis (TB) trends among children living with HIV (CLHIV), age ≤5 years, in Western Cape, South Africa. Early infant HIV testing and early antiretroviral therapy (ART) initiation is implemented in this high HIV and TB setting.

Methods: We analysed routinely-collected healthcare data for CLHIV born May 2018-October 2022 (database closure mid-2023). We examined factors associated with TB diagnosis using Fine-Gray competing risk models (death and loss to follow-up as competing events), adjusted for sex, birth year and previous TB.

Results: We included 2219 CLHIV; 30% diagnosed with HIV at age ≤7 days, 41% at age 8-365 days and 29% at age >1 year. Median follow-up from birth was 38 months (IQR 24-50); 90% of CLHIV started ART. TB was diagnosed in 28% of CLHIV (n=626/2219); 62% first diagnosed before/within 3 months of ART start ('TB before ART') and 38% >3 months after ART start ('TB after ART'). Of those with 'TB before ART' (n=390), median age at HIV diagnosis was 13 months (IQR 6-22) and median time from HIV diagnosis to TB diagnosis was 5 days (IQR 0-31). 'TB before ART' was significantly associated with older age at HIV diagnosis and advanced/severe immunodeficiency. Of those with 'TB after ART' (n=258), median age at HIV diagnosis was 2 months (IQR 0-8) and median time from ART start to TB diagnosis was 12 months (IQR 7-21). 'TB after ART' was associated with increased viral load and advanced/severe immunosuppression (time-updated) but not age at ART start. Even low-level viraemia (500-999 vs <100 copies/ml) was associated with 'TB after ART' (aSHR 2.75; 95%CI:1.05-7.18). Overall, 5% (n=112/2219) of CLHIV died, 36% of whom were diagnosed with TB (median time from TB diagnosis to death: 58 days; IQR 17-191).

Conclusions: Young CLHIV in this setting have high TB-associated morbidity and mortality. Susceptible groups include: CLHIV diagnosed with HIV and TB concurrently at an older age, associated with advanced/severe immunodeficiency; and CLHIV who, despite starting ART in early infancy, develop TB later, associated with advanced/severe immunodeficiency and elevated viral load. Efforts to improve early HIV diagnosis, viral suppression and TB preventive therapy are needed.

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Youth With Perinatally Acquired HIV in South Africa Exhibit a Thin but Metabolically Unhealthy Phenotype

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Background: Limited data exist on metabolic risk factors and metabolic syndrome (MetS) in youth with HIV on contemporary antiretroviral treatment (ART) in South Africa.

Methods: We assessed metabolic risk factors [body mass index (BMI), waist/height ratio, fasting lipids (high density lipoprotein (HDL), low density lipoprotein (LDL), total cholesterol (TC)/HDL ratio, triglycerides), and homeostatic model assessment of insulin resistance (HOMA-IR)] as well as MetS defined by International Diabetes Federation criteria in youth with 1) perinatally acquired HIV (YPHIV), 2) non-perinatally acquired HIV (YNPHIV) and 3) HIV-seronegative youth enrolled in the Cape Town Adolescent and Antiretroviral Cohort (CTAAC)-Heart study. Hierarchical cluster analyses with heat maps were used to visualize relationships between HIV status with metabolic risk factors. Logistic regression models were fit to assess the association of HIV status with MetS.

Results: A total of 237 YPHIV, 56 YNPHIV, and 71 HIV- youth (median age of 18, 21, and 17 years respectively) were included; 59% were female. A lower proportion of YPHIV vs YNPHIV had HIV RNA <50 copies/mL (59% vs 87%) or were receiving INSTI-based ART (32% vs 86%). YPHIV had the lowest BMI (21.7 vs 26.1 and 22.3 kg/m2) and waist/height ratio (0.45 vs 0.50 and 0.47) but highest HOMA (2.64 vs 2.36 and 2.14) and triglycerides (65 vs 63 and 55 mg/dL) compared to YNPHIV and HIV-seronegative youth. Three distinct clusters were identified: 1) primarily composed of YPHIV with low BMI and waist/height ratio as well as high triglycerides and TC:HDL ratio, 2) mix of YPHIV, YNPHIV, and HIV-seronegative youth with high BMI, waist/height ratio, lipids, and HOMA, 3) mix of YPHIV, YNPHIV, and HIV-seronegative youth with normal metabolic characteristics. YPHIV had lower risk for MetS compared to HIV-seronegative youth after adjusting for age, sex, home tap water, and family history of diabetes, hypertension, or hyperlipidemia (adjusted odds ratio=0.35, 95% confidence interval: 0.16, 0.79). Rates of MetS were similar between YNPHIV and HIV-seronegative youth.

Conclusion: There appears to be a thin but metabolically unhealthy phenotype among YPHIV in South Africa. Lower rates of central obesity in YPHIV likely contribute to the lower rates of MetS in this population.

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Increased Cardiovascular Risk in Perinatally HIV-Acquired Adolescents (PHIV) May Linked to Proinflammatory NK Cells

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Background: Our initial findings and literature suggest a potential reprogramming of innate immune cells in adolescents acquiring HIV perinatally and undergoing antiretroviral therapy. This reprogramming may accelerate aging, increasing the risk of future complications, particularly cardiovascular disease (CVD). Natural killer (NK) cells, with diverse functions, play a crucial role in HIV pathogenesis and are implicated in comorbidities like CVD through immune crosstalk. Despite this understanding, the specific involvement of NK cells in HIV-related cardiovascular risks remains unclear. Here, we studied NK cell subsets and their potential role in cardiovascular risk in adolescents with and without HIV.

Methods: In this cross-sectional study, using high-dimensional flow cytometry, plasma biomarker profiling, and transcriptomics, we compared cardiovascular risk factors and immune signatures in cryopreserved peripheral blood mononuclear cells, as well as cardiovascular biomarkers (carotid intima-media thickness and pulse wave velocity-PWV) in Ugandan adolescents with perinatally acquired HIV on antiretroviral therapy and virally suppressed (n=18) and age/sex-matched HIV-unexposed and uninfected adolescents, (n=20). At baseline, the median age was 14 years, and 50% were females.

Results: In the PHIV, we found elevated activation, maturation, memory, and pro-inflammatory/migration markers in most NK subsets compared to HIV- ($p<0.05$). Oxidized LDL levels were significantly lower in the plasma of PHIVs ($p<0.05$). Further, negative correlations were found between all activated CCR5+NK subsets and plasma oxLDL among PHIVs. This was confirmed by in vitro studies, which revealed increased uptake of oxLDL by macrophages in the presence of activated NK cells ($p<0.05$). Bulk-RNA sequencing data revealed differential expression of genes associated with immune cell migration, cholesterol uptake into tissue, vascular remodeling, and enrichment of pathways associated with NK activation and epigenetic regulation in the PHIV group ($p<0.05$). Interestingly, the dysregulated NK subsets showed significant correlations with carotid intima-media thickness and pulse wave velocity (PVW).

Conclusion: Our data, for the first time, reveal an increase in several activated, mature NK subsets capable of homing to vascular tissue. This correlates with increased plasma oxLDL uptake by macrophages. Dysregulated NK subsets exhibit significant correlations with carotid intima-media thickness and PVW, suggesting a potential link between NK cells and cardiovascular risk in adolescents with PHIV.

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Laboratory Diagnosis of Pneumocystis jirovecii in Infants Hospitalized With Severe HIV-Associated Pneumonia

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Background: The gold standard for the diagnosis of Pneumocystis jirovecii pneumonia (PCP) is microscopic identification of cysts from bronchoalveolar lavage (BAL) specimens. In high HIV-burden/low-income settings where PCP is more common, BAL is often not feasible in infants, with empirical treatment being the norm. The use of easier-to-obtain, less-invasive samples could facilitate laboratory diagnosis of PCP in these settings.

Methods: PCP-PED is a prospective diagnostic study, nested within the EMPIRICAL trial (#NCT03915366) that recruited infants hospitalized with severe HIV-associated pneumonia from eight hospitals in Mozambique. Nasopharyngeal aspirates (NPA) were screened for the presence of P. jirovecii cysts and DNA using immunofluorescence microscopy (IFM) and quantitative PCR (qPCR), respectively. DNA extraction was done with the QIAamp DNA Mini® kit and qPCR using the genesig® P. jirovecii advanced kit. Positive IFM was defined as ≥2 cysts observed in ≥2 microscopic fields.

Results: An interim analysis was performed on the 121/209 (57.8%) recruited participants with qPCR and IFM results as of April 2024. Median age was 4.0 months [IQR: 3.1-6.2] and 47.1% were female. Median HIV viral load and CD4% were 1,000,000 cp/mL [IQR: 482,836-7,078,202] and 13% [IQR: 9.1-22.0%], respectively. P. jirovecii DNA was detected in 46/121 (38.0%) and IFM was positive in 22/121 (18.2%). Median P. jirovecii fungal load was 6,450 cp/mL [IQR: 1,296-35,940]. Among the participants with confirmed P. jirovecii DNA, 33/46 (71.7%) were IFM negative. When limited to participants with fungal load above the median (6,450 cp/mL), 12/23 (52.2%) were IFM negative. Among participants with positive IFM, 9/22 (40.9%) were qPCR negative. In participants on cotrimoxazole prophylaxis prior to hospitalization, 12/40 (30.0%) and 7/40 (17.5%) were qPCR and IFM positive, respectively.

Conclusions: In hospitalized infants with presumed PCP, positivity rates for qPCR were higher than for IFM, suggesting superior sensitivity for P. jirovecii with NPA samples. Future analysis will focus on qPCR/IFM correlation and the qPCR fungal load threshold to differentiate P. jirovecii colonization versus infection. PCP-PED will also assess the use of β-glucan fungal antigen and Human Krebs Von Den Lungen-6 pulmonary serum biomarkers for non-invasive laboratory diagnosis of PCP.

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Abstract No 71 was withdrawn.

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Seroprevalence and Correlates of Co-infection With HIV and Active Syphilis Among Pregnant Women in Six Sub-Saharan African Countries: Results From Population-Based HIV Impact Assessments (PHIAs)

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Background: Ulcerative STIs like syphilis, increase the risk for HIV acquisition and transmission and serve as a point-of-entry and exit for HIV. In this study, we aimed to determine the seroprevalence and correlates of co-infection with HIV and active syphilis among pregnant women living in six countries in sub-Saharan Africa.

Material and Methods: For this study, we pooled Population-based HIV Impact Assessments data from Ethiopia, Kenya, Tanzania, Uganda, Zambia, and Zimbabwe. We included pregnant women aged 15 years or older, living with HIV and were tested for syphilis. During the surveys, participants were interviewed and tested for HIV infection using the national rapid testing algorithm. HIV viral load testing and testing for the presence of selected antiretroviral drugs (ARVs) was done using a qualitative high-performance liquid chromatography/tandem mass spectrometry assay. A suppressed viral load was defined as less than 1000 viral copies per mL. Chembio DPP® Syphilis Screen and Confirm Assay was used to distinguish between active and older syphilis infections. A log-binominal regression model was used to determine the demographic and clinical characteristics associated with co-infection with active syphilis and HIV and calculated weighted crude and adjusted-prevalence ratios.

Results: We included 355 pregnant women living with HIV in this study. Overall, the prevalence of co-infection with active syphilis and HIV was 5.6%. The prevalence of co-infection with active syphilis and HIV was 0.0% in Ethiopia, 0.0% in Kenya, 8.0% in Tanzania, 3.4% in Uganda, 8.0% in Zambia, and 3.9% in Zimbabwe. Pregnant women whose HIV viralload was not suppressed were more likely to have co-infection with active syphilis and HIV compared to those whose viral load was suppressed [adjusted Prevalence Ration (aPR): 3.7, 95% CI: 1.2 – 11.5, p-value 0.025]. Pregnant women were single were more likely to have co-infection with active syphilis and HIV compared to those who were divorced/separated/widowed [adjusted Prevalence Ration (aPR): 5.2, 95% CI: 2.2 – 12.5, p-value < 0.001].

Conclusion: These findings show a high prevalence of co-infection with active syphilis and HIV among pregnant women. There is a need to develop guidelines for syphilis diagnosis and treatment in HIV clinics and antenatal clinics.

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CMV IgG Titer as a Marker of CMV Reactivation and Immune Dysregulation Among Children Living With HIV

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Background: While higher CMV IgG titers have been associated with immune activation, HIV viremia and worse clinical outcomes among adults living with HIV, pediatric data are more limited. The objective of this study was to determine the association between CMV IgG titer and HIV viral load (VL), CMV VL, and lymphocyte subsets in children living with HIV (CLWH).

Methods: Sub-study of the EPIC4 study using both prospectively and retrospectively collected data from children with perinatal HIV-1 infection. CLWH were followed every 3-6 months from 2014 to 2018, with HIV-1 and CMV VL assessed at each visit. CMV IgG titers were determined at baseline using the Architect chemiluminescent microparticle immunoassay, and the associations between CMV IgG titer and immunological outcomes or CMV viremia were assessed through multivariable linear regression.

Results: Median age of CLWH enrolled in EPIC4 (n = 225) was 13.9 years (IQR = 9.3-17.0). The majority of participants (98.9%) were treated with combination antiretroviral therapy (cART); 81% of participants had suppressed HIV VL, 85.3% (n=192) were CMV seropositive at baseline and among them 17.7% were viremic for CMV at least once during follow-up. Among CMV seropositive CLWH, median anti-CMV IgG titer at baseline was 164.5 AU/ml (IQR = 101.8-232.8; range = 7.8-1727.5). Higher CMV IgG titers were significantly associated with higher baseline CD8% ($p < 0.001$), lower CD4% ($p < 0.001$), lower absolute CD4 count ($p = 0.009$), lower CD4/CD8 ratio ($p < 0.001$), and occurrence of detectable CMV viremia ($p < 0.001$), but not with detectable HIV-1 viremia during follow-up ($p = 0.12$). With the exception of baseline CD4 count, all associations remained statistically significant after adjustment for age, age at cART initiation, instances of cART interruption, and instances of detectable HIV VL during follow-up.

Conclusion: In this cohort of CMV seropositive CLWH, the magnitude of the anti-CMV humoral response was associated with CMV reactivation and immunological parameters, suggesting that quantitative CMV antibody assessment may could be used as a surrogate marker of CMV activity and CMV-induced immune dysregulation among CLWH. Additional studies are needed about the potential clinical implications of these findings and associations between higher anti-CMV titers CLWH.

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High STI Incidence Among Women Who Initiated PrEP During Pregnancy in Kenya

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Background: Incidence of sexually transmitted infections (STIs) is high among women on PrEP. Yet, limited data exist on STIs among women initiating PrEP during pregnancy, a period when STIs pose risks to women and infants.

Methods: We analyzed data from an ongoing RCT that enrolled pregnant women initiating PrEP at 5 clinics in Western Kenya (NCT04472884). All women were HIV-negative, ≥18 years, between 24-32 weeks gestation, initiating PrEP that day within routine antenatal care, and had high empiric HIV risk scores. A subset of women were offered Chlamydia Trachomatis (CT) and Neisseria gonorrhoeae (NG) testing using Xpert CT/NG® assays with same-day results in pregnancy, at 6- and 9-months post-delivery. Women with CT or NG were offered immediate directly observed treatment (DOT) and expedited partner therapy (EPT) per national guidelines. Incident cases were defined as CT/NG detected following a prior negative test.

Results: As of January 2024, 223 pregnant women initiating PrEP were offered CT/NG testing—all accepted. The median age of women was 26 years (IQR 22-30) and median gestational age was 27 weeks (IQR 25-29). Most women were married (77%), 36% were primigravida, 2% had syphilis, and 95% had partners of unknown HIV status. Prevalence of CT and/or NG during pregnancy was 19/223 (9%): 4% CT, 4% NG, and 1% CT/NG co-infection. Women <24 years were twice as likely to have prevalent CT and/or NG as older women (13% versus 5%, prevalence ratio=2.5, 95% CI: 1.04-6.19, p=0.042). Overall, 18 incident cases of CT and/or NG infections occurred in 144.6 total person-years of follow-up (median follow-up 0.8 years, IQR 0.7-1.0) yielding an incidence of 12.4 per 100 person-years (95% CI: 7.8-19.8). Incidence of CT and/or NG was 5-fold higher among women <24 years (hazards ratio=5.0, 95% CI:1.8-14.1, p=0.002). Same-day DOT and EPT acceptance was high (94%); at subsequent visits 62% reported offering EPT to partners, of whom 94% said partners completed EPT.

Conclusions: We found high CT/NG incidence among women initiating PrEP during pregnancy, especially younger women. Our results indicate that primary STI prevention would be a high-yield strategy in this population, in addition to expanding STI testing and EPT programs.

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Cytomegalovirus (CMV) Acquisition as a Driver of Immunological Changes and Systemic Inflammation Among Children Who Are HIV-Exposed and Uninfected (CHEU)

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Background: Immune dysregulation among children who are HIV-exposed and uninfected (CHEU) is thought to contribute to their increased risk of morbidity and mortality. Cytomegalovirus (CMV) is a highly immunomodulatory virus, and is commonly acquired in early childhood. We therefore investigated the impact of early CMV acquisition on lymphocyte sub-populations and systemic inflammation among CHEU.

Methods: CHEU enrolled in the CMIS cohort (Montreal, Canada, 1997-2010) were evaluated for CMV acquisition using plasma, serum or urine samples. Infants were classified as CMV positive (CMV+) if they had evidence of either congenital CMV (cCMV; PCR positive <3 weeks of age), or postnatal CMV (PnCMV; PCR positive at 8 weeks of age) acquisition. At 8 weeks of age, lymphocyte subsets were measured by flow cytometry, and markers of systemic inflammation (CRP, tumor necrosis factor-alpha), pro-inflammatory cytokines (Interleukin (IL) 2, IL-6, IlL-12p70) and immune modulators (interferon-gamma, IL-4, IL-10) were measured by ELISA and compared between CMV+ and CMV- infants.

Results: Out of 334 CHEU, 12 (3.5%) were CMV+ at 8 weeks of age; this included 7 with cCMV and 5 with PnCMV acquisition. While total CD3+T cell and CD19+T cell percentages were similar between CMV+ and CMV- infants, CMV+ infants had significant higher frequency of CD8+T cells (20 vs. 15%, p<0.001), lower CD4+T cells (35 vs. 49%, p=0.006), and lower CD4/CD8 ratio (1.84 vs. 3.26, p<0.001); these remained significant after adjusting for gestational age (GA), maternal viral load and CD4 count at delivery (dCD4), and type of infant postnatal prophylaxis. 324 infants had samples available for cytokine assessments (10 CMV+, 314 CMV-). Among all cytokines assessed, CMV+ infants had higher serum levels of CRP (705 vs. 477 pg/ml, p=0.04) and IL-12p70 (10.3 vs. 7.2 pg/ml, p=0.03) compared to CMV- infants, after adjusting for peak maternal viral load during pregnancy, GA and dCD4.

Conclusions: CMV acquisition among CHEU significantly altered lymphocyte subpopulations, with evidence of increased systemic inflammation at 8 weeks of age. Given the frequency of its acquisition during early life, and the availability of antiviral therapies, more research is needed to understand the potentially modifiable negative impacts of CMV on the health of CHEU.

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High Level of Archived and Circulating HIV-1 Drug Resistance Mutations in Adolescents With Suppressed and Unsuppressed Viral Loads in Cameroon

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Background: HIV drug resistance (HIVDR) continues to be a major concern in Sub-Saharan Africa, with emerging data showing resistance below the WHO-recommended guidelines of 1000 copies/mL. We here focused on the characterization of circulating and archived HIVDR mutations among adolescents with suppressed and unsuppressed viral loads (VL) in Cameroon.

Methods: From a cohort of 280 adolescents (10-19 years) receiving treatment for at least 6 months, we included 157 buffy-coat and paired plasma samples with a VL of at least 40 copies/mL, collected between February to September 2021. Genotypic resistance testing targeting the Reverse Transcriptase, Protease, and Integrase genes was attempted on proviral DNA and paired viral RNA (when VL ≥200 copies/mL) using an in-house method. The Stanford HIValg Program was used to identify relevant HIVDR mutations.

Results: Overall, 133/157 (84.7%) proviral DNA sequences were obtained. A total of 8 subtypes and recombinant forms were identified, with CRF02_AG (60.2%) and pure subtypes A (18.4%) among the major ones. Globally, 78,9% (105/133) had archived resistance to at least one drug class; of which PI was 5.3%, NRTI 55.6%, NNRTI 66.2%, and InSTI 19.4%. Out of the 97 (72.4%) paired RNA and DNA sequences obtained, the resistance profile was identical in 56.7% of participants, while 29.8% had mutations found only in viral RNA and 13,4% only in DNA. Interestingly, in both groups, a higher proportion of HIVDR mutations was found among participants with a suppressed VL between 200-999 copies (86.7% in DNA and 85.2% in RNA), considered as “non-failing” treatment. Moreover, a significant number of participants showed predicted cross-resistance to the newer NNRTIs, Rilpivirine (41.4%) and Doravirine (45.9%), despite being not readily available in our setting so far.

Conclusion: We found a high proportion of archived and circulating HIVDR mutations, which are endangering new treatment options, even among adolescents with a suppressed VL. Our results therefore highlight the need for close monitoring of patients and call for a revision of the current WHO definition of virological failure in resource-limited settings.

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Predictors of Lost to Follow up Among Children on Antiretroviral Therapy in PEPFAR – Supported Health Facilities in Nigeria

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In Nigeria, 45% of the estimated 130,000 children 0 to 14 years, living with HIV (CLHIV) were on ART in 2020. While access to antiretroviral therapy (ART) among children has improved over the years, lost to follow-up (LTFU) persists and negatively impact treatment outcomes. This study estimated the incidence and predictors of LTFU among CLHIV on ART in Nigeria.

We analyzed data from CLHIV, in Nigeria who started ART in 2016 from the Nigeria National Data Repository and Orphans and Vulnerable Children database. The children were retrospectively followed up for five years (2016 to 2021) to determine the outcome, LFTU. Kaplan-Meier survival analysis was done to estimate the incidence of LTFU. Multivariable Cox regression was used to determine predictors of LTFU. Independent variables included were age, WHO clinical stage and CD4 count at start of ART, employment and marital status of caregivers, ARV regimen and time between HIV diagnosis and start of ART.

Of the 7,948 children, 51% were male and mean age was 3.8 years (SD: ±2.8). The total follow-up time was 9,879 person-years. Overall LFTU incidence rate was 40 (95%CI: 38.8 – 41.3) per 100 child-years. Cumulative LTFU rate was 17% (95%CI: 16.2 – 17.9%) at 6 months; 22% (95%CI: 20.9 – 22.7%) at 12 months; and 55% (95%CI: 54.1 – 56.3%) at the end of the follow-up period. Children aged 5–9 years (aHR: 0.9; 95%CI: 0.8 – 1.0), informally employed caregivers (aHR: 3.6; 95%CI: 1.5 – 8.7), children with advanced HIV disease [WHO stage III (aHR: 1.3; 95%CI: 1.1 – 1.5) and IV (aHR: 1.5; 95%CI: 1.1 – 2.2)], and CD4 count of ≥1,000 cells/mm3 (aHR: 0.8; 95%CI: 0.6 – 1.0) were statistically significant predictors of LTFU.

After 5 years of starting ART, over half of children in our study were LTFU. Children aged 5-9 years, with WHO stages III and IV, and CD4 count of >1,000cm3 at ART start, informally employed caregivers were associated with LTFU among CLHIV. Taken together, our findings suggest that considerations for sociodemographic and clinical factors may be critical when designing tailored programs to address LTFU among CLHIV in Nigeria.

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Low Burden of Clinically Relevant Anaemia and Thrombocytopenia Among Adolescents Living With HIV Receiving Tenofovir/Lamivudine Plus Dolutegravir: The CIPHER-ADOLA Study in Cameroon

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Background: An efficient transition to tenofovir/lamivudine+dolutegravir (TLD) requires pharmacovigilance related to haematological disorders among adolescents living with HIV (ADLHIV). We evaluated the rate of anaemia and thrombocytopenia among ADLHIV receiving TLD in the Cameroonian context.

Methods: A cross-sectional and multicentre study was conducted among ADLHIV aged 10-19 years receiving TLD in the CIPHER-ADOLA cohort in Cameroon. Socio-demographic and clinical data were collected; whole-blood was collected to perform full blood count, viral load (VL [copies/mL]) and CD4-count [cells/mm3]. Predictors of anaemia (haemoglobin [HB]-level ≤11.5 g/dL) and thrombocytopenia (platelets-count <150000/µL) were assessed using multivariate logistic regression.

Results: Of the 252 ADLHIV (males: 50.8%; median [IQR] age, time-on-ART and TLD-duration: 15 [13-17], 10 [6-13] years, and 26 [12-33] months, respectively), 7.2% were underweight, 15.5% lived in rural-settings; 71.4%, 13.1% and 15.5% had a VL<50, 50-999 and ≥1000, respectively. Overall, median [IQR] HB-level was 12.2 [11.3-13.1] g/dL; 79 (31.3%) were anaemic (severe: 0.4% [N=1]; moderate: 7.1% [N=18]; mild: 23.8% [N=60]). Of these, 47 (59.5%) had microcytic anaemia, with 61.7% (N=29) microcytic hypochromic and 38.3% (N=18) microcytic normochromic anaemia. Anaemia rate was higher in females (43.5%) versus males (19.5%), p<0.001; rural- (47.7%) versus urban-settings (28.2%), p=0.011; primary- (42.6%) versus secondary-school (26.6%), p=0.033. Compared to non-anaemic, anaemic-group had a significantly lower median ART-duration (9 [9-12] versus 11 [7-14] years, p=0.008) and CD4-count (578 [391-814] versus 698 [523-924], p=0.006). In multivariate-analysis, female-sex (aOR [95% CI: 3.165 [1.743-5.748]), living in rural-settings (2.178 [0.995-4.769]), and VL≥1000 (3.135 [1.275-7.710) independently predicted anaemia. Globally, 6.7% (n=17) were thrombocytopenic (<50/µL: N=2), with higher proportion in males (9.4%) versus females (4.0%), p=0.091; CD4<500 (12.7%) versus CD4≥500 (4.4%), p=0.019; and increased with increasing VL-levels (<50 [3.3%], 50-999 [15.2%] and ≥1000 [15.4%], p=0.003). In multivariate-analysis, VL-50-999 (aOR [95% CI]: 5.069 [1.439-17.859]) versus VL<50 independently predicted thrombocytopenia.

Conclusion: ADLHIV receiving TLD experience a low burden of moderate/severe anaemia and thrombocytopenia, with vulnerability driven by female, living in rural-settings, and poor ART response; coupled to thrombocytopenia, driven by poor ART-response. Thus, while scaling-up transition to TLD among ADLHIV, monitoring those at risk of haematological disorders would secure long-term benefits and survival toward the elimination of pediatric AIDS.

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Accelerating Treatment Optimization for Children in South Africa: The Introduction of Paediatric Dolutegravir in a Large-Scale Paediatric HIV Programme

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Background: South Africa has made strides towards the UNAIDS 95-95-95 target for ending the AIDS epidemic, achieving a general population cascade of 95-78-92 by the end of 2023. However, the children's cascade lags at 82-66-67. In response, South Africa introduced Paediatric Dolutegravir (pDTG) 10mg tablets in 2023 to enhance adherence, expedite viral load suppression, and provide a cost-effective regimen for children living with HIV (CLHIV).

Description: In 2023, South Africa adopted the use of pDTG 10mg as first-line antiretroviral therapy for children living with HIV (CLHIV) who are at least 4 weeks old and weigh 3-20 kg. National guidelines training ensued with training of provincial trainers, followed by training of healthcare workers at facilities. South Africa then began to switch and initiate CLHIV to a pDTG-containing regimen in April 2023 prioritizing those newly identified and those not virally suppressed.

Lessons Learned: Between April 2023 and March 2024, the proportion of CLHIV under 10 years transitioned and/or initiated on pDTG-containing regimen increased from 20% to 48%. Viral load suppression for CLHIV under 10 years on ART increased from 64.2% to 73.3%. Critical to this successful transition was collaboration across program, supply chain and community, as well as communication of set targets and availability of job aids such as the ARV dosing charts. Ongoing engagements with suppliers ensured stock availability and monthly provincial meetings promoted equitable stock distribution, and maximized expiring medicines use.

Conclusions: The transition and initiation rates onto pDTG-containing regimens, coupled with the applaudable increase in viral load suppression, underscore the effectiveness of this strategic shift. The strategy forms part of Global Alliance country plan; stakeholders will continue collaborating to transition all CLHIV to pDTG, train, monitor uptake, and assess its impact on ART retention rates.

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Jua Mtoto Wako (JMW) Initiative to Improve Viral Suppression Among Children Living With HIV at Moi Teaching and Referral Hospital, Kenya

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Introduction: Pediatric viral suppression remains suboptimal across the country. As of December 2023, the Academic Model Providing Access to Healthcare (AMPATH) Uzima had a suppression of 92% among children across its facilities in four counties in western Kenya, which is below the UNAIDS target of 95%. Unsuppressed HIV viral load is associated with poor treatment outcomes. The Jua Mtoto Wako (JMW) initiative is a patient-centred innovation designed to mitigate adverse treatment outcomes among children.

Methodology: Moi Teaching and Referral Hospital (MTRH) began implementing the JMW initiative in May 2021. The pediatric viral suppression at this time was 91% for children below 15 years. Identification of the children living with HIV (CALHIV) with high viral load is done routinely through line listing. Children are allocated case managers, and multi-disciplinary team (MDT) meetings are conducted by the clinical team consisting of a clinician, Nurse, Retention peers, Social Worker, HIV testing counsellors and Community Health Workers (CHW). The MDT conducts a thorough root cause analysis to determine likely barriers to adherence and develop unique interventions for each child. All line-listed children are enrolled in orphan and vulnerable children (OVC) services. A home visit is conducted with the subsequent development of a suppression plan, which is reviewed by the MDT weekly. A minimum of 3 enhanced adherence counselling (EAC) sessions are conducted with a follow-up viral load after three months. The CHW from the OVC program assists in providing directly observed therapy. We define suppression as plasma HIV-1 viral load below 200 copies/millimetre.

Results: As of December 2023, the pediatric viral suppression at MTRH was 97% (n=356). Since the rollout of the JMW initiative, 101 CALHIV have been enrolled. A root cause analysis was conducted for all, with 84 completing 3 EAC sessions. Of these, 97.7% have had a repeat viral load, with 92.9% (78/84) re-suppressing. Four CALHIV were switched to an alternative regimen.

Conclusion: Patient-centred case management, including enhanced adherence counselling and joint multidisciplinary meetings between the facility, community, and OVC program, has been instrumental in identifying and addressing the root causes/barriers to adherence and supporting re-suppression.

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Virological Response and Antiretroviral Drug Resistance Mutations in Adolescents Living With HIV in West Africa

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Background: Since 2018, dolutegravir-based antiretroviral treatment (ART) has been recommended as first-line treatment. Sustained virological suppression (SVS) defined as all viral loads suppressed (<50 copies/mL) during a period based on calendar time, is essential for controlling HIV replication and preventing its transmission. However, few data exist on SVS in adolescents living with HIV (ALHIV). We measured the proportion of ALHIV with detectable viral load (DVL), 12 months after their inclusion in the OPTIMISE-AO project, and described the drug resistance mutation (DRM) profiles to ART in those in virological failure (VF).

Methods: OPTIMISE-AO-ANRS-12390 is a stepped-wedge trial aimed to improve HIV-disclosure and ART adherence in ALHIV aged 10-17 years, in five pediatric clinics in four countries (Burkina Faso, Côte d'Ivoire, Togo), nested within the IeDEA West Africa cohort. DVL was defined as at least one viral load ≥50 copies/mL at six or 12 months. Factors associated to DVL were identified by logistic regression.

Results: A total of 449 ALHIV were included: median age 14 years (interquartile range 12-16); 50% were girls; 75% were treated with dolutegravir-based regimens. At inclusion, 39% were fully HIV-disclosed (names his/her illness as HIV/AIDS); 73% had a viral load <50copies/mL, 13% between 50 and 1000 copies and 14% a viral load ≥1000copies/mL. Twelve months after inclusion, 38% (167/439) had a DVL (95% confidence interval [95%CI]: 33%-43%). Adjusted for site of care and age, a high viral load at inclusion (50-1000 copies/mL: adjusted odds ratio [aOR]: 2.00, 95%CI: 1.10-3.64; ≥1000copies/mL: aOR: 5.78, 95%CI: 3.03-11.06) and a non-dolutegravir-based regimen (aOR: 2.01, 95% CI: 1.21-3.34) increased the odds to present a DVL. Of the 37 ALHIV in VF (two consecutive viral loads ≥1000 copies/mL) who had a resistance genotyping, 12 (32%) were currently available: 7/12 had DRM to nucleoside reverse transcriptase inhibitors, and 3/12 had resistance to dolutegravir.

Conclusion: Despite an effective transition to dolutegravir, SVS remains suboptimal in ALHIV, and DRM to integrase inhibitors are not uncommon. Monitoring VL and DRM and implementing interventions to strengthen adherence are essential to preserve the sustainability of ART strategies, particularly among ALHIV in West Africa, where therapeutic options are limited.

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24-Month Virological Response After Transition to Dolutegravir (DTG)-Containing ART Regimens in Children and Adolescents Living With HIV in West Africa

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Background: We assessed viral load (VL) trajectories and factors associated with detectable viraemia in children and adolescents after transition to DTG in the IeDEA pediatric West African cohort.

Methods: Children and adolescents 0-19 years, transitioning to DTG in 9 sites: Benin (n=1), Burkina Faso (n=1), Côte d'Ivoire (n=4), Ghana (n=1), Mali (n=1) and Nigeria (n=1) were followed-up from DTG-containing ART initiation (baseline) until database closure/death/lost to follow-up (LTFU, no visit> 7 months), whichever came first. We defined viral suppression (VS) as VL<50 copies/mL, low level viraemia (LLV) as 50≤ VL<1000 copies/ml and viral failure (VF) as VL≥1000 copies. We described proportions of VS, LLV and VF at 12 and 24 months (+/- 6 months); factors associated with 24-month LLV or VF compared to VS were investigated in a multinomial logistic regression adjusted for sex, age, baseline VL and previous ART line/regimen.

Results: Overall, 2,201 children and adolescents initiated DTG; median age was 12.9 years (IQR: 9.5-15.5), 54% were male. At baseline, 190(9%) were ART naïve, among the remaining 1,920 patients, 86% were on ART ≥ 12 months, 53% on first-line ART and 57% on NNRTIs. During follow-up, 19(0.9%) died and 245(11%) were LTFU. At baseline, VL was available for 2118(96%) participants among whom 712(34%) were in VS, 403(18%) LLV and 1,003(45%) VF. At 12 and 24 months, VL was available for 1501(68%) and 1472(67%) participants, respectively. VS increased to 42% after 12 months and reached 47% by 24 months. LLV also increased slightly, to 23% and 24% at 12 and 24 months, respectively, while VF decreased over time, to 34% (12 months) and 30% (24 months). In multivariate analyses, 24-month VF compared to VS was associated with baseline VF or LLV (adjusted OR(aOR): 6.34, 95%CI: 14.33-9.28 and aOR: 2.41, 95%CI: 1.47-3.96, respectively). Additionally, those on 2nd line PIs were three times as likely to experience VF (aOR: 3.23, 95%CI:2.22-4.69) compared to 1st line NNRTIs.

Conclusion: Viral suppression on DTG increased over time, but remained sub-optimal < 50% by 24 months. VL monitoring after DTG initiation was inconstant and long-term virological response depended on baseline VL and ART regimen.

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Trends in Antiretroviral Therapy Initiation, Viral Load Testing Coverage, and Suppression Among Children Living With HIV in 20 PEPFAR-Supported Countries in Sub-Saharan Africa: 2021-2023

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Background: Children (ages 0-14 years) living with HIV (CLHIV) have lower access to and coverage for HIV treatment services and poorer outcomes compared to adults. We describe changes in antiretroviral therapy initiation (ART_New), viral load coverage (VLC) and suppression (VLS) in CLHIV enrolled in the US President's Emergency Plan for AIDS Relief (PEPFAR)-supported sub-Saharan African (SSA) countries/regions from 2021-2023.

Methods: We analyzed routine PEPFAR data for CLHIV from supported facilities in 20 countries/regions in 2021 (January-December), 2022 (January-December) and 2023 (January-December). We calculated the number and percent change for ART_New, VLC (percent of patients on ART for 6 months with a documented VL result within the past 12 months), and VLS (percent of viral load test results <1000 copies/mL).

Results: New ART-initiation increased by 29.3% from 2021 to 2022 (58,357 to 75,449). This was followed by a 16.9% drop from 2022 to 2023 (75,449 to 62,732). ART_New decreased across all age bands for all calendar periods except 10–14 year-olds between 2021 to 2022 when there was an increase.
VLC increased from 73.4% in 2021 to 75.0% in 2022 and 76.5% in 2023 (3.1% change). VLC declined in six countries/regions and increased in 13 countries; the percent change in country/region VLC from 2021 to 2023 ranged from -20.5% to 44.2%. Average VLC was 27.0%, 61.6%, 76.5% and 80.9% for <1, 1-4, 5-9, and 10-14 year-olds respectively.
VLS increased from 81.8% in 2021 to 85.0% in 2022 and 88.4% in 2023 (6.6% change). VLS increased in all 20 countries/regions and the country/region percent change between 2021 and 2023 ranged from 0.8% to 25.2%. Average VLS was 76.0%, 77.5%, 85.6% and 86.8% for <1, 1-4, 5-9, and 10-14-year-olds respectively.

Conclusions: Many PEPFAR-supported countries in SSA saw increases in VLC with all countries/regions having increased VLS among CLHIV between 2021-2023 that may have been driven by improved demand creation (VLC), and the introduction of dolutegravir (DTG)-based regimens (VLS). However, the numbers of children initiating ART dropped in 2023 indicating potential challenges with identifying CLHIV. Programs may consider a cascade of evidence-based interventions to improve ART initiation and sustained engagement in care for CLHIV.

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HIV Drug Resistance Among Children and Adolescents on Antiretroviral Therapy in the Dolutegravir Era in the Southern Highlands of Tanzania

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Background: Children and adolescents living with HIV (CALHIV) who accumulate resistance mutations (HIVDRMs) are at increased risk of treatment failure. We describe the prevalence and pattern of HIVDRMs in CALHIV at U.S. Military HIV Research Program (MHRP)-supported facilities in the Southern zone of Tanzania in the era of dolutegravir (DTG).

Methods: Between 2018-2021, CALHIV (1-19 years) on ART for ≥ 6 months with a VL measurement ≥ 1000 copies/mL (117/785 in the primary study) at 15 facilities receiving US Presidents Emergency Plan for AIDS Relief (PEPFAR) funding underwent sequencing using the genotyping assay by Thermofisher Scientific at the Mbeya Zonal Hospital laboratory. Sequences were evaluated for mutations to nucleoside reverse transcriptase inhibitors (NRTIs), non-NRTIs (NNRTIs), protease inhibitors (PIs), and integrase strand transfer inhibitors (INSTIs) using the SmartGene Integrated Database Network System. Mutation lists were accessed from the Stanford HIVDR database v8.8.0 and classified as 'major' or 'accessory'.

Results: Seventy-four out of 117 (63.3%) samples with VL ≥1000 copies/mL were successfully sequenced. Twelve participants (16.0%) were on NNRTI, 21 (28.0%) on PI, and 41 (56.0%) on INSTI-based regimen in addition to their NRTI backbone. The prevalence of any major mutation was 81.1% (60/74). Prevalence of major mutations by class was 71.6% (n=53) for NNRTIs, 67.6% (n=50) for NRTIs, 1.4% (n=1) for PIs and 4.1% (n=3) for INSTIs. The most common mutations by class were K103N, M184V/I, R263K and N83D for NNRTIs, NRTIs, INSTIs and PIs respectively. Accessory INSTI-mutations were detected in 6.8% (5/74); the E157Q and G163R were each detected at 2.7%, and the T97A and D232N detected at 1.4% each. Dual class NRTI and NNRTI mutations were detected in 58.1%, NRTI and PI at 1.4%, NRTI and INSTI at 4.1%, PI and INSTI at 0.0%. No sample had multi-class mutations. The three top HIV-1 subtypes were C, A and AC at 48.6%, 23.0% and 12.2%.

Conclusion: Prevalence of INSTI HIVDRM was low in this sample of CALHIV with underlying high frequency of NRTI and NNRTI mutations. With the roll-out of age-appropriate DTG-based regimens, continuous surveillance is needed to monitor the evolution of the INSTI mutations and resistance in this sub-population.

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HIV-1 Drug Resistance in Children and Implications for Paediatric Treatment Strategies: A Systematic Review and Meta-Analysis

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Background: Failure in prevention of mother-to-child HIV transmission (PMTCT) and pediatric treatment challenges lead to pretreatment (PDR) and acquired (ADR) drug resistance in children living with HIV (CLHIV) in low- and middle-income countries (LMICs). This review investigates drug resistance patterns in CLHIV and their significance at global level.

Methods: A systematic review with meta-analysis was conducted on interventional and observational studies published between 2010 and 2023 with data on PDR and ADR in CLHIV (aged 0-15 years) worldwide. We analysed separately children with PDR and without prior PMTCT exposure, using random-effects to pool proportions and meta-regression to assess subgroup differences of PDR and ADR by drug class and geographical region. The study is registered in International Prospective Register of Systematic Reviews (Prospero) under CRD42023470034.

Results: Overall, 79 studies from 38 countries worldwide were included, encompassing 10,043 children (52.5% males). The overall pooled prevalence [95%CI] of PDR was 34.37% [27.02-42.10], with a high rate among those who failed PMTCT-prophylaxis (46.26% [36.15-56.52] vs. 34.19% [26.95-41.79] among those without PMTCT-exposure; p=0.009). PDR was higher in sub-Saharan Africa (SSA) at 37.58% vs. 27.19% in other regions (p=0.002), and was driven by non-nucleoside reverse transcriptase inhibitors (NNRTI)-mutations (OR [95%CI]: 2.46 [2.12-7.86]; p=0.013). Nucleoside reverse transcriptase inhibitors (NRTI) and Integrase strand transfer inhibitor (INSTI) related-PDR were 16.58% [7.03-28.91] and 8.62% [0.00-47.12] respectively. ADR, had pooled resistance prevalence of 58.51% [45.77-70.71] among CLHIV experiencing virological failure, with SSA being the most affected part of the globe (66.27% vs. 15.10% in other regions, p<0.001) and driven by NNRTI mutations (OR [95%CI]: 3.84 [3.36-4.38]; p<0.001) also associated with high pre-ART viral load and WHO clinical stage II. INSTI ADR was low (4.52% [2.45-7.13]) with dolutegravir-related mutations found such as E138K, G118R and R263K.

Conclusion: There is a high prevalence of PDR and ADR among CLHIV, with alarming burden in SSA driven by NNRTI resistance. This underscores the need for phasing-out the use of nevirapine postnatal prophylaxis for PMTCT in LMICs. Reassuringly, the rates of INSTI ADR remained low among CLHIV globally and in SSA, supporting the transition to pediatric DTG-containing regimens to accelerate the elimination of AIDS in children.

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Changes in Body Mass Index in Children and Adolescents Living with HIV in Europe and Thailand before and after Starting Dolutegravir and Compared to Protease Inhibitors

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Background: Differences in weight changes on dolutegravir(DTG) compared to other regimens have been reported in some adult studies, but data in children/adolescents living with HIV(CALHIV) are limited.

Methods: CALHIV on DTG aged 2-<18yrs from 15 cohorts in the European Pregnancy and Paediatric Infections Cohort Collaboration(EPPICC) were included. Mixed-models described changes in body mass index-for-age z-score(zBMI). Firstly, characteristics (sex, age, ethnicity, NRTI backbone, treatment/viral load(VL) status and WHO immune status at DTG start) associated with zBMI change up to 96 weeks(wks) after DTG start were explored. Second, separate models compared zBMI change 48wks before and after DTG start. Third, zBMI changes over 96wks in CALWHIV aged 6-<18yrs at DTG start were compared to CALHIV starting protease inhibitors(PI) using propensity scores to balance characteristics.

Results: 948 CALHIV with ≥1 zBMI in the 96wks after DTG start were included. Median age at DTG start was 14yrs[IQR 11-16], 471(50%) female, 442(48%) black, 300(32%) white, 103(11%) Asian, 80(9%) other ethnicity, zBMI 0.31[-0.63-1.20], 99(10%) were ART-naïve, 488(51%) ART-experienced/suppressed(VL<200c/ml), 124(13%) ART-experienced/unsuppressed(VL≥200c/ml), 237(25%) ART-experienced/VL-unknown. Median time on DTG was 107[64-173]wks.

zBMI increased most rapidly in the first 24wks on DTG (mean change=0.08(95% 0.04,0.12)), then slowed to a rate of 0.05(0.01,0.09) per 48wks; the overall increase was 0.16(0.09,0.22) over 96wks. zBMI change by 96wks on DTG differed by age(p=0.001), NRTI backbone(p=0.040), ethnicity and by sex(p<0.001), with greatest increases in those aged 6-<12yrs (mean change=0.35(0.24,0.46)), on TAF (0.41(0.18,0.63), males of other ethnicity (0.39(0.10,0.68)), followed by black females (0.28(0.16,0.39)). There were no differences by ART/VL status (p=0.747).

In CALHIV with zBMI available before DTG start(n=741), mean changes 48wks before and after DTG start were not significantly different (0.06(0.01,0.11)v0.12(0.08,0.16), p=0.091).

In propensity scoring analysis, changes in zBMI in 484 CALHIV on DTG were compared to 316 on PIs. There were no statistical differences in mean zBMI change over 96wks [weighted change at 96wks: 0.18(95%CI 0.12,0.25)v0.18(0.08,0.28),p=0.967].

Conclusions: CALHIV in EPPICC experienced increases in zBMI after DTG start with largest gains in children aged 6-<12 years, and similar to reports from adults, in black females and those on TAF. However, overall zBMI changes were comparable to changes observed in CALHIV on PI-based regimens.

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Weight Gain on Tenofovir Alafenamide Fumarate (TAF)–Based Therapy Compared to Tenofovir Disoproxil Fumarate (TDF)- And Abacavir (ABC)-Based Therapy in Children and Adolescents Living with HIV (CALHIV) in the European Pregnancy and Paediatric Infections Cohort Collaboration (EPPIC)

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Background: Data on changes in weight after TAF initiation are lacking in CALHIV.

Materials and Methods: ART-experienced CALHIV aged 6-<25 years at first use of TAF, TDF or ABC, and followed in 12 European paediatric cohorts, were included. CALHIV were grouped by backbone use: switched to TAF from TDF (group A); started TAF, no history of TDF (group B); started TDF (group C); started ABC (group D). Mixed models were adjusted for characteristics at TAF/TDF/ABC start and were used to estimate changes in BMI-for-age z-scores (zBMI, UK 1990 reference). First, models compared zBMI change immediately (48 weeks) before/after TAF/TDF/ABC start. Second, associations between backbone(TAF/TDF/ABC)/anchor drug class (DTG, other) and longer-term changes to 96 weeks on TAF/TDF/ABC were explored. For CALHIV who discontinued TAF/TDF/ABC, follow-up was censored 7 days after discontinuation.

Results: Among 268/243/357/234 CALHIV in groups A/B/C/D, 165(62%)/192(79%)/275(77%)/182(78%) had BMI data after drug start. Of these, 56%/59%/55%/51% were female and 97%/99%/96%/95% had perinatally-acquired HIV. Median[IQR] age at TAF/TAF/TDF/ABC start in groups A/B/C/D was 16[13,17], 13[11,16], 14[12,16] and 13[10,16] years. Calendar year was 2018[2017,2018], 2018[2017,2019], 2014[2013,2016] and 2016[2014.2017]; zBMI was 0.45[-0.27,1.41], 0.31[-0.47,1.38], 0.30[-0.38,1.26] and 0.17[-0.79,1.05].

Among 143/165/220/132 CALHIV with zBMI data before and after drug start, in adjusted analysis mean change in zBMI in the first 48 weeks on TAF was 0.10(95% CI 0.00,0.19) in group A and 0.17(0.08, 0.26) in group B (p=0.267). zBMI increases on TAF (A and B) were higher than on TDF (-0.02(-0.08,0.05)) (p=0.004), but similar to ABC (0.11(0.02,0.20)) (p=0.499). Among CALHIV in group B, or group D, zBMI also increased in the 48 weeks before TAF/ABC start (0.14(0.02,0.25) and 0.14(0.01,0.26) respectively).

Among 165/192/275/182 with data in the 96 weeks after drug start there was a interaction between backbone and anchor drug (p=0.009) and zBMI change, with the biggest increases among those on dolutegravir(DTG)+TAF (group A and B).

Conclusions: zBMI increased in CALHIV after starting TAF-based regimens with the greatest gains on DTG+TAF. However, overall increases on TAF were comparable to ABC and to changes before starting TAF in those without prior TDF exposure, suggesting that the zBMI increase might be due to other factors.

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HIV Drug Resistance Profiles among Children and Adolescents with Virologic Failure in the Dolutegravir era in North Central Uganda

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Background: Uganda national guidelines recommend HIV drug resistance (HIVDR) testing for clients on Protease Inhibitors (PIs) and DTG-based regimens with virologic failure (VF). We describe the HIVDR profile among children and adolescents living with HIV (CALHIV) on optimized regimens.

Methods: HIVDR data for CALHIV receiving care in the Makerere University Walter Reed Project with VF (>1000 copies/ml) between January 2021 and March 2024 was abstracted from the national dashboard and analyzed for frequencies of HIVDR mutations to Integrase Strand Transfer Inhibitors (INSTIs), Non-nucleoside Reverse Transcriptase Inhibitors (NNRTIs), Nucleosides/Nucleotides Reverse Transcriptase Inhibitors (NRTIs) and PIs.

Results: Twenty-seven CALHIV (mean age= 10.7 years; SD=4.4 years) with VF (median VL= 21,000 copies/ml; IQR= 4800-104500 copies/ml) were tested for HIVDR (Median time to HIVDR test from last VL= 54 days; IQR= 25.5-89 days). Twenty-two CALHIV transitioned to DTG-based regimens and 5 to PI-based combinations. Twenty CALHIV had documented poor adherence. All 27 CALHIV were sequenced for NNRTI and NRTI, 25 for PI and 22 for INSTI resistance. High level resistance (HLR) to INSTIs was found in 5 (22.7%) clients that were either maintained on 1st line (ABC/3TC/LPV/r; ABC/3TC/DTG; AZT/3TC/DTG) or transitioned to a DTG-based regimen (ABC/3TC/DTG; AZT/3TC/DTG; AZT/3TC/DTG/DRV/r). Characteristic major DRMs to DTG (E138K;G140A;Q148K) and other INSTIs (G118R;N155H;R263K) were found. Among the 12 CALHIV transitioning from a NNRTI-based (ABC/3TC/NVP; AZT/3TC/NVP; ABC/3TC/EFV) regimen and 13 from PI/INSTI-based (ABC/3TC/LPV/r; AZT/3TC/DTG; TDF/3TC/DTG) regimens, 7 (26%) had intermediate resistance (IR) and 6 (22%) had low-level resistance (LLR) to NNRTI. Major NNRTI DRMs were K103N;Y181C;Y188H;G190A. There were 14 (52%) clients with HLR to XTCs, and 7 (26%) with IR and LLR to ABC and TDF. NRTIs major DRMs included M184V;M41L;K65R;L74V. One (4%) IR case to PIs was detected among 5 clients transitioning from ABC/3TC/LPV/r to AZT/3TC/DTG/DRV/r. Major PI-resistance mutations were V32I;I47A;I50L;I54L.

Conclusion: We found a high level of resistance to INSTI with occurrence of major and accessory mutations among CALHIV with resistance testing. Resistance to PIs were less frequent compared to NNRTIs and NRTIs. Close monitoring of HIVDR in the era of INSTI and enhanced adherence should be prioritized for CALHIV with VF to preserve the most effective regimens.

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An Assessment of Low-Level Viremia Among Children and Adolescents Living With HIV on Antiretroviral Therapy in Kenya and Tanzania

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Background: Low-level viremia (LLV) among people living with HIV on antiretroviral therapy (ART) is associated with increased risk of treatment failure, predisposes to drug resistance, and other adverse health outcomes. We assessed the prevalence of persistent LLV (pLLV) and discordant viral load (dVL) among children and adolescents living with HIV (CALHIV) in the era of dolutegravir (DTG) at US Presidents Emergency Plan for AIDS Relief (PEPFAR) and the U.S Military HIV Research Program (MHRP)-supported facilities in Tanzania and Kenya.

Methods: This cross-sectional study was conducted between 2018-2021 at 27 facilities among CALHIV (1-19 years) on ART for ≥6 months with VL<1000 copies/mL. We assessed rates of viral suppression (VS), defined as 2 consecutive VL<50 copies/mL; pLLV, defined as 2 consecutive VL 50-999 copies/mL and dVL, defined as one VL<50 and another 50-999 copies/mL. Multinomial logistic regression with a robust variance estimator was used to estimate risk ratios (aRRs) with 95% confidence intervals (CIs) and factors associated with pLLV and dVL compared to VL<50 copies/mL.

Results: Of 1,137 eligible participants, 75% had VS (95% CI: 73.0%-78.0%), 4.0% had pLLV (95% CI: 3.0%-5.0%), while 21.0% (CI: 19.0-23.0%) had dVL. Compared to VS, pLLV was associated with a history ≥3 vs no referrals for adherence counseling (aRR: 8.90; 95% CI: 2.65-29.85). The risk of pLLV compared to VS was lower for those on an integrase strand inhibitor (INSTI) (aRR: 0.22; 95% CI: 0.05-0.95) versus non-nucleoside reverse transcriptase inhibitor (NNRTI)-based regimen and for those receiving care at a regional health facility (aRR: 0.34; 95% CI: 0.15-0.77) vs primary health center. The aRR for having dVL compared to VS for protease inhibitor (PI)-based regimen versus NNRTI-based regimen was 3.13 (95% CI: 1.58-6.20); for INSTI-based versus NNRTI-based regimen was 1.69 (95% CI; 1.02-2.79) and for reporting receiving 1-2 referrals for adherence counseling vs no referrals was 1.75 (95% CI: 1.09-2.80).

Conclusion: A quarter of CALHIV experienced pLLV or discordant VL. Adoption of lower threshold for identifying VS and deployment of novel approaches including age-appropriate fixed-dose combinations to support optimal medication use and enhanced adherence support through structural interventions among CALHIV may improve and sustain optimal VS.

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Effectiveness and Safety of Dolutegravir Among Children Living With HIV Aged Four Weeks to 12 Years: A Multicenter Prospective Cohort Study in Brazil (DTOPP Brazil)

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Background: Brazilian treatment guidelines recommend dolutegravir (DTG) as a preferred first-line or switch regimen for children living with HIV (CLHIV). DTG 50 mg and DTG 5 mg dispersible tablet (DT) became available on Jul/2022 and Jan/2023, respectively. We aimed to evaluate safety, virologic and immunologic outcomes in CLHIV aged four wks to 12 yrs starting first-line or switching to DTG-based ART.

Methods: DTOPP is a ongoing prospective cohort study conducted at eight treatment centers in Brazil. Virologically suppressed (VS) CLHIV 6-12 yrs (viral load (VL)<50 copies/mL) for >6 months were switched to DTG 50 mg (Cohort 1), children four wks to <6 yrs started first-line or switched to DTG-DT 5 mg (Cohort 2). Participants are followed every 24 wks for 96 wks. The primary endpoint is virologic failure (VF) considered as the first of two consecutive VL ≥ 50 copies/mL two wks apart or one VL ≥ 50 copies/mL before loss of follow-up. CD4 counts, growth parameters, clinical and laboratory adverse events (AE) are assessed at each visit.

Results: 227 participants were enrolled, 56% female, 2.6% (6/227) discontinued early due to clinic transfer (4/227) or non-adherence (2/227). At baseline, median age (IQR) for cohort 1 and 2 were 9 (8-10) and 4 (2.5-4.5) yrs, respectively; median CD4 was 1,024 (757-1,345) cels/mm3; median weight-, height- and BMI-for age Z-scores (WAZ, HAZ and BAZ) were -0.36 (-0.96, -0.26), -0.46 (-1.37, 0.21) and -0.33 (-1.04, 0.59), respectively. Median follow-up was 66 (29-84) wks. Sustained VS based on Kaplan-Meier estimates were 96.4% (95%CI: 93.6-99.3) at wk48 (n=142) and 91.5% (95%CI: 86.2-97.1) at wk96 (n=71). There were no significant differences in median values for CD4 counts, WAZ, HAZ, and BAZ at wks 24, 48, 72, and 96, compared to baseline (paired t-test). No clinical or laboratory AEs > grade 2 related to study drug were reported.

Conclusions: DTOPP is the first study to document the high effectiveness, safety and tolerance of DTG in a large cohort of Brazilian CLHIV. These findings have implications for the roll-out of DTG in the region. Extending observation beyond 96wks will allow better assessment of resistance emergence and long-term safety.

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Accelerating Pediatric Dolutegravir Transition in a Large-Scale Program Using a Comprehensive Health Systems Approach: A Retrospective Program Review in 14 USAID-PEPFAR Supported Districts in South Africa

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Introduction: South Africa has the largest pediatric HIV epidemic globally, with an estimated 152,984 children living with HIV (CLHIV) <15 years in 20241. South Africa started the transition for CLHIV to pediatric dolutegravir in April 2023. South Africa is complex as each province remains autonomous in policy adoption and implementation. We assessed the pDTG transition process to understand opportunities and challenges to inform acceleration and future transitions.

Methods: We conducted a systematic health systems assessment using the WHO health systems strengthening (HSS) framework. We abstracted routine programme treatment data for CLHIV <10 years from the PEPFAR's Data for Accountability, Transparency and Impact Monitoring reporting system and pDTG monitoring tool from April to December 2023 for 14 USAID-PEPFAR-supported districts. Data are reported quarterly aligned with United States Government fiscal years (FY) from October to September. We calculated DTG coverage and conducted qualitative analyses utilizing the WHO HSS analysis framework to determine facilitators and barriers to accelerated transition.

Lessons Learned: DTG coverage among children <10 years more than doubled in the first 9 months of implementation, increasing from 21% (3,484 of 16,302) in FY23Q3 to 48% (7,259 of 14,986) in FY24Q1. Subsequently, viral load suppression for children under 10 years increased from 76% to 79%. Specifically, 53% to 69% (<1 year), 64% to 67% (1-4 years) and 81% to 84% (5-9 years). Qualitative analysis identified multi-sectoral approaches to leadership and governance, capacity building, and systematic service delivery as determinants of accelerated transition. Districts in metropolitan areas attained the highest coverage in the shortest time. Conversely, inventory management processes that were not optimized led to excessive stock of legacy regimens and shortages of pDTG thereby compromising the speed of transition. Delays in synchronizing information systems was a barrier to pDTG transition.

Conclusions: The transition of a large number of CLHIV to pDTG is a critical step in addressing the pediatric epidemic in South Africa. Valuable insights on opportunities and challenges inherent to the complex health system were attained and will enable more accurate demand forecasting and allocation of funding to optimize and expedite current and future antiretroviral transitions for CLHIV.

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Acquired HIV-1 Drug Resistance Mutations in Perinatal HIV, Stratified by Age

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Background: Antiretroviral therapy (ART) for those with perinatal/early childhood HIV (PaHIV) has been available since the 1990s with effective triple therapy from 2000. We present the prevalence of acquired drug resistance mutations (DRMs) in a PaHIV cohort stratified by birth era.

Method: Retrospective case note review of PaHIV registered at a London HIV centre. Anonymised data collected included; demographics, immunology, virology, ART history, and cumulative DRMs. Data analysed by age; cohort 1 (0-24 years) and cohort 2 (25+ years).

Results: 280 individuals; cohort 1 (113, 40%), median age 19 years (IQR 7), 55% female, 77% black ethnicity, 52% UK born and 34% prior CDC C diagnosis. Cohort 2 (167, 60%), median age 29 (IQR 5.5), 57% female, 87% black ethnicity, 35% UK born and 44% prior CDC C diagnosis. Latest viral load was <50 c/ml in 99 (87.6%) age 0-24 and in 137 (82%) age 25+ with median CD4 count 730 (IQR 388) and 619 (IQR 393) respectively. Current ART by ART class and age group (cohort 1 v 2); integrase (INSTI) 84% v 66%, protease inhibitor (PI) 8% v 19%, non-nucleoside reverse transcriptase inhibitors (NNRTI) 8% v 8%, PI and INSTI 8% v 5%, long-acting injectables 8% v 2%. Median total years on ART was 11 (IQR 11) for 0-24, and 20 for 25+ (IQR 8). Two (1%) aged 0-24 years v 28 (17%) aged 25+ received suboptimal mono/dual therapy pre triple ART. 218/280 (78%) had resistance sequences available; 87 (40%) clade C. Cumulative DRMs by ART class and age group (0-24 v 25+): single (27[24%] v 25[15%]), dual (14[12%] v 40[24%]), triple (2[2%] v 9[5%]) and quadruple (0[0%] v 2[1%]). Drug resistance by class and by age group (major mutations only): NRTI (21[19%] v 56[34%]), NNRTI (36[32%] v 71[43%]), INSTI (2 [2%] v 2 [1%]) and PI (2[2%] v 13[8%]).

Conclusion: Rates of dual and triple class resistance are reassuringly lower in younger adults with PaHIV (median age 19 years versus 29 years), possibly reflecting less use of suboptimal regimens and newer better tolerated classes of ART with a higher genetic barrier to resistance.

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Comparing Characteristics of Adolescents 10-19 Years Enrolled in the International Epidemiology Databases to Evaluate AIDS (IeDEA) Cohorts With Population HIV Impact Assessment (PHIA) Surveys in East, Central and Southern Africa

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Background: Large cohorts of adolescents living with HIV (ALHIV) provide critical epidemiologic information but the population-representativeness of these cohorts is generally unknown. We compared characteristics of ALHIV 10-19 years in International epidemiology Databases to Evaluate AIDS (IeDEA) cohorts to ALHIV identified through Population HIV Impact Assessment (PHIA) surveys in: Cameroon (2017-18), Kenya (2018-19), Lesotho (2016-17), Malawi (2015-16), Rwanda (2018-2019), Tanzania (2016-17), Uganda (2016-17), Zambia (2016), and Zimbabwe (2015-16).

Methods: PHIAs are nationally representative cross-sectional surveys measuring HIV prevalence and treatment outcomes. IeDEA data are routine medical record data from participating clinics. We compared sex, age and viral load suppression <1000 copies/mL (VLS) among ALHIV from IeDEA cohorts to two groups of ALHIV in PHIAs: (1) in-care (ALHIV with detectable antiretroviral medication in blood or self- or caregiver-reported being in HIV care) and (2) all-ALHIV (including undiagnosed ALHIV). IeDEA data included all ALHIV with a visit within 12 months before/after the midpoint of the country's PHIA; viral load (VL) measures from that window were used to assess proportions with VLS. PHIA data were adjusted for survey weights; Rao-Scott chi-square tests were used to compare characteristics.

Results: We included 27,251 and 865 ALHIV from IeDEA and PHIA, respectively. There were no significant differences in sex distribution of ALHIV in IeDEA cohorts vs. PHIAs (in-care and all-ALHIV) nor differences in age distributions except in Rwanda and Malawi; in both countries, IeDEA had lower proportions of younger adolescents (10-14 years) compared to PHIA in-care ALHIV (Malawi:36% vs. 58%,p=0.004; Rwanda:33% vs. 51%,p=0.012). Malawi also had lower proportions of younger adolescents in IeDEA compared to PHIA all-ALHIV (36% vs.55%,p=0.001). Overall, proportions of ALHIV with VLS in IeDEA did not differ from PHIA in-care ALHIV across countries except for Zambia, where reported VLS was lower among IeDEA ALHIV (52% vs. 75%; p=0.018).

Conclusion: IeDEA cohorts of ALHIV from nine countries were representative of the sex distributions of nationally representative PHIA data, with most cohorts being age-representative of in-care ALHIV. PHIA data from Malawi suggest that ALHIV 10-14 years were under represented in HIV care sites highlighting the need to improve identification, enrollment and retention of young ALHIV.

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Elevated Risk for Poor HIV Treatment Outcomes Among Children of Sex Workers in South Africa

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Background: Research is lacking on the potential elevated vulnerability of children living with HIV (CLHIV) whose caregiver is a sex worker. This study aims to address this gap by examining HIV treatment outcomes among a propensity score matched sample of CLHIV program participants in South Africa, comparing children whose caregiver is a female sex worker (CoSW) to other CLHIV.

Methods: USAID Southern Africa has been increasing the inclusion of CoSW in PEPFAR-supported Orphans and Vulnerable Children (OVC) programs in South Africa. This analysis uses routine deidentified participant data from children served in OVC programs from 2018-2022. Analysis is restricted to 462 CoSW CLHIV (age 0-19 years) currently living with female caregivers and enrolled in comprehensive case management provided by PEPFAR OVC implementing partners. CoSW were propensity score matched one-to-one with program-supported non-CoSW CLHIV to test for differences in HIV treatment outcomes using logistic regression.

Results: The sample had an average of three years of program engagement. Fifty-five percent of the samples' residing caregivers were living with HIV. Over half of CLHIV (58%) were female with an average age of 10 years. CoSW showed 48% lower odds of ever having had a clinically confirmed viral load test (OR=0.52, 95% CI=0.39-0.69). Among those CLHIV with clinically reported viral load levels (144 CoSW and 200 non-CoSW), CoSW showed less than half the odds (of non-CoSW) of having a suppressed viral load (OR=0.46, 95% CI=0.23-0.92).

Conclusion: Despite HIV prevention, care, and treatment programs targeting sex workers in sub-Saharan Africa, there has been suboptimal inclusion of their children. While CLHIV have well established poorer adherence and treatment outcomes as compared to adults, these results suggest this risk is even greater for CoSW who face barriers throughout the treatment cascade. The findings demonstrate elevated vulnerability of CoSW and underscore the need for effective treatment and comprehensive family-based support programs. Addressing the disparate HIV-related vulnerabilities of CoSW, alongside the stigma and social marginalization of their caregivers that can hinder families' access to health and social services, is vital to advancing equity for children.

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Sustaining Viral Load Suppression in Adolescents with HIV: Impact of Technical Assistance in Western Province, Zambia

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Background: Optimization of HIV services and viral load suppression(VLS) for adolescents (10-19 years) living with HIV(ALHIV) is critical for the successful transitioning of ALHIV to adult-oriented care. As a PEPFAR implementing partner, ICAP provided technical assistance (TA) to the Zambian Ministry of Health (MOH) in Western Province. We describe the outcomes of TA-driven interventions on VLS among ALHIV in Western Province, Zambia.

Material and Methods: From October 2020 to September 2023, ICAP implemented a multifaceted TA program to improve care for ALHIV in Western Province, Zambia, which included training and mentoring healthcare workers to deliver adolescent-friendly HIV services, implementing adolescent-focused differentiated service delivery models and quality improvement projects to address bottlenecks to accessing care by ALHIV. Additionally, the TA supported last-mile distribution of DTG-based anti-retroviral at clinics, ensuring uninterrupted access for ALHIV. We analyzed retrospective program data from PEPFAR Zambia DATIM for 2020 (pre-intervention) and 2023 (during the intervention) to evaluate the program's impact. We used chi-square tests to compare the number of ALHIV on ART, VLS rates, and those with documented viral load (VL) results between the time points.

Results: In September 2023, a total of 4,508 ALHIV, with 58% Females, were on ART at 270 clinics, while in September 2020, 3765, 61% females, were on ART. Median age was within the 10-14 age band for both time points. Among those on ART in September 2020, 76% (2,857/3,765) had documented VL results, and 2,135(75%) had <1000 viral copies/ml. While in September 2023, 87% (3,901/4,508) had documented VL, with 3713(95%) having VL <1000 copies/ml. ALHIV on ART increased by 20% between 2020 and 2023; VLS was significantly higher in September 2023 than in September 2020 ($p< 0.001$). Similarly, the proportion of ALHIV with documented VL results was higher in September 2023 ($p< 0.001$).

Conclusions: Continuous technical assistance by MOH implementing partners catalyzed the achievement of sustained high viral load suppression rates among ALHIV. These findings reflect the positive influence of high-impact TA innovations and approaches on the quality of adolescent HIV services and the need for robust sustainability strategies for scaling up and maintaining these gains by national HIV programs.

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Pediatric Dolutegravir Optimization: 18 Month Follow up of Viral Load Suppression

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Background: In 2021, Eswatini began optimizing children on first line Antiretroviral Therapy (ART) and under 20kg to pediatric dolutegravir (pDTG)-based treatment. All children with viral load (VL) ≤ 400 copies/mL were optimized to ABC/3TC/DTG. Those with VL 401-999 received adherence counseling then repeated VL. Those with VL ≥ 1000 copies/mL accessed genotypes and those results informed an optimized NRTI backbone with pDTG. All new pediatric clients were initiated on ABC/3TC/DTG. Since starting pDTG, some children have now transitioned to 50mg DTG based ART per national weight-based dosing guidelines.

Methods: This is a retrospective review of routinely collected data from children on first line ART optimized to pDTG based ART from August 2021 until January 2023 at Baylor College of Medicine Children's Foundation-Eswatini. Data were extracted from electronic medical records and imported into STATA 17 for analysis. McNemar's Test using 95% confidence intervals ($p<0.05$) was used to determine significance in viral suppression (≤400 copies/mL).

Results: Between August 2021 and January 2023, 368 children accessed pDTG, 58 as new initiations and 310 through optimizations.

Of the newly initiated with VL data, 41/58 (71%) remain active in care. They are 51% female with average age at DTG initiation of 19 mos. VL suppression is 87.8% (36/41) at average 16 months post pDTG initiation.

Of the children optimized to pDTG with VL data, 255/310 (82%) remain active in care. They are 54% female with an average age of 56 months at time of DTG initiation. Majority (99%) were transitioned from ABC/3TC/LPV/r to a pDTG based regimen, 251 to ABC/3TC/DTG and 4 to AZT/3TC/DTG based on genotype results. VL suppression increased from 91.3% pre switch (233/255) to 94.9% (242/255) at average 18.5 months post switch ($p=0.06$).

When both groups were combined and stratified by age, VL suppression was >90% for all ages except for the 24mos-36mos group who were at 72%.

Conclusions: Many children have benefited from the introduction of pDTG, however improvement in viral suppression observed was not statistically significant. Some of our youngest clients still struggle with adherence despite improved formulations. Focus must still be on improving this group through innovative programming.

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HIV Drug Resistance Trends Among 294 Treatment Experienced Children and Young Adults (0-24) in the First Decade of a National Pediatric HIVDR Program

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Background: Treatment-experienced clients are failing antiretroviral therapy (ART) throughout Sub-Saharan Africa. The resulting HIV Drug resistance mutations (DRMs) present an urgent need for access to genotyping, and robust treatment options, to provide successful individualized lifelong treatment in our most vulnerable clients living with HIV. This abstract looks at early resistance trends in our treatment experienced pediatric and young adult clients in Eswatini (0-24 years).

Methods: This is a retrospective review of electronic medical records and genotype results from Baylor Children's Foundation-Eswatini and referrals from other facilities in Eswatini. All genotypes are from treatment-experienced clients, 0-24 years old, with at least two detectable viral loads on Protease Inhibitor (PI) or Dolutegravir (DTG)-based ART. Genotypes were done through the National Reference Laboratory in South Africa using dried blood spot (DBS) specimens in alignment with National Treatment Guidelines. Stanford HIVdb Program was used to calculate predicted activity of ART.

Results: Genotypes were performed in 294 clients between January 2014 and January 2024 (44% (128/294) female; 56% (166/294) male). Fifteen percent (44/285) showed intermediate level or higher resistance to LPV/r; 9% (4/44) of those also showed intermediate or higher resistance to DRV/r. Most common PI mutations were I54V (33), V82A (32), M46I (31). Integrase Strand Transfer Inhibitor (INSTI) resistance testing was performed on 33 samples. Six percent (2/33) had intermediate or high level DTG resistance due to the following mutations: E138AK(2), G140A(1), Q148R(1), R263K(1). Intermediate or high resistance to Rilpivirine (RPV) was observed in 30% of genotypes (85/285) despite no clients being on non-nucleotide reverse transcriptase inhibitors (NNRTI) at the time of sample collection. Most common nucleotide reverse transcriptase inhibitor (NRTI) mutations were M184V (130), M41L (28), D67N (25), T215Y (24).

Conclusion: Trends in DRMs in Eswatini give insight into future effective ART for treatment-experienced clients and may inform national policies regarding sequencing of ART moving forward. Pediatric surveillance resistance testing is needed in Eswatini and the region to inform national ART optimization guidelines and advocacy for access to novel treatment options for our most vulnerable clients.

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Dolutegravir in the Youngest Children: Results for Genotype-Led Optimization of Antiretroviral Therapy in Children Failing Protease

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Background: In 2021, pediatric Dolutegravir 10 mg (pDTG) became available to children and adolescents living with HIV in Eswatini. To inform the most robust optimization possible and maintain lifelong treatment options in our resource limited setting, those clients on first-line Protease Inhibitors (PI) with a detectable viral load (VL) accessed genotypes prior to optimization to inform nucleoside reverse transcriptase inhibitor (NRTI) backbone components.

Methods: This is a retrospective review of routinely collected data for pediatric clients with VL >1,000 copies/mL on first-line, PI-based, antiretroviral therapy (ART) registered with Baylor Children's Foundation Eswatini in April 2022. Genotypes were done through the National Reference Laboratory in South Africa using dried blood spot (DBS) specimens. Stanford HIVdb Program was used to calculate predicted activity of NRTIs.

Results: Genotype was performed on 25 clients with VL >1,000copies/mL at the time of DTG optimization prior to choosing NRTI backbone (average age 2.7 yrs; 52% (13/25) Female). None had any PI mutations at the time of genotyping. M184V alone was identified in 46% (11), conferring only low resistance to ABC. Wild-type virus amplified in 37% (9) with no mutations affecting ABC. The final 17% (4) had mutations resulting in high ABC resistance. Client 1 had K65R and Y115F, Clients 2 and 3 had L74V, M184V and Y115F, while Client 4 had only L74V and M184V. After 20 months, 5 clients had been transferred out to another facility or lost to follow up. Viral suppression (<1000 copies/mL) after a mean of 17 months on DTG (range 6-22) was 80% (16/20). This suppression rate is similar when disaggregated by backbone: AZT-3TC-DTG cohort (3/4; 75%), ABC-3TC-DTG cohort (13/16;81%).

Conclusions: Four clients (17%) were identified with both high-level resistance to ABC and intermediate or high-level resistance to 3TC and were thus placed on AZT (zidovudine)-3TC (lamivudine) backbones with their Dolutegravir. Implications of DTG therapy with predicted inactive ABC-3TC remain to be studied in children living with HIV. After the first two years of implementation, no INSTI resistance has been identified, and suppression rates remain similar, yet lower than national targets, in both groups.

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Protease Inhibitor Stock-out in Sub Saharan Africa: Real-World Implications of Single-Drug Substitutions to Dolutegravir in Treatment Experienced Clients

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Background: In October 2020, the Eswatini National AIDS Program (SNAP) faced a complete Protease Inhibitor (PI) stock-out. Those suppressed (<1000 copies/ml) on a PI were substituted to dolutegravir (DTG). The long-term outcomes of treatment experienced clients on PIs, following single drug DTG substitutions is uncertain. This abstract follows rates of viral detection (≥50 copies/ml) and non-suppression (≥1000 copies/ml) over 96-weeks.

Methods: Data was abstracted from the electronic medical record in all clients on second-line, PI-based, antiretroviral therapy (ART) registered at Baylor Children's Foundation-Eswatini who had a single drug substitution of DTG for a PI (N = 450). Time to event analysis to detect risk factors for viral detection after substitution was performed with Cox regression modeling. Overall viral suppression at 48 and 96 weeks, in clients maintained on DTG, was evaluated descriptively and risk factors for non-suppression after those thresholds were assessed by logistic regression.

Results: The median age at time of DTG substitution was 22 (IQR 16, 33) years, 57% (259/450) were female, and 13% (60/450) had a CD4 of < 200 cells/ml. All had viral suppression at substitution and 393/450 (87.3%) were undetectable. Multivariate cox regression analysis demonstrated a reduced risk of a detectable viral load in adults (HR 0.57, 95% CI 0.37, 0.88), with tenofovir backbones (HR 0.61, 95%CI 0.41, 0.90), with undetectable VLs in the year prior to substitution (HR 0.43, 95%CI 0.29, 0.64), and an undetectable VL at DTG substitution (HR 0.45, 95%CI 0.28, 0.70). In cross-sectional analysis, among clients retained on DTG for over 48 weeks, 94% (95%CI 91, 96%) were suppressed and 85% (95%CI 81, 88%) were undetectable (n=408), these rates were unchanged at 96 weeks (n=383). The only factors that predicted an unsuppressed viral load at both 48 and 96 weeks were low level viremia (VL 50-1000 copies/mL) at DTG substitution and being an adolescent or young adult (15-24 years).

Conclusions: 96-week VL suppression rates nearing UNAIDS targets can be achieved after DTG substitutions in many treatment-experienced clients. However, we have identified risk factors for viral non-suppression after one drug substitution that represent high-risk populations for treatment failure and future INSTI resistance.

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Antiretroviral Treatment Initiation Among Children Living With HIV: A Multi-Country Analysis

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Background: Globally, half of the children living with HIV (CLHIV) are on antiretroviral treatment (ART). We describe data and interventions under U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through U.S. Agency for International Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project to increase ART initiation among CLHIV ages 0-14 years, in 5 African countries. In these countries, UNAIDS 2023 reported pediatric ART initiation rates ranging between 32% and 73%.

Material and Methods: In 5 EpiC high-volume projects (Democratic republic of Congo, Liberia, Mali, Senegal, Tanzania), that reported more than 50 new CLHIV in 12 months, HIV testing services were offered in health facilities and communities, while treatment was initiated only at health facilities. Upon HIV diagnosis, CLHIV and their caregivers were linked to peer navigators who regularly offered in-person and virtual counseling on early ART initiation and navigated them to treatment sites. Peer navigators were people living with HIV, virally suppressed with good treatment adherence, and they were from the same population as the CLHIV caregiver, e.g. general population, priority population, key population; often they were caregivers themselves. Treatment was initiated by certified clinicians and nurses, depending on the national policy; they were trained in pediatric care and treatment. Using routinely collected aggregated data, we calculated the percentage of new and known CLHIV ages 0-14 years who started treatment.

Results: Between October 2022 and September 2023, EpiC identified 2,065 CLHIV ages 0-14 years and initiated 2,038 (98%) on ART: 97% initiation among males and among under 5 and 100% initiation among females and among 5 to 14 years old. Disaggregated by country, treatment initiation was 98% (998/1,015) in Democratic republic of Congo, 101% (121/119) in Liberia, 97% (681/703) in Mali, 105% (112/106) in Senegal, 103% (126/122) in Tanzania. Overall, 98% of the CLHIV were initiated within 7 days from the date of the HIV diagnosis: no difference by sex and age group.

Conclusions: The high ART initiation rate at project sites, calls for scaling up EpiC model to increase effective and early linkage to treatment and reduce pediatric mortality among ages 0-14.

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Effectiveness and Safety of Dolutegravir in Children and Adolescents Living With HIV in Europe and Thailand

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Background: There are limited data on DTG effectiveness and safety in children and adolescents living with HIV (CALHIV) in routine-care settings.

Methods: Data on CALHIV aged<18 years at DTG start were pooled from 15 cohorts in the European Pregnancy and Paediatric Infections Cohort Collaboration (EPPICC). Effectiveness outcomes were proportion virally suppressed<50 copies/mL at 24/48/96/144/192 (±12) weeks after DTG start, overall and by age and ART/viral load (VL) status at DTG start. Safety outcomes were frequency of clinical adverse events (AEs) and serious AEs (SAEs) causally associated with DTG, incidence of DAIDS grade laboratory abnormalities, and DTG discontinuation (all-cause and treatment-related).

Results: Of 1231 CALHIV ever on DTG, characteristics at DTG start were: median [IQR] age 14 [11, 16] years, 50% male, 95% perinatal HIV, 42% black ethnicity; 10% ART-naïve, 49% ART-experienced/suppressed (VL<200 c/mL), 13% ART-experienced/viraemic (VL≥200 c/mL), and 28% ART-experienced/unknown VL. Median [IQR] duration on DTG was 93 [49, 163] weeks. Over time on DTG, viral suppression ranged 88-91%; highest among those ART-experienced/suppressed and lowest among ART-experienced/viraemic at DTG start at 92-94% and 72-83%, respectively. Of 1146/1231 (93%) with clinical data, 26 (2%) experienced 52 AEs causally related to DTG, including 5 SAEs (headache, grade 3 raised creatinine, psychiatric disturbance, renal colic, and neurological event); 4/5 cases with SAEs discontinued DTG. No deaths were reported. Among 848/1231 (69%) with laboratory data, 46 (5%) experienced 57 DAIDS grade ≥3 events; a rate of <1 per 100 person-years. The rates of grade 1 and 2 events were higher but were ≤15 events per 100 person-years. Overall, 95 (8%) discontinued DTG at median 90 [36, 138] weeks: 5 (5%) due to viral failure, 17 (18%) toxicity, and 73 (77%) treatment simplification/other/unknown reasons. Cumulative incidence of discontinuations (95%CI) was 5% (4-7) and 10% (8-12) by 96 and 144-weeks, respectively. When restricted to the 22 treatment-related discontinuations (viral failure and toxicity) the incidence of discontinuation was 1% (1-2) and 2% (1-3), respectively.

Conclusions: Overall, high levels of viral suppression were sustained through 4 years on DTG, although markedly lower suppression was observed among those ART-experienced/viraemic at DTG start. There were few SAEs and treatment-related discontinuations.

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Viral Suppression Among Adolescents on Antiretroviral Therapy in HIV Treatment Centers In South-West Region of Cameroon

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Background: Access to single-dose dolutegravir-containing antiretroviral therapy (ART) is increasing in Cameroon, yet low ART adherence and unsuppressed viral load persist among adolescents living with HIV in this setting. We evaluated factors associated with ART adherence and viral suppression among adolescents on HIV treatment in SWR of Cameroon.

Method: From December 16, 2023 to February 3, 2024, trained study nurses administered surveys to adolescents receiving ART at 3 HIV care clinics. Adolescents aged 11-24 years were eligible if they were fully aware of their HIV-positive status and on single-dose ART. Self-reported ART adherence was measured using a visual analogue scale. Optimal adherence was defined as adherence ≥ 95% intake of prescribed medication in the past 30 days. Suppressed viral load was defined as ≤ 200 copies/mL. Demographic and clinical characteristics associated with viral suppression were identified using logistic regression.

Results: Overall 153 adolescents living with HIV were enrolled with a median age of 16 years (IQR 15-18). Half (53.0%) were female and almost all (95%) acquired HIV via vertical transmission. The median time in year on ART was 9(IQR 6.5 -13) and 89% of adolescents were on DTG-containing regimens. Over half (55%) of adolescents were orphans and 28% were sexually active. Only one-third (35 %) of adolescents self-reported optimal ART adherence. 79.0% of adolescents were virally suppressed. Adolescents who consumed alcohol [AOR = 3.2; 95 %CI (1.2-8.3) p=0.01] were three times less likely to have suppressed viral load compared to those who did not consume alcohol, sexually active adolescents [AOR =3; 95%CI(1-7;);p =0.02] were three times less likely to have suppressed viral load while adolescents on first-line ART [AOR = 3; 95%CI(1-8),p=0.03] were three times more likely to achieve viral suppression compared to those who were on second-line ART regimen.

Conclusion: The level of optimal ART adherence was low (35%) with a relatively high viral suppression (79%) among adolescents on ART in this setting. Interventions are needed to increase optimal adherence and viral suppression tailored to adolescents, especially those who consume alcohol and are sexually active.

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Comparison of the Prevalence and Associated Factors of Chronic Kidney Disease Diagnosed by Serum Creatinine or Cystatin C in Young People Living With HIV in Uganda

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Introduction: Young people living with HIV (YPLHIV) are at increased risk of developing chronic kidney disease (CKD) which is associated with high mortality and morbidity. Early diagnosis is important to halt progression and prevent mortality. We set out to estimate the prevalence and factors associated with CKD among YPLHIV in Kampala, Uganda, and to compare serum creatinine and cystatin C for early diagnosis of CKD in this population.

Methods: A cross-sectional study with YPLHIV aged 10 to 24 years was conducted in seven HIV clinics. Participants provided a urine and blood sample to measure urinary albumin, proteinuria, serum creatinine and cystatin C levels at baseline and after three months. The estimated glomerular filtration rate (eGFR) was calculated using CKDEPI 2021, Cockroft-Gault and bedside Schwartz equations using creatinine or cystatin C. The albumin creatinine ratio (ACR) and proteinuria were measured. CKD was defined as either eGFR <90ml/min/1.73m2 and/or ACR above 30mg/g on 2 separate occasions. Univariable and multivariable logistic regression were used to estimate adjusted odds ratios (aOR) and 95% confidence intervals (CI) for factors associated with CKD.

Results: A total of 500 participants were enrolled. Most were female (56%; n=280) and aged 10 to 17 years (66.9%; n=335). CKD prevalence ranged from 0-23% depending on the criteria, equation and biomarker used. Prevalence of ACR above 30mg/g was 10.1% and of proteinuria 29%. Factors independently associated with CKD were age (aOR=1.42; 95%CI:1.30-1.51) and male sex (aOR=3.02; 95%CI:1.68-5.43). Cystatin C-based equations estimated higher prevalence of CKD.

Conclusion: CKD prevalence among YPLHIV was high and varied substantially depending on definitions used. The current definition of CKD likely misclassified people who might have CKD. The definition of CKD and best biomarker for YPLHIV should be revised to improve identification of all that have CKD. Estimating equations should be validated against measured GFR in YPLHIV to determine their accuracy in estimating GFR.

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The Spectrum of Malignancies in Adolescents and Young Adults Living With HIV (AYALHIV) in Harare, Zimbabwe: A Retrospective Descriptive Review of the Cancer Registry Data

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The burden of cancer in adolescents and young adults living with HIV (AYALHIV) has been increasing in low-to-middle income countries. To improve the cancer outcomes of AYALHIV a study of the spectrum and prevalence of malignancies in this subgroup was performed. The factors associated with mortality were also described.

A retrospective cross-sectional analytic review of cancer registers was performed. AYALHIV between the ages of 10 to 24 years with a confirmed primary incident malignancy recorded from January 2009 to December 2018 were included from the Zimbabwe National Cancer Registry. Records were cross referenced with data from the following sources: the Parirenyatwa Hospital Radiotherapy Centre, the Parirenyatwa Hospital (AIDS Healthcare Foundation) AHF Centre of Excellence Adolescent Clinic, the Parirenyatwa Paediatric Oncology Ward, the Parirenyatwa Kaposi Sarcoma (KS) Clinic and from the Newlands Clinic. This was performed in order to collect potential missing demographic, clinical and/or laboratory data. In the event of two different malignancies, they were considered as two individual records.

A total of 470 records were reviewed. 46.4% were female. The median age at diagnosis was 19 years (range 15-22). More cancers were noted in the 20-24-year age group (49.6%). KS was the most common cancer (77.2%). The 2nd most prevalent cancer was non-Hodgkin Lymphoma (12.6%). The other common cancers were squamous cell carcinoma (2.8%) [eye – 1.0%, gastrointestinal – 0.2%, skin – 0.6%, vulva – 0.6%, cervix – 0.2% and unknown – 0.2%] and Hodgkin lymphoma (1.9%). The median time-of-diagnosis to cancer treatment was 11 days (range 3-60). The median duration of antiretroviral therapy at time-of-cancer-diagnosis was 0.7 years (range 0-4). 155 out of the 470 (33%) died over the 10-year period. Sepsis was the major contributing factor to mortality. Age at cancer diagnosis was the only significant factor associated with mortality [OR=0.91; 95%CI (0.83-0.99), p=0.035].

KS was the most common malignancy found in AYALHIV in Harare, Zimbabwe for the period 2009 to 2018. Targeted HIV testing of AYALHIV diagnosed with cancer and subsequent immediate antiretroviral therapy should be implemented. Despite timely therapeutic intervention in AYALHIV diagnosed with cancer, the cancer mortality remains high.

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Active Case Finding: Comparison of the Acceptability, Feasibility and Effectiveness of Targeted Versus Blanket Provider-Initiatedtesting and Counseling of HIV Among Children and Adolescents in Cameroon

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Background: Children and adolescents still lag behind adults in accessing antiretroviral therapy (ART), largely due to limited access to HIV testing services. This study compares the acceptability, feasibility, and effectiveness of targeted (tPITC) (or index case testing) versus blanket provider-initiated testing and counseling (bPITC) (or systematic testing) among children and adolescents in Cameroon.

Methods: Over a 6-month period in three hospitals in Cameroon, HIV-positive parents were invited to have their biological children (aged 6 weeks to 19 years) tested for HIV (tPITC). Simultaneously, HIV testing was systematically offered to all children evaluated at the outpatient department (bPITC) in the same hospitals. Children of consenting parents underwent HIV testing, and positive cases were enrolled in ART. The acceptability, feasibility, and effectiveness of tPITC and bPITC were compared using the chi-square test.

Results: We enrolled 1240 and 2459 eligible parents in the tPITC and bPITC groups, respectively. Of those 99.7% and 98.8%, respectively, accepted to have their children HIV-tested. Of the 1990 and 2729 children enrolled in the tPITC and bPITC groups, 56.7% and 90.3% respectively were tested for HIV ($p < 0.0001$). The HIV positivity rate was 3.5% (CI: 2.4–4.5) and 1.6% (CI: 1.1–2.1) in the tPITC and bPITC groups respectively ($p = 0.0008$), suggesting a higher case detection rate in the index testing group. Alternatively, 29 and 63 children had to be tested to identify one HIV case in the tPITC and bPITC, respectively. In the tPITC group, 84.8% of HIV-positive children were diagnosed at WHO stage 1, while in the bPITC group, diagnoses were mostly at WHO stage 3 (39.1%) ($p < 0.0001$). Among HIV-positive children, 85.0% in the tPITC group and 52.5% in the bPITC group were enrolled in ART ($p = 0.0018$).

Conclusions: Both index case and systematic testing strategies showed high acceptance. index case testing (tPITC) outperformed systematic testing in case detection, early detection, and linkage to care. These findings indicate the effectiveness and superiority of index testing in case detection and linkage to care. The effective implementation of this strategy could help reduce the current gap in pediatric HIV cascade in Cameroon and beyond.

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Patterns in Use of Antiretroviral Therapy in Pregnancy in England: The Era of Integrase Inhibitors

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Background: Lifelong antiretroviral therapy (ART) is recommended for people living with HIV, with integrase strand transfer inhibitor (INSTI)-based regimens preferred for first line for non-pregnant and pregnant people. We aimed to explore recent patterns in ART use in pregnancy in England, focusing on anchor drug classes.

Methods: We used national surveillance data from the Integrated Screening Outcomes Surveillance Service to analyse pregnancies in people living with HIV-1 in England with estimated date of delivery in 2019-2022.

Results: There were 2618 pregnancies in 2272 people; median age was 35 years (IQR:30-39). Antenatal ART was used in 98.7% (2568/2602) of pregnancies. Among births, this was 99.9% (2242/2243); ART was lacking in only one person (presenting un-booked/screened in labour). Among all pregnancies with ART use, 82.4% (2134/2557) were conceived on ART. First viral load was undetectable in 89.5% (1761/1968) of pregnancies conceived on ART. Overall, where ART was used and drugs reported, 39.5% (1004/2539) received INSTI(s) (exposure to dolutegravir: 518/2539 [20.4%], raltegravir: 494/2539 [19.5%], elvitegravir: 56/2539 [2.2%], bictegravir: 24/2539 [0.9%]); 37.3% (947/2539) received protease inhibitor (PI)(s) (darunavir: 645/2539 [25.4%], atazanavir: 301/2539 [11.9%], lopinavir: 15/2539 ([0.6%], other PIs: 6/2539 [0.2%]); and 34.8% (884/2539) received non-nucleoside reverse transcriptase inhibitor(s) (efavirenz: 426/2539 [16.8%], rilpivirine: 347/2539 [13.7%], nevirapine: 94/2539 [3.7%], doravirine: 12/2539 [0.5%], etravirine: 12/2539 [0.5%]). Pregnancies with INSTI use at any stage increased over time from 31.9% (262/822) in 2019 to 52.1% (275/528) in 2022, p<0.001. Ritonavir boosting was reported in 33.5% (851/2539) of pregnancies, cobicistat in 8.5% (216/2539). Where ART was initiated post-conception, median gestational age at initiation was 15 weeks (IQR:12-20), with 12.0% (50/418) starting at ≥26 weeks; 39.0% (165/423) had pre-conception diagnosis. Most common anchor agents among those initiating were raltegravir (124, 29.3%), dolutegravir (115, 27.2% [increasing from 12.9% (19/147) in 2019 to 48.1% (38/79) in 2022, p<0.001]), darunavir (111, 26.2%), and atazanavir (88, 20.8%).

Conclusion: Experience of INSTI use in pregnancy increased over time (driven by dolutegravir), mirroring global trends. In line with recent calls for action to accelerate study of new HIV drugs in pregnancy, further work is needed to understand patterns of use as well as outcomes in more depth.

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Factors Influencing PrEP Initiation and Continuation Among Pregnant and Lactating People in Low- And Middle-Income Countries

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Introduction: Pregnant and lactating people (PLP) have high risk of contracting HIV, making pre-exposure prophylaxis (PrEP) essential to prevention of vertical transmission (PVT) programs. Uptake of PrEP is lower among PLP compared to other vulnerable groups; therefore, this review seeks to identify factors influencing PrEP initiation and continuation among PLP in low- and middle-income countries (LMICs).

Methods: We completed a systematic review of peer-reviewed articles and gray literature abstracts to identify barriers and facilitators to initiation or continuation of PrEP in PLP in LMICs. Eighteen articles and three gray literature abstracts were identified from a pool of 443. The results were aggregated via the levels of the socioecological model [individual, interpersonal, community, societal] to understand impact.

Results: Among the 21 reviewed documents, the most commonly cited facilitators for PrEP use include a partner living with HIV [initiation: 6 documents; continuation: 5 documents], high HIV risk perception [6; 2], feelings of empowerment [5; 3], and support from family and community [4; 3]. While most facilitators of PrEP initiation and continuation were similar, barriers varied. Most cited barriers to initiation were low HIV risk perception [4], lack of control over sex or experiencing intimate partner violence [4], lack of partner and family support [4] and community stigma [3]. Barriers to continuation of PrEP included medication side effects [6], pill fatigue [4], and facility access issues [3]. Factors specific to PLP include: desire for a child without HIV infection [initiation facilitator: 2], starting PrEP before pregnancy or early in pregnancy [continuation facilitator: 3], and perceived reduced risk postpartum [continuation barrier: 3].

Discussion: This review reveals that, out of all the factors identified, 70% of initiation and 74% of continuation factors for PrEP in PLP fall within the personal/interpersonal levels of the socioecological model, highlighting the effect of knowledge and close personal connections on decision-making. PVT programs should strengthen interventions that specifically address the factors identified, with a particular focus on effective individual risk education and assisting PLP's in identifying a positive close support system. These interventions can assist PLP in making the best decisions about PrEP for themselves and their infants.

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Acceptability of the Monthly Vaginal Ring and Daily Oral PrEP During Pregnancy in Four Sub-Saharan African Countries

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Background: Pre-exposure prophylaxis (PrEP) including the monthly dapivirine vaginal ring (ring) and daily tenofovir/emtricitabine (oral PrEP) are proven effective and acceptable in non-pregnant people. We evaluated acceptability of both products in pregnant individuals in the MTN-042/DELIVER study conducted in South Africa, Zimbabwe, Malawi and Uganda.

Methods: Pregnant individuals were enrolled in three stepwise gestational age cohorts: cohort 1 (36-37 weeks), cohort 2 (30-35 weeks) and cohort 3 (12-29 weeks). Randomization was 2:1 (cohorts 1 & 2) and 4:1 (cohort 3) to receive ring or oral PrEP respectively and participants were followed until 6-weeks postpartum. Acceptability of study products was a trial secondary objective. Trained staff assessed perceived attitudes, willingness, product acceptability, sexual behaviors and relationships at the 4-week visit through questionnaires in cohorts 2 & 3 (cohort 1 data not included). We used descriptive statistics to summarize these endpoints, stratified by study cohort and assigned product. All cohorts additionally had qualitative acceptability assessments (data not shown).

Results: Participants' median age was 24 years (IQR 22, 29) across all cohorts (N=408), with 308 (75%) randomized to receive the ring. In cohorts 2 and 3 most participants (97%) reported having a primary partner, however, only 25% reported definitively knowing that their partner was monogamous. At Week 4, in cohort 2, 98.7% (95% CI 95.2, 99.8), and in cohort 3, 99.6% ((%%CI 97.7, 100%) of participants expressed satisfaction with their assigned PrEP product, with no difference in satisfaction between those assigned to the ring or oral PrEP. Willingness to use their assigned product in a future pregnancy or when not pregnant was also high overall and across study arms. Participants strongly preferred their assigned products to the alternative, 84.5% and 85.7% assigned to ring in cohorts 2 and 3 respectively. Furthermore, 57% of participants disliked male condom use.

Conclusion: High acceptability of the ring and oral PrEP was reported after 4 weeks of use during pregnancy in the MTN-042 study, consistent with qualitative analyses across cohorts*. Pregnant people are at high risk of HIV infection and a majority dislike condoms, highlighting the need for optimized HIV-prevention choice during pregnancy.

*Published elsewhere

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Increasing Numbers of Pregnancies in Women With Vertically-Acquired HIV in the UK: 2006-21

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Background: Despite globally increasing numbers of reproductive-aged women with vertically-acquired HIV (WVHIV), knowledge gaps on their characteristics and pregnancy outcomes exist. We present population-level pregnancy outcome data for this emerging cohort.

Methods: In the UK surveillance of all pregnancies to women living with HIV, their infants and any children diagnosed with HIV has been ongoing for >30 years, with reporting to the Integrated Screening Outcomes Surveillance Service (ISOSS), part of the NHS Infectious Diseases in Pregnancy Screening Programme. We analysed data on pregnancies in WVHIV diagnosed at <14years, reported by 31/12/2021.

Results: 202 pregnancies to 131 WVHIV (37% UK-born, 54% African-born) were reported since 2006 (none <2006): 81 had one pregnancy, 34 had two, 16 had ≥three. The proportion of pregnancies in WVHIV increased from 0.3% (15/5011) in 2006-09 to 3.5% (83/2403) in 2018-21, p<0.001. Median age at diagnosis was 6years (IQR:2,11). Most (81/131) were diagnosed in the UK, and 112/131 reported to ISOSS in childhood.

Median age at expected date of delivery was 24 (IQR:20,27) for pregnancies to WVHIV and 33 years (IQR:29,37) for women with heterosexually-acquired HIV (WHHIV), respectively. WVHIV conceived on ART in 81% of pregnancies, reaching 88% 2015-21 (vs 77% for WHHIV). WVHIV had significantly lower first pregnancy CD4 count than WHHIV (≥500 cells/µL in 35% vs 42%, p<0.001) and fewer had undetectable delivery viral load (dVL): overall 79% vs 84% for WHHIV (p=0.127) had VL<50copies/ml, increasing to 85% vs 93% in 2015-2021 (p<0.001). Among pregnancies conceived on ART, 82% in WVHIV had undetectable dVL vs 94% in WHHIV (p<0.001).

Pregnancy outcomes for WVHIV were: 170 livebirths (84%), 10 miscarriages (5%), 18 terminations (9%) and 4 stillbirths (2%); 17% of livebirths were preterm and median birthweight was 3kg (IQR:2.5,2.8). Of infants with complete follow-up, one infant was diagnosed HIV-positive (1/150, 0.66%).

Conclusions: In this growing sub-population of WVHIV in the UK, HIV-related markers have improved over time, with one case of second-generation vertical transmission. Further research is needed to explore why WVHIV are more likely to have detectable delivery VL, as well as investigation of their sequential pregnancies and longer-term outcomes of their children.

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Association between Substance Use and PrEP Adherence Among AGYW Enrolled in an HIV Prevention Study (HPTN 082) in Southern Africa

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Background: Adolescent girls and young women (AGYW) in sub-Saharan Africa are at substantial risk of HIV acquisition and would benefit from oral pre-exposure prophylaxis (PrEP) for HIV prevention. Substance use (SU), including hazardous drinking (HD), may result in poor adherence, diminishing PrEP effectiveness. The effect of SU, on PrEP adherence in AGYW within the African context has not been extensively studied. We sought to determine the prevalence of SU and its association with PrEP adherence in AGYW enrolled in HPTN 082 study.

Method: HPTN 082 enrolled healthy, HIV-negative, sexually active young women (16-25 years) from Harare, Zimbabwe, Cape Town, and Johannesburg, South Africa between October 2016, and October 2018. Participants were offered oral PrEP and could choose to accept or decline its use. Data on HD was collected using the concise AUDIT-C questionnaire. HD was defined as having an AUDIT-C score ≥3. The frequency of use of different illicit substances was collected using the abridged ASSIST questionnaire, with responses scored between 0 (never used a substance) and 4 (daily use of substance). SU was categorized as either low (score= 0), moderate (score=1-10), or high (score>= 10). Tenofovir-diphosphate (TFV-DP) concentrations in dried blood spots at weeks 13, 26, and 52 were used to measure PrEP adherence, with poor adherence being TFV-DP concentration<700fmol/punch. Repeated measure multinomial regression modelling was used to determine associations between SU and HD vs PrEP adherence.

Results: Of the 451 participants enrolled, 427 (94.7%) accepted PrEP. Overall, the prevalence of HD and SU at baseline was 37% and 24% respectively. HD was highest in Cape Town (53%), while SU was highest in Johannesburg (31%). Injection drug use was similar across sites (1%). Cannabis (7%) and sedatives (6%) were the most used substances. HD and SU decreased with continued study participation. After adjusting for site, HD and moderate SU were associated with increasing odds of poor PrEP adherence (aOR=1.80, 95%CI=1.27-2.58) and (aOR=1.58, 95%CI=1.11-2.25).

Conclusion: SU and HD were high in this study and were associated with poor PrEP adherence. There is a need to integrate HD and SU screening in PrEP initiation and adherence programs for adolescents in Africa.

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Gains in PrEP Uptake Among At-Risk Adolescents and Youth Across Six African Countries, but is it Equitable?

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Background: Adolescents and young adults (AY) are at increased risk of HIV acquisition. Global efforts focus on increasing awareness and uptake of pre-exposure prophylaxis (PrEP) among this population, alongside other biomedical HIV prevention interventions. The Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) implements comprehensive prevention programming, including initiatives focused on AY and PrEP.

Methods: Routinely-reported aggregated PEPFAR-program data from October 2021–September 2023 from EGPAF-support facilities in six countries (Cote d'Ivoire, Democratic Republic of Congo, Eswatini, Lesotho, Malawi, Tanzania) were analyzed. We collected and analyzed data on eligible individuals newly enrolled on PrEP. Data was disaggregated by age, sex, and country.

Results: Across the six countries, 18,150 adolescents (15-19 years) and 29,835 young adults (20-24 years) were newly enrolled on PrEP between October 2021–September 2023. AY made up 47% (47,985/103,127) of all individuals newly enrolled over this period. Females accounted for 85% (n= 15,391) of all adolescents, 76% (n=22,818) of all young adults, and 60% (n=32,973) of total adults enrolling on PrEP. Young females consistently represented the majority of individuals initiating PrEP across countries with the exception of DRC and Tanzania, where the proportion of young men was either equal to or greater than females at 51% (n=1,379) and 62% (n=1,289), respectively. Malawi and Lesotho experienced sharper inclines compared to other countries concerning PrEP uptake among 15–24-year-olds. In Malawi, new enrollments increased from 29 AY between January–March 2021 to 3,097 AY between July–September 2023. In Lesotho, new enrollments increased from 332 to 1,819 AY over the same period. AY constituted an increasing proportion of all newly-initiated individuals on PrEP, increasing from 33% (803/2,450) between October-December 2021 to 53% (7,667/14,568) in July-September 2023 across countries.

Conclusions: The proportion of newly enrolled AY generally increased over the time period of interest. Females constitute a larger proportion of PrEP enrollees across age groups and most countries. Young women (20-24) represented the largest cohort of new PrEP enrollees among adolescents and youth, with boys and young men generally less represented among those initiating PrEP. Deliberate efforts to understand how to adequately engage adolescent boys and young men to improve their uptake of PrEP are needed.

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Reaching Early Adolescents With a Complex Intervention for HIV Prevention: Findings From a Cohort Study to Evaluate DREAMS in Two Informal Settlements in Nairobi, Kenya

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Background: The DREAMS Partnership promotes combination HIV prevention among adolescent girls and young women. We examined the extent to which DREAMS interventions reached early adolescent girls (EAG; aged 10–14 years) in two informal settlements in Nairobi, and the characteristics of those reached, after 3 years of implementation.

Methods: We utilized three data rounds from a randomly-sampled cohort of EAG established in 2017 in Korogocho and Viwandani informal settlements where DREAMS interventions were implemented. Interventions were classified as individual or contextual-level, with individual interventions further categorised as primary (prioritised for this age group), or secondary. We summarised self-reported invitation to participate in DREAMS, and uptake of eight interventions that were supported by DREAMS, during 2017–2019. Multivariable logistic regression analysis was used to identify individual and household characteristics associated with invitation to DREAMS and uptake of primary interventions.

Results: Data were available for 606, 516 (retention rate of 85%) and 494 (82%) EAG in 2017, 2018 and 2019, respectively. Proportions invited to DREAMS increased from 49% in 2017, to 77% by 2018, and to 88% by 2019. School-based HIV and violence prevention, and HIV testing and counselling were the most accessed interventions (both at 82%). Cumulative uptake of interventions was higher among those invited to participate in DREAMS compared to those never invited, particularly for new interventions such as social asset building and financial capability training. Contextual-level interventions were accessed infrequently. Most of those invited both in 2017 and 2018 accessed ≥3 interventions (96%), and 55% received all three primary interventions by 2019.

Conclusions: Uptake of DREAMS interventions among a representative sample of EAG was high and quickly increased over the implementation period. The majority accessed multiple interventions, indicating that it is feasible to integrate and deliver a package of interventions to EAG in a challenging informal context.

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HIV Prevalence and Undiagnosed HIV Among Adolescents 15-19 Years Across Two Population-Based HIV Impact Assessment (PHIA) Surveys in Eswatini, Lesotho, Malawi and Zimbabwe

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Background: HIV testing coverage for adolescents is low and without diagnosis, adolescents living with HIV (ALHIV) cannot start treatment. We used data from the first and second rounds of the Population-Based HIV Impact Assessment (PHIA) surveys in four countries in southern Africa to measure progress in diagnosis coverage among ALHIV.

Methods: PHIAs are nationally representative surveys measuring HIV outcomes. We used data from the two most recent PHIAs in Eswatini (2016-17&2021), Lesotho (2016-17&2020), Malawi (2015-16&2020-21), and Zimbabwe (2015-16&2020). Adolescents 15-19 years in participating households received rapid HIV tests, self-reported enrollment in HIV care and provided blood samples. ALHIV were considered diagnosed if they reported HIV-positive status or had detectable antiretroviral medications in blood (regardless of reported status); all others were considered undiagnosed. Using survey weights, we estimated HIV prevalence, generated population estimates and proportions of undiagnosed ALHIV in round 1 and 2. Prevalence and proportions of undiagnosed ALHIV were compared across rounds using Rao-Scott Chi-square tests adjusted for survey weights and complex sampling.

Results: In total, 402 and 318 ALHIV participated in PHIAs round 1 and 2, respectively. HIV prevalence estimates were not significantly different in round 1, 2: Eswatini 5.6% (95%Probability band(PB) 4.4-6.7), 4.3% (95%PB 3.3-5.2) (p=0.07); Lesotho 4.2% (95%PB 3.3-5.2), 3.2% (95%PB 2.4-4.1)(p=0.10); Malawi 1.5% (95%PB 1.0-2.0), 1.6% (95%PB 1.2-2.0) (p=0.66); Zimbabwe 3.6% (95%PB 2.9-4.3), 2.9% (95%PB 2.4-3.5) (p=0.14). The populations of undiagnosed ALHIV and proportions of all ALHIV who were undiagnosed (in parentheses) decreased from round 1, 2: Eswatini 1,900 (26%), 800 (15%) (p=0.05); Lesotho 2,200 (25%), 800 (12%) (p=0.04); Malawi 13,000 (49%), 5,300 (16%) (p=0.0001); Zimbabwe 20,000 (33%), 11,000 (22%) (p=0.06). In Eswatini, Lesotho and Malawi, significant declines in the proportion of undiagnosed ALHIV were observed only in those 15-17 years, not 18-19 (Zimbabwe had no significant declines).

Conclusions: While PHIA data show improved diagnosis coverage among all ALHIV and decreasing populations of undiagnosed ALHIV, there were roughly 18,000 ALHIV 15-19 years who were not diagnosed across the four countries in 2020-2021. These findings highlight the urgent need to expand testing efforts to ensure all ALHIV know their status and start treatment.

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Progress Towards 90-90-90 Targets for Adolescents Living With HIV 2015-2022 Based on Population-Based HIV Impact Assessment (PHIA) Surveys in Four Countries

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Background: Globally there are >1 million adolescents living with HIV (ALHIV) 15-19 years. Data from two rounds of the Population-Based HIV Impact Assessment (PHIA) surveys conducted in four countries were used to compare UNAIDS 90-90-90 testing, treatment and viral load suppression (VLS) targets for ALHIV over time.

Methods: PHIAs are nationally representative surveys measuring HIV outcomes. We analyzed data from two rounds of PHIAs in Eswatini(2016-17/2022), Lesotho(2016-17/2020), Malawi(2015-16/2020-21), and Zimbabwe(2015-16/2020). Adolescents 15-19 years in participating households received rapid antibody HIV testing and provided blood samples for viral load (VL) and detection of antiretroviral therapy (ART) medications. ALHIV were considered on ART if they had detectable antiretrovirals in blood or reported being on ART. VL suppression (VLS) was defined as VL<1000 copies/mL. We estimated survey-weighted proportions of ALHIV with known status (among all ALHIV), on ART (among those with known status) and VLS (among those on ART). To examine gaps in ART coverage and VLS, we estimated proportions on ART and VLS using all ALHIV (including undiagnosed) as the denominator. Rao-Scott chi-square tests were used to compare rounds of PHIA surveys.

Results: Across the four countries, 402 ALHIV were in round 1 and 318 in round 2. Proportions of ALHIV with known status in round 1,2: Eswatini 73.6%, 85.1%(p=0.05), Lesotho 74.6%, 88.3%(p=0.04), Malawi 50.6%, 84.1%(p=0.0001), Zimbabwe 66.9%, 78.0%(p=0.07). Proportions on ART in round 1, 2: Eswatini 89.1%, 97.5%(p=0.05), Lesotho 93.3%, 98.5%(p=0.11), Malawi 89.6%, 95.1%(p=0.45), Zimbabwe 89.9%, 96.6%(p=0.10). Proportions with VLS in round 1,2: Eswatini 72.5%, 88.2%(p=0.02), Lesotho 70.1%, 75.7%(p=0.51), Malawi 72.3%, 90.8%(p=0.08), Zimbabwe 84.2%, 82.8%(p=0.81). Using all ALHIV as the denominator, ART coverage in round 1,2: Eswatini 65.1%, 82.9%(p=0.003), Lesotho 69.6%, 86.9%(p=0.01), Malawi 45.3%, 80.1%(p=0.0002), Zimbabwe 60.2%, 75.4%(p=0.02). VLS among all ALHIV in round 1,2: Eswatini 49.8%, 77.0%(p<0.0001), Lesotho 49.4%, 65.8%(p=0.06), Malawi 39.3% to 76.6%(p<0.0001), Zimbabwe 50.7%, 63.4%(p=0.05).

Conclusions: Increases in knowledge of HIV status among ALHIV in Lesotho and Malawi led to improvements in ART coverage among diagnosed ALHIV and VLS in those on treatment. While all countries improved ART coverage for ALHIV, none achieved 90% known status, resulting in continuing gaps in ART coverage and VLS for all ALHIV.

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Identifying and Characterizing Relationship Typologies by Multilevel Predictors Among Adolescent Mothers in Sub-Saharan Africa

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In sub-Saharan Africa (SSA), there is heterogeneity within adolescent mothers' (AMs') sexual relationships. However, existing studies focus on a single relationship characteristic even though these characteristics do not operate in isolation; moreover, no studies have examined multilevel predictors of AMs' relationship typologies. Identifying and characterizing typologies by multilevel factors can inform targeted interventions to lower HIV risk. To address these gaps, this study aims to identify relationship typologies and characterize typologies by multilevel factors among AMs.

Data are from the Population-based HIV impact Assessment (PHIA) Project from 9 SSA countries (2015-2019). Using a sample of 2,761 AMs (15-19 years old) across 1,816 PHIA clusters, we conducted multilevel latent class analysis to identify typologies at the AM and PHIA cluster-levels using 5 indicators: uninformed of partner's HIV status, age-disparate relationship (partner <5 versus ≥5 years older), married/cohabiting, participated in transactional sex, and worked in last year. We conducted multinomial logistic regression to characterize typologies by individual (age, school enrollment, AM's household wealth) and community-level (urbanization and percentage of low-wealth households in PHIA cluster) predictors.

There were 3 relationship types. Typology 1 (61%): Age-disparate marriage with minimal transactional sex; Typology 2 (30%): Uninformed of partner's HIV status and unmarried peer partnership; Typology 3 (9%): Working and in an age-disparate marriage. Compared to Typology 2, Typologies 1 and 3 were characterized by AMs who were older and had low school enrollment; Typology 1 AMs were also more likely to be in low-wealth households and live in rural communities than Typology 2. We identified 2 classes at the PHIA cluster-level. PHIA Class 1 (51%): high prevalence of Typology 1 AMs; PHIA Class 2 (49%): high prevalence of Typology 2 AMs. Rural and low-wealth communities had higher odds of being in PHIA Class 1.

Results suggest that AMs' relationships fall into 3 distinct typologies with age, schooling, household wealth, and urbanization predicting AMs' typology. Further, 2 PHIA cluster-level classes were identified with urbanization and percentage of low-wealth households predicting these classes. Further research is needed to understand how interventions can be tailored to specific relationship typologies in this vulnerable population.

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Transitioning Adolescents Living With HIV to Tenofovir/ Lamivudine+Dolutegravir Despite a Detectable Baseline Viral Load and Previous Exposure to Tenofovir/ Lamivudine+Efavirenz Ensures Higher Virological Response: The CIPHER-ADOLA Study in Cameroon

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Background: WHO recommends transitioning to tenofovir/lamivudine/dolutegravir (TLD)-regimen to improve virological success (VS), considering vulnerable populations like adolescents living with HIV/AIDS (ADLHIV). Due to scarcity of evidence in this target population, we sought to ascertain VS and virological rebound (VR) among Cameroonian ADLHIV after switching to TLD in real-life.

Methods: Multicentre cohort-study was conducted among ADLHIV (aged 10-19) switching/starting TLD monitored with ≥2 HIV-RNA load (VL) measurements after switch. Survival analyses were performed to evaluate VS (VL<200 copies/mL in the viremic-group) and VR (VL≥1000 copies/mL among non-viraemic-group) according to baseline parameters.

Results: Overall, 351 ADLHIV were enrolled (52.1% female, median [IQR] age 14 [12-15] and weight 40 [34-52] Kg). At baseline, 62.1% (n=218) were non-viremic and 37.9% (n=133) viremic; 60.5% switched from a TDF/3TC-based regimen. Overall, VS at 12- and 24-months was 65.0% and 94.3%, achieved in a median-time of 6.8[4.8-8.6] months. At 24-months, 100% of males achieved VS versus 90.4% in females, p=0.065; 100% ADLHIV starting TLD as their first-line treatment achieved VS, compared to those switching with a detectable VL (VL=51-999 copies/mL: 96.1%; VL≥1000 copies/mL: 91.1%, p=0.620). No difference in VS was found between switching from TDF/3TC-backbone (89.9%) versus ABC/3TC (100%), p=0.353. Of the 7 cases of non-VS, 57.1% switched from TDF/3TC-backbone and 57.1% had a VL≥1000 copies/mL. VR at 12- and 24-months was 2.8% and 10.8%, respectively. At 24-months, ADLHIV switching from ABC/3TC showed a lower probability of VR (16.7%) versus TDF/3TC (23.9%) and AZT/3TC (70.2%), p=0.008. Lower VR in ADLHIV switching from EFV-based (6.6%) versus DTG (31.4%) and LPV/ATZ/r (40.3%), p=0.008 was observed. Of the 25 ADLHIV experiencing VR, most received TDF/3TC (52.0%) versus ABC/3TC (32.0%) and AZT/3TC (16.0%), p=0.035. At multivariate analysis, switching from DTG-based regimen had 8-times more risk of VR (aHR[95% CI]: 8.099[1.404-46.730], p=0.019) compared to switching from EFV-based regimen.

Conclusion: In Cameroon, switching ADLHIV to TLD favours a sustained viral control after switch. However, VR occurs in some cases, especially when switching from a DTG-based regimens. Thus, scaling-up the transition of ADLHIV to TLD, regardless of previous exposure to TDF/3TC/EFV and baseline VL, would contribute to markedly decreasing, down toward eliminating, paediatric AIDS.

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Depression, Anxiety, Stress, Self-Esteem, and HIV-related Stigma in Adolescents and Young Adults Living with Perinatal HIV in Northern Thailand

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Background: Mental health problems are among the determinants of health in adolescents with perinatal HIV (APHIV) in Thailand. It is challenging for health care providers to identify adolescents suffering from these symptoms. In this study, we explore the prevalence of depression, anxiety, stress, self-esteem, and HIV-related Stigma in APHIV on antiretroviral therapy (ART) who lived in Northern Thailand.

Methods: This cross-sectional study was conducted at the Research Institute of Health Sciences, Chiang Mai University from July 2023, to January 2024. Inclusion criteria were 1) age between 15-24 years, 2) documented perinatal HIV infection, 3) receiving ART and willing to join the study. Participants were recruited from HIV clinics in Chiang Mai city and neighboring areas. The Depression Anxiety Stress Scale (DASS-21), Rosenberg Self-Esteem Scale (RSES), and Thai Internalized HIV-related Stigma Scale (Thai-IHSS) questionnaires were used to assess depression, anxiety, and stress, self-esteem, and HIV-related Stigma, respectively.

Results: Of the 47 APHIV enrolled, 16 (34%) were male, 8 (17%) were university-graduated, 15 (32%) was studying, and 23 (49%) were working. Their mean age was 21.42 (SD=2.05). Virologic suppression (HIV RNA level < 50 copies/mL) was documented in 24 participants (51%). We found that 21.28%, 31.91% and 8.51% of participants had mild to severe depressive symptoms, anxiety, and stress, respectively. Low self-esteem was evidenced in 31 participants (65.96%), while a high level of HIV-related Stigma was seen in 55.32% of APHIV. The group of APHIV with HIV RNA level > 50 copies/mL had a significantly higher HIV-related stigma score than those with virologic suppression (6.63 vs. 33.35, p<0.001), while no difference in the demographic characteristics, depression, anxiety, stress, and self-esteem scores were observed.

Conclusions: We demonstrated low self-esteem in thirty-one APHIV in this study, with common mental health problems including depression, anxiety, and stress in some participants. The high level of HIV-related stigma, especially in those without virologic suppression indicated the need to address the problems, identify associated factors so that appropriate intervention or support can be provided in a timely manner. Considering those determinants of health would ensure better quality of life for APHIV while receiving ART and other HIV care.

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Optimization of Treatment Outcomes among Adolescents Living with HIV in Parts of Lagos State Nigeria: Case Study of USAID Supported ICHSSA 2 Project

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Background: In Nigeria, the total number of AIDS-related deaths among children and adolescents was 16,200 in 2020. The Integrated Child Health and Social Services Award 2 (ICHSSA 2) project supports Operation Triple Zero (OTZ) clubs in 13 health facilities in Lagos State with support from PEPFAR through United States Agency for International Development (USAID). The initiative aimed at ensuring zero missed appointments, zero missed drug and zero viral load among adolescents living with HIV (ALHIV). Through OTZ, the adolescents are empowered to take charge of their health, receive support from peers and case managers, to optimize treatment outcomes and prevent new infections. The study examined the outcome of participation in OTZ across selected facilities in Lagos State, Nigeria.

Method: We conducted a retrospective cohort study from October 2021 to September 2023 using data from the OTZ club register and electronic medical records from the health facilities. The study analyzed data from 237 ALHIV between the ages of 11 and 20 years enrolled into OTZ clubs between 12 to 24 months. The viral load of the participants was recorded at enrolment into OTZ and after 12 and 24 months. Chi-square statistics was used to compare proportional difference in viral load change using STATA version 14 at $p<0.05$.

Results: The mean age of participants was 16 ±2.5 years comprising 55% females and 45% males. The baseline data showed that 80.2% (Female-81.5%; Male- 78.5%) of participants had suppressed viral load. The viral load suppression performance increased to 95.4% (Female-95.4%; Male- 95.3%). Overall, there was 15.2 % increase in the viral load suppression with 16.8% and 13.9% among male and female participants respectively. Further analysis showed an increase in proportion of those with undetectable viral load (<20 copies/ml) from 40% at baseline to 70% at the end of this study.

Conclusion: The study revealed that OTZ has proven effective in improving retention and viral load suppression among ALHIV. Government and Implementing Partners might consider prioritizing and sustaining the implementation of OTZ clubs. Scaling up OTZ could contribute immensely towards overall improvement in viral suppression among adolescents.

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Psychotic Disorders in Young Adults With Perinatally Acquired HIV: Clinical And Psychosocial Characteristics of a London Cohort

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Background: Emerging evidence suggests increased lifetime prevalence of psychosis in young people living with perinatally acquired HIV (YPaHIV) compared to individuals aged 16-34 years in the UK general population (0.5-1.0%) putatively due to intersecting risk factors: exposure to a neurotropic virus, neuroinflammation during brain development, and greater experience of adverse life events including parental death. We aimed to describe the clinical and psychosocial characteristics, and HIV outcomes of YPaHIV who developed psychosis in a London cohort.

Methods: Retrospective case note review of YPaHIV aged ≥18years registered at a dedicated youth service in London (n=184) from first attendance to 09/06/2022.

Results: 19/184 (10.6%) YPaHIV median age 27 (IQR 23-29) years, 52.6% male, 78.9% of Black ethnicity, 42.1% born outside the UK had ever experienced psychosis, 11 (57.9%) recurrent episodes. 10/17 (58.8%) viral load (VL) <200 copies/mL at first episode psychosis (FEP). 8/19 (42.1%) had organic psychosis, causes included recreational drugs (37.5%) and CNS infection (25%). 9/19 (47.7%) had a previous CDC-C diagnosis. 7/10 (70%) had a first-degree relative with a mental health diagnosis. 52.6% were bereaved of one or both parents, 47.3% had experienced violence, 36.8% had experienced housing insecurity or homelessness, 36.8% used recreational drugs. 47.7% were in the 3 most deprived English Index of Multiple Deprivation (IMD) deciles. 11 (57.9%) had at least one other non-psychosis mental health diagnosis: most commonly depression/low mood (81.8%), and anxiety (54.5%). 84.2% required antipsychotic medication, median length of community mental health service follow-up 19 (IQR 4-60) months. Median time from FEP to most recent follow up was 60 (IQR 24.5-75) months. At most recent follow up 12/19 (63.2%) achieved VL<200 copies/mL compared to 90.1% of the whole clinic cohort; 82.4% (16/19) were neither employed nor in full time education, compared to 32% in the whole clinic.

Conclusion: The prevalence of psychosis in YPaHIV was tenfold higher than the general age-matched UK population and associated with poorer long-term health and employment outcomes. Clinicians caring for YPaHIV should be aware of the increased vulnerability to developing psychosis and importance of integrating mental health and social care services into HIV care, especially when approaching transition .

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Incidence of Unintended Pregnancies and Pregnancy Experience Among Urban HIV-Infected Adolescents in West Africa

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Background: Sexual and reproductive health issues in adolescents living with HIV (ALHIV) are left behind in HIV care programs. Female ALHIV are at risk of unintended pregnancy. We estimated the 18-month pregnancy incidence rate and explored the experience of pregnancy among female ALHIV enrolled in the OPTIMISE-AO project nested in the prospective paediatric IeDEA cohort in West Africa.

Methods: We conducted a mixed-method study in the OPTIMISE-AO-ANRS-12390 project, which is a stepped-wedge trial aimed to improve HIV-disclosure and treatment adherence in ALHIV aged 10-17 years in Abidjan, Cote d'Ivoire and Ouagadougou, Burkina Faso. We estimated the 18-month incidence rate of pregnancy per 100 person-years (PY) among female ALHIV aged 14 to 17 years enrolled in Abidjan, Cote d'Ivoire and Ouagadougou, Burkina Faso. In Abidjan, semi-structured interviews were conducted with the eight adolescents who get pregnant since their inclusion to report their pregnancy experience.

Results: From February to December 2021, 111 ALHIV were included at a median age of 15 years (interquartile range: 14-16). At 18-month, 12 pregnancies were reported over 153 PY of follow-up, yielding an overall pregnancy incidence of 7.8/100 PY (95% confidence interval [95%CI]: 4.4-13.7). Stratified by age at enrolment, it was 2.19 (95%CI: 0.3-15.5), 7.6 (95%CI: 2.8-20.3), 13.1 (95%CI:5.4-31.4), 11.5 (95%CI: 2.8-45.8) per 100 PY in those aged 14, 15, 16, and 17, respectively. After birth, all newborns (12/12) had received a prevention of HIV mother-to-child transmission, and all were HIV-negative at the 6-week early infant HIV diagnosis. The eight ALHIV interviewed shared that the discovery of their pregnancy was a shock that led to negative consequences such as rejection from their family, and stigmatization. All pregnancies were reported as unintended, and most participants attempted unsuccessfully to abort. They also mentioned major socio-economic impacts of their pregnancy that forced them to find a job after delivery rather than going back to school.

Conclusion: In these West-African ALHIV settings, incidence of unwanted pregnancy was high. Interventions to meet the sexual and reproductive needs of ALHIV are urgently needed in West Africa. These could include improving the access to prevention messages on SRH and to effective contraceptive tools.

E-POSTER ABSTRACTS

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Impact of the COVID-19 Pandemic on Program Quality-Of-Care Indicators Among Children and Adolescents Living With HIV in the Littoral Region of Cameroon

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Background: COVID-19 has affected global health service delivery, particularly among children and adolescents living with HIV (CALHIV), increasing their risk of poor treatment outcomes. The proposed study aimed to assess the impact of the COVID-19 pandemic on WHO-recommended early warning indicators (EWI) of HIV drug resistance (HIVDR) among CALHIV.

Methods: A descriptive, longitudinal, and retrospective study was conducted among children (0-9 years) and adolescents (10 – 19 years) receiving treatment in one of the five health facilities selected in the Littoral region of Cameroon. Seven relevant EWI were monitored: total attrition from ART, viral load (VL) suppression, VL coverage, appropriate second VL, ARV medicine stock-out, antiretroviral drug refills at the pharmacy, and appropriate switch to second-line ART. EWI over four years (January 2018 – December 2021) were collected, then stratified as “poor”, “fair” or “desirable” performance following the WHO classification. The Fisher exact test was performed for trend analysis using R-4.1.1.

Results: A total of 820 participants were included, of which 212 were children and 608 were adolescents. Globally, the overall performance was “poor” in both age groups for almost all EWI recorded, except attrition to ART and viral load coverage, for which performances were either “fair” or “desirable”. Between 2018 and 2019, a slight increase in almost every EWI performance was noticed. However, compared to 2019, an overall decreasing performance was observed in the year 2020 ($p<0.001$), corresponding to the year of tight restriction measures due to the COVID-19 pandemic, followed by an increasing trend in 2021 ($p<0.01$) when COVID-19 mitigation strategies were smoothly removed. Despite improvements, the situation was still worse for children, as they had poorer attrition to ART (9.4% vs 4.4%, $p<0.05$), lower VL suppression (75.3% vs 82.1%, $p<0.05$), and inadequate access to VL testing with low confirmatory VL performed (15.1% vs 69.5%, $p<0.001$).

Conclusion: Our study showed that the HIV response was negatively affected by the COVID-19 pandemic in the early phase, but was flexible enough to adapt a year after. Corrective public health actions are therefore needed to prevent their long-term effects and improve treatment outcomes in this vulnerable population, especially among children.

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Standardizing Routine Mortality Review Among Children Living With HIV on Antiretroviral Therapy in Tanzania

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

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

Results: A total of 5,999 children were receiving ART services by September 2023. Between October 2022 and September 2023, 76 (1.2%) pediatric deaths
were recorded with 40 (53%) of the deaths in children under five years of age. Eight (11%) children died within the first two weeks after ART initiation,whereas 41 (54%) of children died after being on ART for more than six months. The majority of deaths (71%) occurred within the health facility. The main underlying causes of death recorded were malnutrition in 38 children (50%), tuberculosis in 20 children (26%), organ failure in 12 children(16%), Pneumonia in seven children (11%), unknown cause in seven children (11%), diarrhea in six children(8%), motor traffic accidents in three children (4%),meningitis in two children (3%), anemia in one child (1%) and Bacterial infection in one child (1%).

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

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High Rates of Virologic Resuppression Achievable Among Children With High Viral Load Utilizing Virtual Center of Excellence (vCOE) Model at Health Facilities in Malawi

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Background: Virologic suppression (VLS) rates for children and adolescents living with HIV (CALHIV) have improved with optimized ART regimens yet still lag behind adult VLS. Challenges include ART dosing and administration knowledge gaps, inconsistent caregiver engagement, lack of disclosure, stigma, and long treatment histories. We describe VLS among CALHIV with high viral load (HVL) who received enhanced adherence counseling (EAC) through a multidisciplinary decision-guided case conference model called virtual COE, "vCOE" designed to support care to CALHIV from 95 health facilities supported by Baylor College of Medicine-Children's Foundation Malawi Tingathe Program.

Materials and Methods: From October 2022, CALHIV 0-19 years old with detectable viral load received EAC utilizing a job aid that guides supportive conversation about common ART adherence barriers. Community health workers (CHWs) met families and CALHIV at home or by phone to identify common barriers and plan individualized solutions. Clinical providers virtually presented findings at vCOE to a multidisciplinary team of experienced pediatric ART providers (nurse, physician, pediatricians) to refine clinical skills and child's care plan. Consultant recommendations were reviewed with families and CHWS provided supportive follow-up with subsequent VL collected per national guidelines. The progress of each health facility's cohort through the HVL cascade was reviewed during vCOE and a dashboard was utilized to identify sites needing additional support. In accordance with national guidelines children with persistent HVL after EAC were referred to the national third-line committee for genotype assessment.

Results: Between October 2022 and April 2024, 26% (3673/14221) of CALHIV in care were identified and flagged for vCOE. EAC sessions were completed for 93% (3414/3673) and of those 95% (3241/3414) had vCOE multidisciplinary discussion. A follow-up VL after EAC was available for 70% (2582/3673) with 75% (1930/2582) suppressed, 17% (430/2582) HVL and 9% (222/2582) results pending. Third line applications were sent on 22% of those with follow-up HVL

Conclusion: VLS is achievable for CALHIV with HVL on optimized regimens with guided, intentional EAC addressing common ART adherence challenges with individualized adherence plans. Coordination of available resources to address complex barriers and facilitate accessible genotyping for children who do not suppress remains critical.

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Time to Pediatric-Dolutegravir (pDTG) Transition, Viral Load Testing and Suppression Among Children Living with HIV in Uganda

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Background: Globally, virologic suppression among children living with HIV (CLHIV) is lower compared to adults on treatment. In 2021 the introduction of pediatric dolutegravir (pDTG) in Uganda presented an opportunity to address challenges with virologic non-suppression among children. We determined the time from policy adoption to pDTG transition and viral load (VL) testing for CLHIV receiving treatment in 5 districts.

Methods: From August 2021 to December 2023, 300 eligible CLHIV already on ART and weighing <20kg across 33 facilities were transitioned to pDTG. We used means with standard deviations (SD) and, frequencies and proportions for demographic variables. We assessed median time with interquartile range (IQR) to first viral load (VL) test and the proportion of VL suppression (<1000 copies/ml) before and post-transition. We determined differences in time from policy adoption to pDTG uptake across districts, facility type, sex and age-group using Kaplan-Meier plots with Log-rank statistics.

Results: Of 300 eligible CLHIV the mean age was 4 (SD: 2) years; 45% were females and 214 (71.3%) were on Abacavir (ABC)/Lamivudine (3TC) + Lopinavir/r before transitioning all CLHIV to pDTG-based regimens. Of 287 with a documented VL, conducted a median of 3 (IQR: 1-4.5) months before transition, 221 (77.0%) were suppressed. The median time to the first VL test for the 268 CLHIV with a post-pDTG transition VL on record was 5 (IQR: 3-6) months and 219 (81.7%) were suppressed. Of the 49 CLHIV who were not suppressed, 33 (67.3%) had a repeat VL done and 13 (39.4%) re-suppressed. Median time to the repeat VL for the non-suppressed CLHIV was 6 months (IQR: 4.25-7). Median time to pDTG transition was 373 (IQR: 326-430) days and varied by district (p<0.001), and facility-type (Health Center II/III versus Health Center IV/Hospital (p<0.001)) but was similar by sex (p=0.09) and age group: 0-4 versus 5-9 years (p=0.06).

Conclusion: Variations in time from policy adoption to pDTG transition could be related to differences in district and facility-type efficiencies. The VL suppression rate increased following pDTG transition, however ensuring intensified and timely monitoring post-regimen switch and for those not suppressing is critical to optimizing treatment outcomes.

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Diving Into the Life of Cameroonian Adolescents Living With HIV/AIDS and Their Hope for Long-Acting Antiretroviral Treatment: The CIPHER-ADOLA Study

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Introduction: Long-acting injectable antiretroviral therapy (LAI-ART) might be a potential game-changer in the treatment of adolescents living with HIV (ALWH). We aimed at delineating the profile of Cameroonians ALWH regarding their interest in receiving LAI-ART.

Methods: A cross-sectional study was performed among ALWH 10-19 years receiving tenofovir/lamivudine/dolutegravir (TLD) in four paediatric HIV treatment centres in Cameroon. Data were collected using medical records and questionnaires. Uni-multivariate logistic regression was performed to identify factors associated with interest of ALWH to LAI-ART.

Results: We enrolled 236 ALWH (male: 51.7%; median [IQR] age: 15 [13-17] years) mainly treated in urban-settings (84.3%), with a median-BMI of 19.3 (17.3-21.8); overweight: 10.6%; and underweight: 7.2%. Majority lived with their biological parents [60.6%] and HIV status was partially/fully disclosed in 76.7%; stigmatised and non-injectable drug-users represented 3.0% and 5.9%, respectively. About 77.5% were in a multi-month ARV-dispensing differentiated service delivery model (M-DSD) and only 34.3% self-reported no missed ARV-dose since 30-days. About 30.9% were knowledgeable on LAI-ART; and 73.1%, 15.8% and 11.1% had respectively no-, moderate- and high-fear of injection/needle. About 71.6% and 72.5% respectively had a VL<50 copies/mL and CD4≥500 cells/mm3. Globally, 92.4% (n=218) were LAI-ART interested. Compared to non-LAI-ART interested ALWH, they had a higher median-age (15 [13-17]) vs. 13 [11-15], p=0.010); higher BMI (19.4 [17.4-21.9] vs. 17.9 [16.7-19.3], p=0.041), mainly living with their biological-parent (62.4% vs. 38.9%, p=0.096), mainly non-injection/needle fearing (74.5% vs. 55.6%, p=0.058), and knowledgeable on LAI-ART (32.6% vs. 11.1%, p=0.075). Sex, immuno-virological status, ART-adherence and living in urban-settings were not significantly associated with interest in LAI-ART. In multivariate model, only injection/needle fear independently predicted LAI-ART interest. Compared to ALWH with high fear, those without fear were about four-folds more interested (OR [95% CI]: 4.243 [1.089-16.527], p=0.037). Finally, concerning the preference between LAI-ART and M-DSD, 74.8%, 20.9% and 4.3% respectively preferred LAI-ART, M-DSD and no preference.

Conclusion: Cameroonian ALWH have many challenges to overcome during their therapeutic pathway. Despite their low knowledge of LAI-ART, they express a high interest in LAI-ART, particularly predicted by the absence of injections/needles fear. Providing data on their eligibility to this new strategy is essential to guide decision-making.

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Integrase Inhibitor Resistance Among Children and Adolescents Living with HIV in sub-Saharan Africa: A Descriptive Case Series

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Background: Introduction of dolutegravir (DTG)-based antiretroviral therapy (ART) for children and adolescents living with HIV (CALHIV) has dramatically improved regional rates of virologic suppression in sub-Saharan Africa. However, surveillance demonstrates emergence of HIV drug resistance (HIVDR) mutations to Integrase Inhibitors (INSTIs) in CALHIV at rates higher than in adults. We describe resistance patterns and associated clinical factors in CALHIV with documented INSTI resistance from Baylor International Pediatric AIDS Initiative (BIPAI) Centres of Excellence (COEs).

Methods: A retrospective review of electronic medical records from CALHIV 0-24 years old receiving care in COEs across 4 countries identified clients with genotypically confirmed INSTI resistance. Genotypes were performed on dried blood spot and plasma specimens by regional laboratories in line with national guidelines. Stanford HIVdb was used to calculate drug resistance scores and predicted HIVDR.

Results: Genotypes for 9 clients with intermediate or higher DTG resistance from BIPAI COEs in Botswana (3), Eswatini (2), Malawi (1) and Tanzania (3) were included (67% (6/9) male; 33% (3/9) female). At genotype, mean age was 13.7 yrs (range 3.6-22.1), average time on ART 9.3 yrs (range 2.3-17.6) with an average of 3.5 yrs on INSTI (1.5-6.8) for 8/9 clients with known INSTI start date. Clients averaged 6 detectable viral loads (VL) (>1000copies/ml) prior to identification of DTG HIVDR. Two (22%) had Raltegravir exposure and 8/9 were on DTG at genotyping. One received antituberculosis treatment while taking INSTIs. NRTI backbones at genotyping: 56% (5/9) TDF-3TC, 33% (3/9) AZT-3TC and 11% (1/9) ABC-3TC. NRTI mutations included M184V (9/9), M41L (4/9), D67N (2/9), and T215I (2/9); NNRTI G190A (3/9); PI I54L (2/9) and L74V (2/9); and INSTI E138K (5/9), T66A/I (4/9), G118R (4/9), G140A (2/9), Q148R (2/9), R263 (K), S147G (2/9) and N155H (2/9).

Conclusion: In this cohort of CALHIV, INSTI resistance was identified in nine patients across four countries. All individuals had resistance to at least 2 major ART drug classes and intermediate or higher level resistance to INSTIs; two were resistant to all available Protease Inhibitors. Routine viral load monitoring and genotyping for CALHIV with treatment failure must be prioritized in third line programming and HIVDR surveillance activities.

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Comparing Viral Load Suppression Following DTG Optimization Among Patients Who Had 1 Vs. 2-Drug Switches

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Background: Malawi was among the first countries to transition people living with HIV (PLHIV) to dolutegravir-based antiretroviral therapy (ART). Many children and adolescents living with HIV (CALHIV) in Malawi had prior exposure to abacavir, zidovudine, or both and underwent transition from NNRTI-based 1st line or PI-based 2nd line ART to dolutegravir involving a single-drug switch. We compared post-transition viral load suppression rates among CALHIV with one versus two drug switches to dolutegravir-based ART.

Methods: We conducted a retrospective review of routine data from clients receiving ART at a pediatric and adolescent ART clinic in Malawi who had been transitioned to dolutegravir. Data was included if there was at least one viral load before and after transition. Suppression was defined as less than 1000 copies/mL in accordance with national guidelines. Fisher's exact test was used to test for associations between the number of drugs switched and the viral suppression rate. A p-value of < 0.05 was considered significant.

Results: A total of 2,443 CALHIV were included. 1,260 clients had a one-drug switch, and 1,183 clients had a two-drug switch. Of the 1,260 clients with a one drug switch, 640 were on PI as 2nd-line at time of switch. We found no association between number of drugs switched and post-transition suppression rate when considering all clients who were transitioned. Significant or near significant differences can be seen when considering clients on 2nd-line ART. In this analysis, the clients who had a one-drug switch had higher viral suppression rates. This can be explained by an intentional two-drug switch for some 2nd-line clients due to concerns for NRTI resistance and virologic failure.

Conclusion: Overall, there were no significant differences in viral suppression rates in CALHIV who underwent one versus two-drug switches after optimization to DTG-based regimens. We did find significant differences in post-transition viral suppression rates among clients who were on 2nd line regimens. However, these differences showed improved suppression in clients after a one drug switch as compared to a 2-drug switch. Broader access to genotyping will be an important tool to determine future therapy for CALHIV with persistent viremia after DTG transition.

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Utilisation of the Perinatal Virtual Clinic for Management of Virological Failure and Emerging Drug Resistance

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Background: Multidisciplinary virtual clinics support decision making for complex case management for people with HIV. This study reviewed referrals for virological failure (VF), emergent drug resistance mutations (DRMs) and recommendations made by the monthly perinatal virtual clinic (PVC). The PVC receives UK and international referrals through the Penta network and is supported by both paediatric and adult healthcare providers.

Material and Methods: Retrospective review of PVC referrals (0–21 years) for VF (HIV viral load (VL) >200 c/ml), January 2017 to October 2023. Demographic, antiretroviral therapy (ART), immunological and virological data are described with subsequent PVC recommendations.

Results: Of 557 referrals, 150 (27%) were for VF, median age 12 (IQR 6-15) years. 120/150 (80%) from high-income countries (HIC), 87/150 (58%) UK and 30/150 (20%) from low/middle-income countries (LMIC); most frequently Malawi (5) and Uganda (4). Median VL was 9116 c/ml (IQR 1758-78850), CD4 count 506 cells/ul (IQR 261-840), with 53 (35%) on boosted protease inhibitor (PI), 48 (32%) integrase (INSTI), 20 (13%) non-nucleoside reverse transcriptase inhibitor (NNRTI), 13 (9%) INSTI+PI based regimens and 16 (11%) were off ART/other regimen. Number of prior ART regimens documented (n=142): 1 (53 [37%]), 2 (42 [30%]) and ≥3 (47 [33%]). 129/150 (86%) had resistance data available; 106 (82%) HIC, 23 (70%) LMIC. Cumulative resistance by ART classes: single (40 [31%]), dual (41 [31%]), triple (17 [13%]), quadruple (2 [2%]). Drug resistance by class (major mutations only): NRTI 79 (61%), NNRTI 73 (57%), INSTI 16 (12%) and PI 14 (11%). ART recommendations; no switch 40 (27%), within class switch 26 (17%), switch to PI 26 (17%), switch to INSTI 28 (19%), switch to INSTI+PI 20 (13%), simplification from PI+INSTI 5 (3%) and exploration of novel agents 4 (3%).

Conclusion: The management of VF in paediatric HIV is increasingly complex. PVC not only supports decision making, but also maintains professional expertise and medical education. In HIC case numbers and healthcare experience are falling. In LMIC although resistance testing is increasingly available, access to robust agents for second and subsequent line is limited. Emerging integrase resistance highlights the ongoing need for protease inhibitors, including paediatric formulations.

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Facilitators, Barriers and Acceptability of Long-Acting Cabotegravir/Rilpivirine (CAB/RPV) among Youth with HIV at a Metropolitan Clinic in the USA

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Background: Long-acting cabotegravir/rilpivirine (LA CAB/RPV) is an attractive option for HIV treatment. Beyond clinical trials, limited data are available on the implementation of LA CAB/RPV among youth with HIV (YHIV). We aimed to evaluate the facilitators, barriers, and acceptability of switching to LA CAB/RPV among YHIV in care at Children's National Hospital (CNH), Washington, DC.

Methods: From November 2023 to March 2024, we surveyed YHIV aged 12-24 years in on treatment who either were receiving LA CAB/RPV (RC) or not receiving LA CAB/RPV (NRC). Data included demographics (age, race/ethnicity, and gender), facilitators and perceived barriers for switching to LA CAB/RPV, and responses to 5-point scale questions about LA CAB/RPV adapted from the Theoretical Framework of Acceptability.

Results: We surveyed 13 YHIV RC (62% male; median age=20 years [IQR:18-22]; 92% Black; 54% receiving LA CAB/RPV for ≥6-≤12 months) and 40 YHIV NRC (53% male; median age=19.5 years [IQR:18-21.25]; 85% Black). Among RC participants, 69% wanted to eliminate pill burden, 54% switched because of provider's recommendation, 46% wanted to think less about their HIV diagnosis and 31% desired greater confidentiality and wanted to try something new. RC participants expressed that receiving regular LA CAB/RPV injections positively (38%), neutrally (54%), and somewhat negatively (8%) impacted their work/school schedule. Among NRC participants, 27 (68%) were offered to switch to LA CAB/RPV, and among these YHIV, 37% were happy with their pill regimen, 41% were still considering LA CAB/RPV, 33% were concerned with transportation and scheduling needs, 26% did not want more frequent visits and 22% did not like needles. Among 13 NRC participants not offered to switch to LA CAB/RPV, 69% were interested in this option, motivated by eliminating pill burden (67%), trying something new (56%), thinking less about their HIV diagnosis (44%) and having greater confidentiality (33%).

Discussion: Top facilitators for switching to LA CAB/RPV among YHIV included a desire to eliminate pill burden, think less about their HIV diagnosis, have greater confidentiality and try something new. Among RC participants, a provider's recommendation was a prominent facilitator. Less than 10% of youth on LA CAB/RPV viewed the impact of injection schedules negatively.

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Peer Support for Adolescents and Young Adults in Mozambique: Introduction and Implementation Process

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Introduction: In Mozambique, the different program indicators referring to adolescents and young people of both sexes between 10-24 years old, continue to show lower performance when compared to the remaining population groups. To respond to these challenges, other strategies for HIV prevention and treatment support were oriented and standardized at national level, namely the Adolescent Young Mentor (AYM) approaches. Peer support is part of the package of services that respond to the needs of adolescents and young people as an implementation strategy that can support adolescents to access and remain in treatment.

Methodology: The Health Facilities with support from partners were selected to implement the approach and the mentors selected must be aged between 18 and 24 and trained in the training package standardized by the Ministry of Health. In the case of AYM, its target group are adolescents and young people aged 10-24 who are negative on PrEP and positive for HIV.

Results: From January 2023 to January 2024, around 2,640 recipients of care were integrated into the approach and of these, 69% were positive and 31% were negative on PrEP. 10% were aged between 10-14 years old and 90% were aged between 15 and 24 years old. The reasons for inclusion in the approach were starting or restarting ART (30%), PrEP (29%), Loss to follow-up (23%), Risk of adherence (9%) and high viral load (8%). The RoC's length of stay in the approach was 6 months (43%), 6 to 11 months (38%) and more than 12 months (39%) and around 77% of RoC were discharged or referred to other alternative services.

Conclusion: The purpose of this approach is to improve the linkage of different recipients of care to HIV prevention and ART services, ensuring their retention and adherence to care and treatment. Peer support interventions are increasingly part of service packages that respond to adolescents and young people, but in Mozambique challenges prevail in implementing this approach from financial availability, compliance with ratios and follow-up to RoC in the health unit and in the community.

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Improving Continuity of Treatment among Children and Adolescent living with HIV using Continuous Quality Improvement approach across 16 High-volume sites in Kwara and Niger states, Northcentral Nigeria.

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Background: Despite increased availability of resources to ensure seamless access to HIV care and treatment services in Sub-Saharan Africa, Continuity of Treatment(CoT) continues to be major challenge particularly in resource-constrained settings with security challenges. This study was to ascertain whether facility-based Quality Improvement (QI) interventions could significantly increase CoT among Children and Adolescent Living with HIV(CALHIV).

Methods: A mixed method that collected data of CALHIV on ART and providers/case managers in 16 high-volume health facilities in Niger and Kwara states, Nigeria between January and December 2023 was employed. Survey was conducted using questionnaires administered to randomly selected healthcare providers, case managers(CMs) and caregivers/clients to explore causes of suboptimal CoT and actions to address them. Inductive analysis was conducted for the qualitative data to construct themes. CQI project (CLITTURP – Clustered community ARV refills, Line-listing, Intensified education, Task-shifting, Tracker, Using reminders, Retention calls and Reporting Protocol) was instituted to address suboptimal CoT. Retrospective program data was reviewed and descriptively analysed to evaluate CoT at specific time-periods: after months 1,3, 5, 7 and 10.

Results: 37 randomly selected providers/case managers and 459 caregiver/clients on ART participated in the survey. 36(97.3%) providers/case managers and 431(93.9%) caregivers/clients provided meaningful responses on causes of suboptimal CoT. Some of the identified causes include inadequate follow-up and related support by CMs, poor treatment literacy among caregivers, stigma, distance to facilities and insecurity. In February 2023, CoT was 94.4% with 3039 clients that had no clinical contact after 28days of their last appointment. In April, CoT increased to 97.2% with reduction in number of clients that are IIT from 3039 to 1601. In June 2023, CoT was 98.1% with 1215 IIT and in Dec 2023, CoT was 98.9% with 876 IIT.

Conclusions: CQI interventions are effective in improving uptake of healthcare services as demonstrated across these 16 health facilities. Fundamentally, this work provides good insight into understanding of effectiveness of CQI interventions and shows excellent potential for use in improving HIV/AIDS program quality. It clearly indicates that CQI interventions are effective in closing program gaps and deserve been used in other health program areas requiring quality.

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Improved Clinical Outcomes Among Children Living With HIV Initiated on Pediatric Dolutegravir in Nigeria

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Background: Before 2020, access to DTG was limited among children due to unavailability of a suitable pediatric formulation despite evidence of safety and efficacy among adults. A generic formulation of DTG10mg (pDTG) was approved in 2020, and Nigeria was an early adopter country. The country commenced a phased transition of eligible children from LPV/r-based to the pDTG-based regimen in 2021. This study reports the clinical outcomes of children initiated on pDTG in the first implementation phase and lessons to inform the national scale-up.

Methods: The study was conducted in 7 selected ART sites among children living with HIV (CLHIV) weighing > 3kg to <20kg initiated/transitioned to pDTG and their caregivers. Enrolment period was from September 2021 to January 2022, with a 12-month follow-up period for participants. The experience of CLHIV/caregiver was assessed using a structured questionnaire at months 1,6, and 12 post-initiation, and clinical outcomes (anthropometric measurements, side effects, viral load, random blood sugar (RBS), and lipid profile) were measured at initiation and months 6 and 12 post-initiation. The anthropometric data was analyzed using STATA Zanthro package, and other data were analyzed using SAS 9.4.

Results: A total of 180 CLHIV were enrolled in the study. The mean age was 4.7 years (SD 2.2), 53% were female, and 98% were treatment-experienced. Among study participants with baseline BMI for age results, 13% were wasted/severely wasted, and this percentage reduced to 5% at month 12. Also, 26% were either overweight or obese at baseline, and this increased to 33% at month 12. The most common side effects reported at month 12 were increased appetite (23%) and hyperactivity (10%). The percentage of participants who had viral load results <50 copies/ml increased from 66% at baseline to 90% at month 12, and the mean RBS result decreased from 4.9mmol/l to 4.6mmol/l. There were no documented cases of hyperglycemia.

Conclusion: We conclude that pDTG is safe and efficacious and has the potential to reduce morbidity and mortality among children living with HIV in Nigeria. The drug can be scaled up with minimal concerns around safety, however, ongoing pharmacovigilance is advised in line with national recommendations.

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The Positive Impact of Foods Support on Loss to Follow Up Among Children and Adolescents on HIV Antiretroviral Therapy in a District Hospital in East Cameroon

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Introduction: Pediatric HIV treatment coverage in Cameroon remains low at 35%. High loss to follow-up (LTFU) remains a major factor contributing to this dismal performance, often linked to the lack of effective interventions to improve retention in care. This study aimed to assess the impact of foods support (FS) on LTFU among children and adolescents in a rural district hospital in eastern Cameroon.

Methods: This was a retro-prospective study conducted at Abong Mbang District Hospital (ADH) in the East Region of Cameroon. Food kits were provided to children and adolescents initiated on antiretroviral therapy (ART) during the study, and they were followed prospectively. Additionally, data were extracted from medical records of children and adolescents enrolled in ART before the study at the hospital. The proportions of children and adolescents LTFU before (without FS) and after (with FS) the study were compared using Fisher's exact test, logistic regression, Kaplan-Meier survival curves, and the Cox proportional-hazards model at a 5% significance level.

Results: With FS, the proportion of children and adolescents LTFU was 11 times lower (2.4% vs. 26.7%, p = 0.014), and the mean retention time in care was 30% higher (17 months vs. 12 months, p < 0.001). Children and adolescents who did not receive FS were 10 times more likely to be LTFU [adjusted hazard ratio (aHR) = 10.3 (4.0–26.2), p < 0.001].

Conclusion: Foods support is an effective intervention in reducing LTFU among children and adolescents on ART. Adequate funding for foods support in pediatric ART programs is essential to enable large-scale implementation. This intervention has the potential to enhance pediatric ART coverage outcomes in resource-limited settings.

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"Make It Convenient for Us": Design and Delivery Preferences for a Targeted Long-Acting Drug-Combination Injectable Treatment for Children and Youth With HIV in Kenya

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Background: Long-acting all-in-one injectable combination-ART (LAI-cART) has potential to improve adherence and treatment outcomes for people with HIV. User acceptability and implementation feasibility are important to reap the full benefit. Given high rates of HIV among youth and challenges to oral-ART in children, LAI-cART products could provide significant benefit for these populations. Understanding client and provider preferences early in LAI development can guide design and delivery strategies thus accelerating pediatric access to LAI-cART.

Methods: The Targeted Long-acting Combination ART (TLC-ART) program has validated a combination triple drug LAI-cART. Grounded in the TLC-ART-101 and -301 products, we conducted semi-structured focus group discussions (FGDs) with adolescents with HIV (ages 14-19), parents of children (ages 0-10) with HIV, and healthcare workers (HCWs) from two clinics in Kenya. FGDs were audio recorded, translated and transcribed. Thematic analysis was used to identify key factors influencing LAI-cART preferences.

Results: Fifty-four individuals participated in 6 FGDs. All participants believed LAI-cART could improve adherence by reducing pill fatigue, lowering stigma, and addressing challenges with syrup formulations. Most participants preferred less frequent dosing, small volumes and a single injection, with the key feature being ease of access and convenience. Adolescents were particularly concerned about visible injection site reactions and ensuring equitable access to new products. All participants expressed concerns about having to return to oral regimens during stockouts, having to switch to a new regimen to receive LAI-cART, and lack of proper storage leading to reduced medication effectiveness. While the TLC-ART product is developed to be a subcutaneous injection, most participants preferred clinic-based delivery by HCWs given concerns about self-injection pain, storage at home and missing out on HCW support. Adolescents suggested overcoming self-injection fears by gradually increasing independence in administration by moving from HCW delivery to supervised delivery in clinic, followed by self-injection at home. For rollout, HCWs emphasized the importance of determining eligibility requirements, while all participants felt community education, universal access and free cost would be essential.

Conclusions: LAI-cART products for children and adolescents should address self-injection fears and accessibility barriers, and include consideration of health system processes and constraints.

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Rapid Scale up of Dolutegravir Coverage Among Children Living With HIV in Mali

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Background: Introduction of WHO recommended pediatric dolutegravir (pDTG) is a priority to ensure children living with HIV (CLHIV) receive the best available treatment. We describe data and interventions implemented under U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through U.S. Agency for International Development (USAID)-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project to scale up pDTG coverage among CLHIV at 23 health-facilities in three regions, Mali.

Material and Methods: In Mali, pDTG was introduced in December 2019; as of September 2022, its coverage among CLHIV was 25% (437/1,763) at EpiC-supported facilities. Therefore, from October 2022, clients' records were frequently reviewed to ensure initiation / transition of CLHIV to pDTG; monthly stock monitoring was conducted. Associations led by people living with HIV raised pDTG awareness; trained healthcare providers offered pDTG counseling to caregivers and demonstrated its administration. We calculated the percentage of CLHIV ages 0-14 years, on pDTG among those currently on treatment in EpiC facilities at the end of each quarter, from October-December 2022 to October-December 2023.

Results: The percentage of CLHIV on pDTG increased from 40% (692/1,739) between October-December 2022, to 54% (950/1,749) between January-March 2023, 88% (1,572/1,788) between April-June 2023, 97% (1,775/1,836) between July-September 2023 and 98% (1,834/1,872) between October-December 2023. Disaggregated by age group, in the same quarters, pDTG among < 1 years old increased from 44% (25/57), to 55% (22/40), 81% (39/48), 100% (46/46) and 100% (49/49). Among 1-4 years old, pDTG increased from 27% (191/701), to 43% (297/691), 85% (615/720), 93% (695/744) and 97% (741/765). Among 5-9 years old, pDTG increased from 38% (205/538), to 51% (295/578), 88% (500/568), 97% (570/595) and 98% (589/599). Among 10-14 years old, pDTG increased from 61% (271/443), to 76% (336/440), 92% (418/452), 99% (457/461) and 99% (455/459).

Conclusions: The strategies to support a rapid rollout of pDTG were successful in doubling the proportion of and reaching almost all CLHIV across all age groups, with the optimized regimen, within 12 months in EpiC Mali. We recommend scaling up this model within the country and adapting it to other countries in the region that might be lagging behind with pDTG coverage.

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Survival and Predictors of All-Cause Mortality among Children Living with HIV on Antiretroviral Therapy in Three States in Nigeria

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Background: Survival among children living with HIV (CLHIV) significantly improves after initiation of antiretroviral therapy (ART); however, with CLHIV on ART, especially those <5 years old, still experience disproportionately high mortality. Understanding the risk of mortality and risk factors associated with death in these CLHIV <5 on ART can inform programs and policies to improve their health and survival.

Objective: To determine survival and risk factors for mortality among CLHIV on ART in Delta, Ekiti, and Osun states in Nigeria.

Method: A retrospective cohort analysis of CLHIV (<18-year-old) being treated with antiretroviral medications enrolled from January 2018 and followed up till December 2022 was conducted. Data from Nigerian medical record systems and the National Data Repository containing verbal autopsy interviews was abstracted and analyzed using Microsoft Excel and Statistical Package for Social Sciences (SPSS) 23 from the CDC-funded facilities in Delta, Osun, and Ekiti states. A Kaplan–Meier curve and log-rank test were used to estimate the survival time and compare survival curves between variables. A Multivariable Cox proportional-hazards model was fitted to identify predictors of mortality, taking p-value<5%.

Result: From 2018 through 2022, 318 CLHIV were followed for a median time (IQR) of 4.76 (0.48) years. Of these clients, 162(50.9%) were females, and 122(39.60%) were aged 0-4 years at ART initiation. We observed 16.35 deaths per 1000 CLHIV per year (95% CI:9.20–25.90) occurring with death status ascertained in 26(8.20%) clients. The estimated survival probability after starting ART was 88% at five years of follow-up. Statistically significant risk factors included TB coinfection, non-suppressed viral load (VL; ≥ 1000 copies per milliliter of blood), and immunosuppression (CD4 count < 200 cells/mm3). In multivariable analysis, only having VL non-suppression was statistically significant (aHR 32.38 [95% CI: 3.89–268.3]).

Conclusion: Achieving viral suppression and reducing immunosuppression through optimal ART regimens and enhanced support and optimizing the TB/HIV clinical cascade may enhance survival among CLHIV on ART.

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ART Optimization in Ukraine during 2018 - 2023

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Ukraine is a country with a high prevalence of HIV/AIDS. In the middle of the last decade, it became clear that without expanding the program interventions, the HIV epidemic in Ukraine would continue to outpace appropriate preventive and curative measures, increasing long-term HIV treatment needs and future costs. The shift from an individualized treatment approach to a simplified and standardized public health approach was critical to scaling up ART, facilitating prescribing practices and drug supply chain management. Optimization of ART was the harmonization of strategic efforts aimed at accelerating access to simpler, safer and more effective regimens of HIV treatment under the conditions of economic feasibility and based on public health.

Methods: Descriptive statistics. Souse of data- National Information System of Socially Significant Diseases.
Time frame for analysis: 2018 – 2023 years.

Results:
General approaches to ART optimization in Ukraine:
• TDF and DTG recommended first-line regimen for most patients.
• Switching of patients with virological suppression from drugs with predicted toxicity (lipoatrophy, hyperlipidemia, hepatotoxicity, cardiovascular risks, etc.) to ARVs with a smaller toxicity (AZT to TDF/ ABC etc.).
• Non-recommended 3NRTIs.
• Preference to FDC.
• Unified approach for civil and penitentiary sectors.

Compared with 2018, the share of TDF-containing regimens increased from 56% to 91,6%, DTG-containing from 3% to 88,2%, AZT decreased from 31% to 1,5%, ABC decreased from 13% to 5%, LPV/rtv decreased from 32% to 1,2%, EFV decreased from 60% to 10%, NVP decreased from 4% to 0%, bicomponent regimens 3TC+(DTG or PI) increased to 0,29%, the FDC increased to 83%.

The average monthly cost of the 1st line regimen decreased by three times, from 14,7 $ in 2019y, 11,23$ in 2021y and 5,6$ in 2023y.

Conclusions: Optimizing ART has significantly decreased the use of ARVs with predicted toxicity that improved adherence and retention under medical care at the patient's level nad reduced the coat at the national level. The wide use of more powerful and cheaper drugs made it possible to continue the treatment for PLWHA and attract new patients to treatment without significantly increasing the costs of international donors and state budgets.

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Inpatient Nutritional Outcomes Among HIV-Exposed Uninfected and HIV-Unexposed Infants in Mozambique

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Background: HIV-exposed uninfected infants (HEUI) have been shown to have increased risk of infectious and neurodevelopmental morbidity compared to HIV-unexposed infants (HUI). Malnutrition is also a major contributor to morbidity and mortality in infants, with hospitalization being a known risk factor for nutritional deterioration. Little is known about the nutritional risks and inpatient nutritional outcomes of HEUI vs. HUI.

Methods: A quality improvement project on nutritional screening and treatment was implemented in 2020-2021 on pediatric wards at two Mozambican central hospitals, excluding neonatal, intensive care, and malnutrition wards. Both hospitals have point-of-care nucleic acid testing for early infant HIV diagnosis. Demographic and clinical data were collected from hospital charts after closure using a random sampling approach. A secondary analysis was performed for HEUI and HUI infants <18 months old. Descriptive statistics were used to report nutritional outcomes, with Pearson chi-squared and Fisher's exact tests used to compare proportions and Kruskal-Wallis rank test used to compare medians. Anthropometric z-scores were based on WHO standards.

Results: A total of 411 infants <18 months old were included, 49 (11.9%) HEUI, and 362 (88.1%) HUI. Median age was 6 months for HEUI vs. 7 months for HUI, p=0.27 and percent female sex was 42.9% for HEUI vs. 36.7% for HUI, p=0.41. All admission median anthropometric z-scores were lower in HEUI vs. HUI; weight-for-length (-0.50 vs. -0.37, p= 0.86), MUAC (-0.62 vs. -0.14, p=0.35), weight-for-age (-0.84 vs. -0.39, p=0.26), and height-for-age (-0.93 vs. -0.54, p=0.13). The prevalence of acute malnutrition at admission was higher in HEUI vs. HUI, with 23.7% vs. 11.7% classified as severe and 10.5% vs. 9.6% classified as moderate, p= 0.21. For admissions ≥3 days, HEUI had greater median percent weight loss during hospitalization (2.11% vs. 0.05%), p= 0.37.

Conclusions: This analysis included a relatively small sample size with limited power, but hospitalized HEUI had non-significant inferior results across all measured indicators including baseline anthropometric z-scores, prevalence of severe and moderate acute malnutrition, and weight loss during hospitalization. These findings align with the literature demonstrating increased health risks of HEUI, and further research on nutritional outcomes from larger inpatient cohorts is recommended.

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ART Timing and Social Factors Associated With Poorer Behavioral Outcomes Among Children Who Are HIV Exposed Uninfected

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Background: Studies suggest HIV exposed (HEU) children have poorer behavioral outcomes compared to unexposed (HUU) children. The mechanism may stem from HIV/ART-specific pathways or broader social factors related to HIV.

Methods: In a Kenyan cross-sectional survey, caregivers of HEU/HUU children between ages 3-10 were invited to complete the Strengths and Difficulties Questionnaire caregiver version (SDQ-P). We compared overall total difficulties (emotional, hyperactivity, peer and conduct domains), internalizing (emotional and peer) and externalizing (conduct and hyperactivity) scores and domain specific scores, between HEU and HUU using mixed effects linear regression models and determined cofactors for raised scores using generalized estimating equations. Analysis was adjusted for caregiver age, education, food security, orphaned or vulnerable children (OVC) status and breastfeeding duration.

Results: A total of 1781 and 199 HEU/HUU respectively were enrolled. HEU children were more likely to be OVC and had a shorter breastfeeding duration. Caregivers of HEU were older, had fewer education years, were more likely to be single and to have severe household food insecurity. Most HEU mothers (73%) received ART prior to the pregnancy of the enrolled child.

Comparing HEU to HUU, there were no differences in mean total difficulties, internalizing and externalizing scores. HEU had significantly lower scores than HUU in the peer problems domain (adjusted coefficient 0.30 [95% CI 0.12, 0.49, p=0.001). No differences were noted in other domains or the overall prevalence of raised scores.

Among HEU, post-conception ART initiation was associated with higher prevalence of raised total difficulties (aPR 2.07[1.16, 3.17]) and peer domain scores (aPR 2.40[1.67, 3.47]). HEU who were OVC had a higher prevalence of raised scores in the emotional and the conduct domains (aPR 1.51[1.03, 2.21] and 1.44[1.08, 1.92), respectively). Females were less likely to have high scores in the conduct and prosocial domain (aPR 0.62[0.48, 0.79] and 0.47[0.22, 0.98], respectively). HEU in single family household were more likely to have higher scores in the conduct domain (aPR 1.40[1.05, 1.85]).

Conclusion: HEU had similar SDQ scores to HUU. Among HEU, ART timing and socio-demographic factors were associated with domain specific problems. Addressing social issues within HEU families remains critical to improve outcomes.

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Pubertal Onset in Children with in Utero HIV Exposure in Botswana: Results of the Flourish Study

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Background: Few studies have evaluated the association between in utero HIV/antiretroviral (ARV) exposure and pubertal onset.

Methods: We assessed Tanner stage (via visualization and orchidometer) in children with in utero HIV/ARV exposure who were uninfected (CHEU) and children HIV-unexposed and uninfected (CHUU) ages 9-11 enrolled in the FLOURISH study in Botswana. Pubertal onset was defined as reaching Tanner stage >2 for each puberty indicator separately for males (genitalia, pubic hair) and females (breasts, pubic hair). Logistic regression models for each outcome were fit to assess the association of in utero HIV/ARV exposure with pubertal onset, adjusting for confounders. Subgroup analyses among CHEU were performed to assess the association of in utero ARV exposure [3-drug antiretroviral therapy (ART) vs ZDV monotherapy] with pubertal onset. Sensitivity analyses were conducted additionally adjusting for body mass index (BMI) Z score at Tanner assessment.

Results: We evaluated 337 children (238 CHEU) at a median age of 10 years (Interquartile Range:9.5-10.6). Mothers of CHEU vs CHUU were older (31.5 vs 26 years) and reported lower monthly income (60% vs. 43% ≤ 75 US dollars). CHEU had lower mean birth weight Z scores (-0.21 vs 0.24) and BMI Z scores at Tanner assessment (-0.33 vs 0.19) than CHUU. Among mothers of CHEU, 65% had HIV-1 RNA <400 copies/mL at enrollment, and 74% received 3-drug ART. While CHEU had higher odds of pubertal onset according to female pubic hair, no differences in pubertal onset were observed between CHEU and CHUU for all other puberty indicators (Table). Among CHEU, no differences in pubertal onset by in utero ARV were observed. Findings were similar in sensitivity analyses.

Conclusion: In this small cohort in Botswana, we did not observe differences in pubertal onset by in utero HIV/ARV exposure status, or among CHEU, by in utero ARV exposure. Longitudinal studies will be useful to confirm these findings.

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Prevalence and Correlates of a Positive Autism Spectrum Disorder Screen Among HIV Exposed Uninfected Children

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Background: Studies suggest that HIV exposed uninfected (HEU) children may have a higher prevalence of mental health and neurodevelopmental disorders compared to HIV unexposed children (HUU). Few studies have examined if there are differences in prevalence of autism spectrum disorder by HIV exposure status.

Methods: In a cross-sectional survey in Kenya, we adapted the INCLEN tools originally developed and validated in India for ASD screening and diagnosis. The tools are based on the Diagnostic and Statistical Manual of Mental Disorders (DSM) V criteria. We compared prevalence of ASD symptomatogy among HEU/HUU and present correlates of a positive ASD screen among HEU. Analysis was adjusted for maternal age, breastfeeding duration, and orphaned and vulnerable child (OVC) status.

Results: A total of 1396 HEU and 168 HUU were enrolled. There were no differences in median age (5.6 vs 5.4 years), child sex or type of primary caregiver. HEU children were more likely to be OVC (23% vs 9%) and to have a shorter breastfeeding duration (12 vs 24 months). HEU mothers were older, had fewer years of education and were more food insecure. A majority of HEU mothers (75%) had initiated ART before pregnancy with the enrolled child.

The prevalence of positive ASD screen using the DSM IV criteria was 2% among HEU and 1% among HUU (adjusted prevalence ratio [aPR] 1.5, 95% CI 0.4, 5.4, p=0.561). Overall, 8% of HEU and 3% of HUU met some but not all criteria (social interaction/communication/restricted interests) for a positive screen (aPR 3.3, 95% CI 1.3, 8.3, p=0.013).

Among HEU, birthweight of less than 2500 grams (aPR 5.9, 95% CI 1.3, 27.3) and being in a single parent family (aPR 3.7, 95% CI 1.2, 11.4) were associated with a positive screen while being ever breastfed was protective (aPR 0.07 95% CI (0.01, 0.54) (all p-value <0.05)

Conclusion: Prevalence of positive ASD screen was similar in HEU and HUU, while HEU had higher prevalence of meeting some ASD criteria. Cofactors of a positive ASD screen (low birthweight, single parent, and non-breastfeeding) among HEU may be useful to identify children at higher risk for ASD.

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Early Childhood Growth Outcomes in Periurban South Africa: Unravelling the Complex Interplay of Exposure to Maternal HIV as Well as Placental Insufficiency

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Background: The first 1000 days of life lay the foundations for subsequent growth. This ambidirectional study, including prenatal, perinatal, and postnatal factors, aimed to identify exposure variables affecting body size and composition and corresponding Z-score outcomes in 18 month-old infants born to low-risk mothers in periurban South Africa. An estimated 30.0% of pregnant women in South Africa are living with HIV, with majority receiving antiretroviral therapy during pregnancy, hence their infants are HIV-exposed-but-uninfected, possibly resulting in poorer outcomes due to intrauterine exposure to maternal HIV infection, antiretroviral therapy, or both.

Methods: This study included 249 mother-infant pairs with anthropometry outcomes, and body composition outcomes available in 205 infants. Prenatal factors (maternal age, HIV status, anthropometry, parity, food insecurity, and umbilical artery resistance index Z-score (UmA-RIAZ) as a measure of placental function, whereby higher UmA-RIAZ indicates poorer placental function); perinatal outcomes (infant sex, gestational age, birth anthropometry); and postnatal factors (infant feeding) were included as exposure variables to examine their effect on infant anthropometry and body composition outcomes at 18 months. Univariate analysis was used to investigate associations between exposure variables and infant outcomes, with variables with P<0.05 included in multivariate analyses.

Results: Twenty percent of study mothers were living with HIV, most were multiparous (73.9%), and 48.2% had low/very low household food security.

Multivariate analysis showed that maternal HIV infection and higher UmA-RIAZ predicted reduced 18-month infant length [1.1cm (95%CI: 2.1,0.0) and 0.8cm (95%CI: 1.3, 0.3), respectively] and infant length-for-age Z-score [0.38 (95%CI: 0.76,0.00) and 0.24 (95%CI: 0.42, 0.07), respectively]. Higher UmA-RIAZ also predicted lower birthweight [0.11 (95%CI:-0.17, 0.04)] and birthweight-for-age Z-score [0.23 (95%CI: 0.38, 0.08)]. Furthermore, household food insecurity predicted reduced infant fat-free mass-for-age Z-score at 18 months (0.26: 95%CI: 0.51, 0.02).

Conclusions: Maternal HIV infection is one important factor in the first 1000 days of an infant's life that lays the foundations for subsequent growth. Additionally, infant anthropometry and body composition outcomes are greatly affected by other pre- and postnatal nutrition-related factors, such as placental insufficiency in utero and household food insecurity, with long-term consequences such as stunting, which impact the individual, future generations and society.

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Gut Microbial Species Mediate HIV Exposure and Congenital Cytomegalovirus Infection Effects on Infant Auditory White Matter

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Background: Infants who are HIV-exposed but negative (iHE) are at greater risk of congenital cytomegalovirus (cCMV) infection. Furthermore, research has independently shown that both of these viral factors can affect the auditory system, the composition of the gut microbiome and development of the brain. The gut-brain axis describes the interdependent relationship between the gut microbiome and brain. It has been implicated in various diseases and may be linked to different parts of the body, including the auditory system. Using the gut-brain axis framework, we explored the role of gut microbes in mediating viral effects on the central auditory system.

Materials and Methods: Our analysis compared a control group of 18 infants who were HIV-unexposed (iHU) without cCMV to two groups of iHE, 43 without cCMV and 6 who were diagnosed with cCMV within the first 3 weeks of life. Structural and diffusion tensor brain images were acquired for infants at 1-5 weeks old. Full probabilistic tractography was carried out to obtain quantitative measures of integrity and maturation for white matter (WM) tracts between auditory structures as well as between auditory and non-auditory regions. 16S rRNA sequencing was done for stool and rectal swab samples collected at the time of scan, to obtain the bacterial profile of the gut. Mediation analysis was run to explore whether the gut microbiome as a whole, or individual bacterial taxa, might mediate viral effects on auditory tract development in infants.

Results: We found that irrespective of cCMV status, lower auditory tract integrity in iHE is mediated, in part, by a lower abundance of the Finegoldia magna species. In iHE, cCMV effects on the maturation of auditory tracts were partially mediated by an elevated abundance of Sphingomonas koreensis and Dialister pneumosintes.

Conclusions: Within the gut-brain axis framework, we identified distinct gut bacterial species which might play a causal role in HIV exposure and cCMV effects on auditory WM tract development. Based on existing literature, these species may influence the immune response. Therefore, microbial data may contribute to our understanding of viral effects on the auditory system and brain, providing a potential target for future therapeutic interventions.

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

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Background: The population of HIV-exposed uninfected (HEI) children expands rapidly. However, mother-to-child transmission of HIV remains a global health challenge despite being largely preventable. One main challenge being poor tracking and support for mothers to honour clinical appointments thus exposing the child to HIV vulnerabilities. Mobile technology has been increasingly adopted by humanitarian programs worldwide for improved monitoring and evaluation of programs. Phila Unotse project implemented by Young Heroes Organization supports the government of Eswatini to prevent new HIV infections and reducing the HIV vulnerability among young children where as part of the targeted population groups are HIV Exposed Infants tracked through Commcare mobile application.

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

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

Results: 399 HEIs were tracked over the 9 months period. In the first quarter of the year, HEI tracking was 100% with 99% HEIs testing HIV negative and 1 testing HIV positive and 0% missed appointment. The second quarter maintained 100% tracking, 99% HEI testing HIV negative and only 1 tested positive and was linked on treatment. In the last quarter, the project maintained 100% tracking rate with 0% missed appointments and all HEIs were on track with interval HIV testing.

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

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Benefits, Barriers, and Strategies to Improve Telehealth Use and Transition in Youth with HIV: The HIV Healthcare Provider Perspective

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Background: Youth with HIV (YWH) are less likely than adults to be retained in care and virologically suppressed. While studies show telehealth it is acceptable for YWH and may improve engagement in care (EIC), little is known about the provider experience.

Methods: A cross-sectional mixed-methods survey was sent to U.S. providers specifically caring for YWH (ages 16-29). Descriptive statistics and hypothesis testing results (Chi-Squared test, Fisher's Exact test, T-test) were reported. MAXQDA was used for qualitative analysis.

Results: U.S. Providers (N = 156) were 72% advanced practice providers or physicians and 28% nurses. Participants were 78% White, 12% Black, Indigenous, and/or people of color, 78% female, and 45% had >25 years' of HIV experience. Most providers (88%) felt telehealth will play a role in future HIV care, and 65% felt telehealth improved clinic efficiency. Providers ranked top benefits/barriers to telehealth - For patients: easier access to care, saves time, and provides flexibility. For providers: offers convenience, improves clinic efficiency, and lowers cancelation rates. Notably, providers felt telehealth improved patient autonomy and strengthened health literacy which may impact transition to adult care. There were no significant differences in how often providers discussed adherence (p=0.0614) and test results (p=0.05355) using telehealth, yet providers discussed sensitive topics on telehealth less often: mental health (p=0.0008), substance use (p=<0.0001), sexual health (STIs, birth control, or PrEP) (<0.0001), and work/life stress (p<0.0001). Qualitative themes were consistent with other data included benefits to YWH: saving time, flexible scheduling, and enhancing self-management skills, noted as particularly useful in this population. Top challenges were obtaining labs and physical exams. Strategies included partnering with outside labs, alternating telehealth visits, addressing systems issues, and targeted training on building rapport and maintaining trust with this unique population of YWH.

Conclusion: While telehealth care is emerging, barriers to telehealth use exist for YWH and their healthcare providers. Identifying strategies for training, especially regarding sensitive topics and building trust, improving access to labs, focusing on the integration of telehealth and in-person care, and enhancing technology may enhance future telehealth use which may impact autonomy and EIC in this population of adolescents and emerging adults.

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Sustained High Teen Club Attendance Rates Among Adolescents Living With HIV in Malawi

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Background: Retention and adherence challenges among adolescents living with HIV (ALHIV) are well described and comprehensive client-centred strategies to address them are critical. Baylor College of Medicine Children's Foundation-Malawi (BCM-CFM) developed the teen club model in 2006, a differentiated service delivery (DSD) model to provide age-appropriate care to ALHIV. In March 2023, tropical cyclone Freddy struck Malawi, destroying homes, crops and displacing many people across the country. We describe Teen club client attendance trends in the year following Cyclone Freddy at facilities supported by BCM-CFM Tingathe program in Malawi.

Materials and Methods: We reviewed routine program attendance data from 76 facilities from March 2023 - March 2024 to describe patterns of teen club attendance. In accordance with national ART guidelines, after confirmation of full disclosure of HIV status, adolescents over 10 years old are offered enrollment in Teen Club (TC). TC is a weekend, adolescent comprehensive clinic including ART, sexual and reproductive health services and psychosocial support alongside peer support and guardian engagement. Adolescent responsive services are provided with support from program supervision teams every 12 weeks at weekend Teen Clubs to minimise potential stigma and disruptions with school and other life routines.

Results: Over 30,000 Teen Club appointments with or without ART refill were scheduled at supported Teen Clubs from March 2023-March 2024 with 51% of appointments for females and 49% for males. Teen Club appointments were 55% 10-14 year olds; 37% 15-18 year olds and 8% 19-24 year olds. Eighty-seven percent (27328/31395) of scheduled appointments were attended. Of the 4206 adolescents who missed their appointments, 3756 had missed their ART refill date. By the next teen club session, 89% (3360/3756) of those who missed their ART refill had returned to care.

Conclusion: High attendance rates for adolescents living with HIV at scheduled teen club sessions are possible at scale in Malawi, and remained high even when adolescents were faced with major life disruptions including natural disasters. Further qualitative evaluation to better characterise adolescents' experience in the model as well as viral load suppression and outcomes are needed.

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Tailored Multilevel Strategies Needed to Improve Retention Among Youth Living With HIV in Western Kenya

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Background: Youth living with HIV (YLH; ages 10-24) are less likely to be retained in care compared to children and adults. Age-specific data on non-retention cofactors among YLH are scarce.

Methods: This analysis used data from the Data-Informed Stepped Care study (DiSC; NCT05007717), a cluster randomized clinical trial following participants for one year to assess retention. Non-retention was measured by missed visits (no attendance within 30 days of scheduled visit) and loss-to-follow-up (LTFU; did not return within 12-month period). Cofactors of missed visits and LTFU were assessed using generalized linear mixed effect Poisson regression. Significant cofactors ($\alpha \leq 0.20$) in univariate models were adjusted for age; cofactors remaining significant ($\alpha \leq 0.05$) were included in multivariate models. Sensitivity analyses included stratification by gender, age, and mode of HIV transmission.

Results: Among 1911 YLH enrolled, median age was 17 years (IQR 14-19), and 57.7% were female; females had higher median age than males (17 vs. 16, p<0.001). During 12-month follow-up, the proportion of missed visits was 8.4% (ages 10-14: 6.0%; 15-19: 7.9%; 20-24: 12.5%); cumulative incidence of LTFU was 7.0%. Older age was consistently associated with a higher risk of missed visits and LTFU. Overall, risk of missed visits was lower among YLH with higher resilience (multivariate-adjusted relative risk [aRR] =0.93; p=0.035) and those reporting the clinic met their needs (aRR=0.81; p=0.037). Among males, clinic meeting needs remained protective against missed visits (aRR=0.61; p<0.001) while higher stigma increased risk (aRR=1.31; p=0.019). Among females, only higher resilience was protective (aRR=0.91; p=0.042). LTFU was associated with having no living parents (aRR=1.85; p=0.005). Males had a higher risk of LTFU with horizontal HIV transmission (aRR=2.98; p=0.040) and lower risk with higher resilience (aRR=0.76; p=0.036). Females had lower risk of LTFU if they came to clinic alone (aRR=0.27; p=0.022). Stratified analyses by age and mode of transmission did not identify additional cofactors.

Conclusions: In this YLH cohort, non-retention increased with age, demonstrating persistent challenges for older adolescents. Resilience, satisfaction with clinical care, and stigma exerted an influential role in retention for some YLH. Cofactors differed between strata of age, gender, and mode of transmission, suggesting need for tailored approaches.

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Relationships Between Depression, Anxiety and Quality of Life Among Adolescents and Young Adults With HIV

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Introduction: As adolescents and young adults with HIV (AYWH) benefit from antiretroviral therapy and live longer, they face recurrent psychological stressors, including stigma, discrimination, and confronting their mortality. These stressors accumulate over decades and can negatively impact AYWH quality of life (QoL) and mental health, leading to disruptions in care continuity, losses to follow-up, viral non-suppression, and poor outcomes. Here, we characterise the symptoms of depression and anxiety among AYWH and their correlation with QoL.

Methods: We assessed symptoms of depression (CES-D; scale 0-60, score≥15 indicates clinically significant depressive symptoms), anxiety (using a locally validated tool by Mutumba et al.; scale 0-100, higher score = higher anxiety), QoL using the 26-item abbreviated World Health Organization QoL Questionnaire (WHOQOL-BREF; scale 0-100, higher score = higher QoL) and self-reported alcohol consumption using the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) among AYWH in Mbarara, Uganda. We examined correlations between symptoms of depression, anxiety, viral load and QoL using Pearson's pairwise correlation and Wilcoxon rank-sum tests.

Results: We enrolled 246 AYWH aged 13–24 (mean 18; SD=2) years, 54% were female, and 23% self-reported any alcohol use. Prevalence of clinically significant symptoms of depression was 64% (148/246), mean CES-D was 17 (SD=6), mean anxiety score was 34 (SD=12), and 81% (196/243) had undetectable HIV viral load (VL) <50 copies/ml. Higher depression scores were significantly correlated with higher anxiety scores (r = 0.76, P<0.001). Mean CES-D score was higher (19, SD=7) among participants with VL>50 than among participants with VL<50 (17, SD=6), P= 0.02. Mean QoL score was 64 (SD=11). Lower QoL scores were significantly negatively correlated with higher depression (r = -0.37, P<0.001) and anxiety scores (r = -0.39, P<0.001). Mean QoL scores did not differ by HIV VL.

Conclusion: AYWH had notably high symptoms of depression and anxiety. Although QoL was relatively high, lower QoL scores were associated with higher depression and anxiety scores. These findings underscore the need for interventions to address depression and anxiety and optimize HIV treatment outcomes among AYWH. Innovative approaches are needed given the high need and lack of mental health services in many settings where AYWH live.

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Understanding the Influence of Substance Use on Youth Living With HIV in the Adolescent and Young Adult Network of IeDEA (AYANI) Cohort

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Background: Psychosocial stressors experienced by youth living with HIV(YLHIV) may influence medication adherence. We aimed to understand the impact of substance use and mental health on adherence among YLHIV.

Methods: The Adolescent and Young Adult Network of IeDEA (AYANI) is a cohort study involving 6 regions of IeDEA enrolling YLHIV 15-24 years. We examined the influence of substance use and mental health on treatment adherence using data collected at enrollment. Substance use was measured through ASSIST (problematic use was ASSIST score >10 for alcohol and >3 for other substances.) and mental health with tools for depression (PHQ9), Stigma Assessment for Families Inventory (SAFI) and anxiety (GAD7).

Results: Of 641 YLHIV (52% female), males more often reported ever using substances (58% vs 40%, p<0.001). Ever using a substance increased with age (p<0.001): 24% (15-17 years), 51% (18-19 years), 57% (20-21 years), 61% (22-24 years).

Overall, 49% (n=310) reported having ever used a substance, including alcohol (n=294/633; 46%), tobacco (n=104/633; 16%) and cannabis (n=71/633; 11%). Problematic use of alcohol (n=57/294; 19%), tobacco (n=36/104; 35%) and cannabis (n=26/71; 37%) was observed.

Difficulties with taking medications were more common in those who had used a substance than those who had not: alcohol (50% vs 31%, p<0.01), tobacco (64% vs 35%, p <0.01), cannabis (58% vs 38%, p=0.01). Participants reporting difficulty taking their medications on time, compared to those who had no difficulties, had more likely ever used alcohol (26% vs 14%, p=0.01), tobacco (32% vs 17%, p=0.01), and cannabis (31% vs 18%, p=0.01).
YLHIV reporting ever used a substance were more likely to screen positive for severe anxiety (tobacco 14% vs 7%, p=0.02; alcohol 12% vs 6%, p=0.01; cannabis 17% vs 7%, p=0.01) and moderate/severe depression (tobacco 19% vs 7%, p=0.01, alcohol 13% vs 6%, p=0.01; cannabis 21% vs 7%, p<0.01). YLHIV with substance use more likely experienced stigma (alcohol 84% vs 73%, p=<0.01; cannabis 92% vs 77%, p=0.01).

Conclusion: Alcohol, tobacco and cannabis use were common in this cohort; associated with anxiety, depression, and self-reported adherence challenges. Mental health care and provision of supportive environments for YLHIV who use substances should be prioritized.

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Peer-Led Interventions: Exploring the Peer Group Leader Experience of Delivering a Group-Based Mental Health Intervention for Adolescents Living With HIV in Tanzania

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Background: Adolescents living with HIV (ALWH) face mental health challenges which negatively influence their adherence to antiretroviral medication and HIV outcomes. In Africa, where the majority of ALWH reside, there are few mental health professionals. Task-sharing to lay peer leaders may be an effective strategy for delivering mental health care. A peer-led, group-based mental health intervention called Sauti ya Vijana (SYV) was found to be a feasible and acceptable to ALWH in Tanzania. This study aims to understand and evaluate peer group leaders' experiences with SYV.

Methods: Twenty-five peer group leaders (PGLs) aged 23 to 29 years and living with HIV were trained to deliver SYV which includes 10 group-based sessions(2 with caregivers), and 2 individual sessions. SYV incorporates three evidence-based components: cognitive-behavioral therapy, interpersonal therapy, and motivational interviewing, to discuss coping, relationships, stigma, disclosure, and value-guided goal pursuit. In-depth interviews (IDIs) were conducted with PGLs after training and their experience delivering SYV in the pilot study leading into a larger, ongoing clinical trial. IDIs were audio-recorded, translated from Swahili to English, and analyzed using NVivo and 28 deductive codes. Excel was used to summarize and display data for the US-Tanzania team-based qualitative data interpretation and identification of themes. Results were presented back to participants for input.

Results: PGLs reported a range of motivators and perceived benefits, including a desire to help youth, increased confidence, a sense of shared benefit with the youth, and newfound hope for the future. Challenges included concerns about compensation, navigating exposure to difficult life events from the youth that trigger past trauma experience by PGL, maintaining boundaries with the youth, and a need for more in-person supervision. PGLs expressed concerns about job security, particularly around aging out of the peer role. Recommendations for intervention expansion and sustainability included defining key qualities of future PGLs, continuous training, opportunities for career growth, and integrating male and female youth during sessions.

Conclusions: Taking the factors mentioned by PGL into consideration can help enhance the SYV PGL experience and position SYV for sustainability as Tanzania navigates scaling mental health care for ALWH.

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Symptoms of Depression and Anxiety Among Adolescents and Young Adults Living With HIV: A Multiregional Analysis of the Adolescent and Young Adult Network of IeDEA (AYANI)

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Background: We aimed to determine the prevalence and correlates of depressive and anxiety symptoms among adolescents and young adults living with HIV (AYA-HIV) at HIV clinics in a global research network.

Methods: A cross-sectional study was conducted among AYA-HIV aged 15-24 years at 14 AYANI sites across six geographic regions (Asia-Pacific, Central Africa, the Caribbean and Central and South America, East Africa, Southern Africa, West Africa). Self-reported data on sociodemographic characteristics (age, sex, school attendance, family and social environments), HIV-related parameters (mode of HIV acquisition, age at HIV disclosure, lab testing), and previous mental health diagnoses were collected. Mental health assessments included Patient Health Questionnaire (PHQ-9) for depressive symptoms and Generalized Anxiety Disorder-7 (GAD-7) for anxiety symptoms. Those with suicidal ideation within the past 2 weeks (PHQ-9, question #9) completed a study-specific assessment to determine active suicide risk (low, moderate and severe). Social support, substance use, and HIV-related stigma were assessed with additional standard questionniares. Logistic regression was performed to identify correlates associated with moderate-to-severe depressive symptoms (PHQ-9 ≥10) and moderate-to-severe anxiety symptoms (GAD-7 ≥10).

Results: From September 2021 to June 2023, 601 AYA-HIV were enrolled; median age 19 years (IQR 18-22), 48% male, 85% with perinatally acquired HIV, 33% (n=187/566) with detectable viral load within 3 months of enrollment. Overall, 4.8% of AYA-HIV had a history of mental health diagnoses during adolescence, 10% ever experienced HIV-related stigma, and 6.8% reported poor social support. The prevalence of moderate-to-severe depressive and anxiety symptoms were 9.7% and 9.2%, respectively. Eighty-three AYA-HIV (14%) had recent suicidal ideation, of whom 28% reported any degree of active suicidality. Moderate-to-severe depressive symptoms were associated with detectable viral load (aOR 2.57, 95%CI: 1.36-4.87), history of mental health diagnoses (aOR 7.01, 95%CI: 2.79-17.61), and ever experiencing HIV-related stigma (aOR 2.61; 95%CI: 1.18-5.75). Moderate-to-severe anxiety symptoms were associated with history of mental health diagnoses (aOR 3.22, 95%CI: 1.18-8.82), poor social support (aOR 2.99, 95%CI: 1.07-8.33), and ever experiencing HIV-related stigma (aOR 6.80; 95%CI: 3.34-13.85).

Conclusions: Given the prevalence of AYA-HIV reporting depressive and anxiety symptoms, mental health screening should be integrated into primary HIV care in global settings.

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Impact of Healthcare-Provider-Assisted HIV Disclosure Toolkit on Treatment Outcomes for Adolescents Living with HIV in Malawi

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Background: As children living with HIV transition into adolescence, disclosing their HIV status is crucial in ensuring continuing care and treatment. In 2021, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) implemented a toolkit that guides healthcare providers to support caregivers with the HIV status disclosure process to children and adolescents in Malawi. We evaluated the impact of implementing the toolkit on the treatment outcomes of adolescents living with HIV (ALHIV) in the country.

Methods: We conducted a retrospective secondary analysis of routinely collected data from electronic medical record systems and disclosure registers pooled across 28 healthcare facilities in Zomba, Malawi, supported by EGPAF. We randomly selected children aged 10 to 19 years who received ART between January 2022 and June 2022. We summarized the distribution of demographic and clinical characteristics, current antiretroviral therapy (ART) regimens, ART duration, disclosure status (no disclosure, partial disclosure, and full disclosure), and viral suppression (VS) (defined as <1000 viral copies/mL) six months after disclosure, using descriptive statistics. We used logistic regression to compare the likelihood of achieving VS six months after disclosure by gender, age group, and disclosure status (partial or full disclosure).

Results: A total of 479 ALHIV were enrolled, and 63.1% (n=302) were <15 years old at the time of data abstraction. About 76.0% (n=364) had full disclosure, while 24.0% (n=115) had partial disclosure. The median age at full disclosure was 14 years. Approximately 33.4% (n=101) ALHIV aged <15 years and 7.9% (n=14) ALHIV aged 15 to 19 had partial disclosure. Nearly 94.1% (n=451) were retained in care six months post-disclosure; 62.0% (n=297) had their viral load results, and 91.9% of whom (n=273) achieved VS. There were no differences in the likelihood of VS six months post-disclosure by gender, age group, or disclosure status.

Conclusion: Healthcare provider-assisted disclosure rates were high in facilities where the EGPAF disclosure toolkit was implemented. Most ALHIV who received disclosure after implementing the toolkit were retained in care and achieved VS six months post-disclosure. Scaling up the use of the tool would help improve treatment outcomes among adolescents.

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Bridging the Gap: Integrating a Mental Health Referral System Within Adolescent HIV Clinics in Tanzania

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Background: Mental health screening in HIV clinics is rare, especially in resource-limited settings. This is in part due to the lack of referral systems. This study evaluates the feasibility of integrating a mental health referral pathway for young people living with HIV (YPLWH) who screen positive for symptoms across four unique clinical settings in Tanzania.

Methods: As part of Sauti ya Vijana (SYV), a peer-led mental health intervention for YPLWH, we developed an integrated referral pathway within adolescent HIV clinics. At each study visit, youth responded to interviewer-guided mental health screening tools using the REDCap Mobile app. Automatic referral alerts were sent to the study team if: a score of ≥10 on the Patient Health Questionnaire-9 or General Anxiety Disorder-7 is met, any instance of sexual abuse, self-harm, or suicidal ideation is reported, or by an interviewer specified concern. Site-specific referral flowcharts were developed based on site-specific manpower and facilities. Referrals were documented in the study logbook, entered into REDCap, and analysed for incidence, attendance, and outcome.

Results: Of the 351 enrolled youth, 52 (15%) were identified as having mental distress, generating 63 referral alerts. Seventy-three percent attended their referral appointment, of which 74% reported resolution of their distress. Referred YPLWH saw a trained counsellor (68%), psychologist (16%), psychiatrist (11%) and the clinic physician (5%). Challenges included undocumented outcomes (12%), non-attendance (12%) and refusal (2%).

Conclusions: Despite barriers such as stigma, logistics, and financial limitations, many YPLWH improved after a single referral visit for mental health distress. The study demonstrated the feasibility and benefits of integrating a mental health referral pathway within the existing adolescent HIV clinic structure.

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"You Are the Tutor, You Are the Counselor, You Are the School Nurse, You Are Everything": Secondary School Teacher Experience Managing HIV and Chronic Illness in Schools

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Background: Optimized treatment regimens have dramatically improved the survival of children and youth living with HIV (YLH) allowing them to pursue life and career goals. More YLH are now spending time in the schools, which remain highly stigmatizing but understudied environments. We explored teacher and school health staff experiences managing YLH in the school environment.

Methods: Four focus group discussions with 32 teachers or health staff from 32 high/secondary schools in Nairobi and Homa Bay counties in Nairobi, Kenya. Inclusion criteria included having health responsibilities in the school. Interview data were analyzed using directed content analysis.

Results: The median age of participants was 35 (IQR:31, 45) years, a majority were female (56%). A majority (97%) had both teaching and health roles. There was an equal distribution of participants representing day and boarding schools.
Participants reported observing mental health challenges among YLH that threatened their academic success. These included YLH expressing feelings of hopelessness that resulted in medication non-adherence and demotivation to excel in school. In some cases, YLH HIV status was only disclosed when YLH were referred for disciplinary action due to behavioral problems. Parent/caregiver psychological challenges and difficult home environments compounded YLH mental health issues and made it difficult for schools to work with them to support YLH. Participants reported they often stepped in to offer psychological support to YLH, but this created significant demands on their time and impacted their own mental health. Participants felt they were not adequately trained in HIV or in counseling skills to provide the services that YLH needed and advocated for school wide staff training on HIV and management of common mental health problems.
At school level, participants felt that schools overly prioritized academic success over health skills. In addition, schools did not provide private space for storing HIV medicine or counseling, and they lacked medical information confidentiality polices.

Conclusion: To support YLH to achieve their full potential, there is a need to support school staff to gain the skills needed to support YLH health. Future work on addressing mental health challenges in schools is warranted.

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Substance Use, Adolescent Pregnancy and Adverse Social Factors Among Young Adults Living With Perinatally-Acquired HIV in Argentina

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Background: Adults living with perinatally-acquired HIV (paHIV) face a high burden of HIV-related and non HIV-related complications. In Latin America, there is no available data regarding the social and behavioral aspects of this population and their potential impact on HIV-related outcomes. This study aims to describe the prevalence of substance use, adolescent pregnancy, psychotropic medication prescription, incarceration and housing instability in a cohort of adults living with paHIV in Buenos Aires, Argentina.

Methods: Retrospective cohort study. PLpaHIV aged >16 linked to care in an HIV clinic in Buenos Aires, Argentina between Oct-2008 and Sep-2023 were included. Data was collected from clinical records and surveillance systems. Advanced HIV disease was defined as CD4 cell count <200 cel/uL and/or a WHO clinical stage 3/4.

Results: A total of 169 PLpaHIV (59.8% cis women) were included. Median age at cohort entry was 19 years (Q1-Q3 18-21) and median individual follow-up was 5.7 years (Q1-Q3 3.2-9.4). Prevalence of advanced HIV disease was 64.4% (109) and only 25.4% (43) of the participants had undetectable viral load (UVL) in >90% of their determinations while 22.5% (38) of the participants never had an UVL. Prevalences of tobacco smoking and substance use were 19% (32) and 18% (30), respectively. The most frequently reported substances were alcohol (16), inhaled cocaine (15), cannabis (14) and cocaine base paste (6). There were 107 pregnancies in 54 women. Exact pregnancy dates could be ascertained in 95 cases, and 45% (43/95) were adolescent pregnancies. Prevalence of psychotropic medication prescription was 16%. At least one incarceration was experienced by 3% of the participants and 4% met unstable housing criteria.

Conclusions: In our cohort, adults living with paHIV have a high prevalence of substance use, adolescent pregnancy and adverse social factors. These results highlight the importance of having an interdisciplinary approach in the HIV services offered to this population. To our knowledge, this is the first non-biomedical description of adults living with paHIV in Latin America. Further research is needed to explore the potential association between our findings and HIV-related outcomes.

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Using the WHO Building Blocks to Describe and Appraise Health Systems in Relation to Paediatric-Adolescent HIV Service Delivery in Sub-Saharan Africa

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Background: Children and adolescents living with HIV in sub-Saharan Africa experience poorer health outcomes than adults across the HIV cascade of care. Frontline paediatric-adolescent HIV healthcare providers have unique insights, but are often not consulted. The World Health Organization health systems building blocks (WHO BB) framework has been instrumental in strengthening human health systems, and, catalysing achievement of global health targets such as the Sustainable Development Goals.

Methods: We engaged participatory priority-setting and group discussions across twenty-four sites in twelve high HIV-burden African countries of Eswatini, Kenya, Malawi, Mozambique, South Africa, Tanzania, Uganda, Zambia, Cameroon, Ethiopia, Nigeria and Zimbabwe. Data were collected in November 2022 at the Paediatric-Adolescent Treatment Africa Summit with 801 multi-occupation frontline paediatric-adolescent providers. Data were analysed inductively using thematic analysis, and themes were mapped onto the six BB domains of service delivery; health workforce; nformation systems; essential medicines; health system financing and leadership/governance.

Results: Consistently documented gaps between building block provisions and contextual health system realities included:
Service delivery (BB1): inadequate space for confidential service delivery, inadequate disclosure support;
Health workforce (BB2): Difficulties developing and maintaining paediatric-adolescent HIV skills, keeping up with changing guidelines; inadequate facility-level supports;
Health Information Systems (BB3): Inadequate contact information for case finding and follow-ups; with limited access to integrated electronic health managements systems
Access to essential medicines (BB4): Inadequate availability of formulations of anti-retroviral therapy due to supply chain and funding issues;
Health systems financing (BB5): inconsistent and/or inadequate remuneration;
Leadership and governance (BB6): discriminatory age of consent, termination of pregnancy and homophobic laws and/policies.

Findings suggest a need to expand building block 2 to include supportive environments for healthcare providers, inclusive of psychosocial support, and to add building blocks to recognize the importance of conducive caregiver/family and community systems, inclusive of caregiver and client supports, community engagement and education; and ensure rights-based services, addressing harmful cultural and religious beliefs. Conclusions:

WHO health system building blocks provide a framework to identify and address paediatric-adolescent HIV health system challenges. Additional building blocks to create supportive family/community systems, supportive environments for health workers, and address harmful cultural and religious beliefs merit further consideration.

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Why Are Pediatric-To-Adult HIV Care Transition Processes Not Streamlined? A Qualitative Study of the Experiences and Needs of Young People With Perinatal HIV in Thailand

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Background: High rates of loss-to-follow-up, treatment failure, and mortality have been reported after young people with perinatal HIV (YPHIV) transition out of pediatric HIV clinics. With sparse data in Asian settings, we conducted a qualitative study around the transition among YPHIV in Thailand.

Methods: We purposively recruited YPHIV in care at two pediatric HIV clinics and YPHIV who had transferred to adult care from those clinics. We conducted semi-structured interviews until data saturation, as guided by the Consolidated Framework for Implementation Research, which covers four domains: individual characteristics, process, inner settings, and outer settings. Data analysis was done using Dedoose (version 9.2.6) and thematic analysis to explore experiences and needs around transition.

Results: From December 2023 to February 2024, we enrolled 30 YPHIV; 17(57%) were female, median age was 23 (IQR 22-26) years, duration on antiretroviral therapy (ART) was 18 (IQR 15-21) years. We grouped participants' reported experiences into four themes: 1) Hesitation to navigate care in adult clinics. Lack of self-advocacy skills limited their ability to negotiate care needs or explain health conditions and medications. 2) Feeling unprepared. YPHIV were unaware of the transition until shortly before it occurred, reluctant to leave, and/or unsure of what to expect in the new clinic. 3) Perceived loss of support. In busier adult clinics, they felt insecure and discouraged from being in care. 4) Anticipated social problems. YPHIV were concerned about disruptions to their daily routines due to more frequent and longer visits to adult clinics. With regards to their transition care needs, they wanted to learn more about transition beforehand to help them mentally prepare, including guidance on accessing care at the new clinic and having a person accompany them to reduce transition-related anxiety. They proposed that care for adults with perinatal HIV remain in pediatric clinics up to age 30.

Conclusions: Despite efforts to prepare YPHIV for transition, some did not understand the process. More individualized transition planning with repeated communications, coordination, and follow-up strategies could help maximize retention. Our findings demonstrate the continued need for resources to support, educate, and better prepare YPHIV to live with HIV through adulthood.

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Barriers and Facilitators to Researcher-Adolescent Participant Relationship Building: Perspectives from Kenyan Children and Adolescents Living with HIV, their Caregivers and Subject Matter Experts

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Background: Health research with children and adolescents living with HIV (CALWH) is critical to improving clinical outcomes, particularly in high-burden countries. Unique vulnerabilities of this group, including their age, HIV status, and social contexts, raise bioethical considerations, including the ways in which CALWH build trusting relationships with research teams, especially in research conducted over long periods. We evaluated perspectives on barriers and facilitators to researcher–participant relationship building.

Methods: In-depth, semi-structured interviews were conducted with Kenyan CALWH [ages 10-24 years, enrolled at Academic Model Providing Access to Healthcare (AMPATH) in western Kenya], caregivers of CALWH, and subject matter experts (SMEs). Thematic analyses were conducted to identify preliminary codes and themes.

Results: Interviews were conducted with 99 participants (53% male): 40 CALWH [median age 17.5 years, (range 11-24), 50% female], 20 caregivers (70% female), and 39 SMEs (33% female; 46% community leaders, 26% healthcare providers, 15% clinical researchers, 8% social scientists, 3% international research experts, 2% laboratory experts). All groups indicated trust could be broken and built through research processes. CALWH and SMEs viewed participant identification and study recruitment through medical records as a violation of trust, indicating that their HIV status and other health information should remain confidential between themselves and their clinical team. All three groups suggested ethical recruitment may instead occur through existing clinician-adolescent relationships, emphasizing the importance of privacy and confidentially. Losses of confidentiality, and mistakes in sample collection that require participants to attend additional, unnecessary research visits or provide additional biological samples, were identified by all groups as additional barriers to relationship building. CALWH and caregivers discussed researcher characteristics that support relationship building, with particular focus on the importance of a positive demeanor, without stigmatizing behavior. CALWH and SMEs discussed operational needs that foster relationship building, like ensuring proper communication of study procedures, results reliably reported to participants, and future benefits being received.

Conclusions: Researcher-participant relationships play an important role in conducting research with CALWH and should be considered a critical component in the development and success of research infrastructure. Perspectives from Kenyan CALWH, their Caregivers and SMEs highlighted opportunities to improve such relationships.

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Prevalence of Depression Among Adolescents Living With HIV: A Hospital Based Cross-Sectional Study in Uganda

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Background: Uganda has 1.4 million people living with HIV, 11% of whom are young people. Depression among adolescents living with HIV is a rising public health concern affecting their well-being. The study aimed to identify the prevalence of depression and its associated factors among adolescents 10–19 years old living with HIV.

Methodology: A cross sectional study was conducted between July and December 2022 among adolescents living with HIV and accessing care at Mildmay Uganda Hospital, a tertiary center of excellence in HIV care. Random sampling was used to select study participants. A pretested standardized questionnaire was used to collect data on socio-demographic characteristics of study participants. Assessment of depression was done using the Patient Health Questionnaire-9 (PHQ-9) which is a 9-question tool that assesses depression with scores ranging from 0 to 27. Depression was defined as a PHQ-9 score greater than 4 and reported as a proportion. Multivariate logistic regression analysis was used to establish predictors of depression. Statistical significance was established at p≤0.05.

Results: Of the 414 adolescents enrolled, 223 (54%) were female, all were on antiretroviral therapy, and the mean age was 16.2 years (SD 2.2). Further, 50 (12.1%) were double orphans; and 24 (5.8%) reported alcohol use. Viral suppression rate was at 93%. Of the 56 (13.5%) who reported being sexually active, 37 (66.1%) were female, and 24 (43%) reported risky sexual behavior. The prevalence of depression was 47% (95% CI: 42% - 52%). Depression was associated with the female gender (aOR = 1.77, 95% CI: 1.02 - 3.07).

Conclusions: The prevalence of depression among adolescents is high more so among females. There is need for deliberate routine screening and prompt management of depression at adolescent HIV care clinics with integration of adolescent mental health care in health programs.

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The Ethics of Biobanking Research Involving African Youth Living With HIV: Discrepancies Between Individual Perceptions and Policy Considerations

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Introduction: Biobanking is often used in research involving youth living with HIV (YLWH). The ethics of this practice and policies guiding it must be carefully considered as its use persists.

Methods: We conducted a qualitative analysis comparing perspectives on biobanking obtained in interviews with Kenyan YLWH, caregivers, and subject matter experts (SMEs), with a critical review of available guidelines and policies from African countries on biobanking involving youth.

Results: Interviews were conducted with 99 participants: 40 YLWH, 20 caregivers, and 39 SMEs (community leaders, healthcare providers, clinical researchers, social scientists, international research experts, and laboratory experts). Interviewees across all three groups stressed the importance of confidentiality, transparency, informed consent, and secure storage. Other notable themes included concerns about long-term biospecimen storage, unauthorized use, and sharing of biospecimens with ill-intentioned individuals; requests, by some, for assurances of participant benefits, and faith, from others, that researchers would act in participants' best interest; and disagreement over the use of identifiers in biospecimen labeling, with interviewees weighing the risk of disclosure against the advantage of easy follow-up. Relevant policy documents, published between 2004-2023, were only available from 12 countries: Botswana, Ethiopia, Kenya, Malawi, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe. All countries had policies on confidentiality and consent. Most (n=11) had policies addressing transparency and sharing biospecimens with other researchers or institutions (n=9). Fewer countries had policies governing biospecimen use (n=5) and storage (n=4), delineating participant benefits (n=4), and biospecimen labeling (n=4).

Conclusion: Perceptions regarding ethical considerations in biobanking research involving African YLWH demonstrated some consensus, though inconsistently. Discrepancies were observed when comparing interviewee responses to limited, and occasionally dated, country policies. Results emphasize the need for clear, improved, and timely policy guidance on these issues, which should be addressed as important research involving this vulnerable population continues.

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The Effect of a Theory-Based Guideline Dissemination Intervention on Health Worker Adherence to Hypertension Screening for Adolescents Living With HIV in Ghana: A Pragmatic Cluster-Randomized Study

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Background: Due to a high prevalence of hypertension (29%) in adolescents living with HIV(ADLHIV) in Ghana, WHO's recommendation to integrate non-communicable disease care into HIV services was adopted. This was expanded to include checking the blood pressure (BP) of persons living with HIV 3 years and older at each clinical visit. This study aimed to assess the effectiveness of a theory of planned behaviour (TPB)-based guideline dissemination package in addressing the poor adherence to this recommendation for ADLHIV.

Methods: A parallel, multicenter cluster-randomized study was conducted between September 2022 and July 2023. The clusters were 20 antiretroviral therapy (ART) sites in the Greater Accra Region of Ghana with the highest burden of adolescent HIV. They were assigned equally to the two study arms by a computer-generated randomization list. The control group received the standard dissemination package comprising the distribution of guidelines to facilities, a classroom-based orientation on the updates and one supportive visit by the National AIDS/STI Control staff. In addition to this, the intervention group received a tested multicomponent TPB-based intervention comprising orientation of ART staff on hypertension risk among ADLHIV in Ghana; monthly feedback and mentorship from a facility expert; orientation on BP measurement approaches and provision of BP centile charts and pediatric-friendly sphygmomanometers. The primary outcome was the rate of BP checks, expressed as the proportion of adolescents whose BPs were checked during clinical visits. Blinded investigators assessed this through a clinical records review before and six months after intervention implementation.

Results: The records of 454(Intervention n=233, Control n=221) adolescents were reviewed. Pre-intervention, there was no difference in the mean proportion of BPs checked during clinical visits (Intervention: 20.7%(95%CI:6.15-35.22); Control:19.1%(95%CI:3.86-34.30), p= 0.89). Although both groups observed a within-group increase in proportions screened, the intervention group had a higher mean proportion at follow-up (73.2%(95%CI:69.1-77.3) compared to the control group (36.3%(95%CI:25.6-47.1), p=0.0001.

Conclusion: The intervention improved adherence to guidelines for hypertension screening among ADLHIV. Dissemination of such guidelines by Country Programmes should, therefore, be supported by context-specific evidence, continuous mentorship using available human resources and availability of relevant job aids.

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Virtual and In-Person Psychosocial Counselling Services Expand Access to Counselling for Children and Families Affected by HIV in Malawi

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Background: Children, adolescents and families affected by HIV experience psychosocial needs that are often not attended to comprehensively and new care strategies are needed. We designed an innovative low-resource model of phone-based psychosocial counselling (P-PSC) to expand access to psychosocial providers. We describe psychosocial counsellor (PSC) visits with children from 96 health facilities in 5 districts supported by Baylor College of Medicine Children's Foundation Malawi Tingathe program.

Materials and Methods: Phone-based and in-person psychosocial counselor visits were provided to children and families referred by health care workers or by self-referral. All children with a new HIV diagnosis, treatment interruption, high viral load (HVL) or mental health concern and anyone requesting psychosocial counselling were referred via WhatsApp group from the facility phone using anonymous client information. Routine program reports were analysed to describe paediatric visits with psychosocial counsellors.

Results: From February 2022 to February 2024, 6845 paediatric visits were conducted representing 13% of all psychosocial counsellor visits (n=56074). Nearly 60% of visits were with adolescents ages 10-14 years (n=3986, 58%), 24% (n=1668) with children 5-9 years and 17% (n=1191) with 0-4 year olds. Reasons for referral to psychosocial counsellors included: HVL/poor adherence (53%, n=3658); treatment interruption 21% (n=1431); new initiation 12%(n=840); intimate partner violence 2% (n=119); worries 1% (n=40); poor child/parent relationship 1% (n=39) and other 10% (n=718). Issues identified included ART knowledge gaps, child neglect, social support needs, and mental health needs among others. PSC visits were 58% on phone and 42% in-person with children seen from 95 of 96 supported health facilities, as one health facility lacks mobile phone connectivity.

Conclusion: Psychosocial counselling to children, adolescents and families is possible even at remote health facilities in Malawi with a combination of in-person and phone-based sessions. Further evaluation of outcomes and followup of children seen is underway to optimise referral and follow-up care.

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Realities and Challenges of Breastfeeding Policy in the Context of HIV: A Qualitative Study on Community Perspectives on Facilitators and Barriers Related to Breastfeeding Among HIV Positive Mothers in Baringo County, Kenya

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Background: Although recent policies have sought to increase the rates of exclusive breastfeeding (EBF) and continued breastfeeding for HIV exposed infants, few programs have considered the multiple social and cultural barriers to the practice. Therefore, to generate evidence for exclusive and continued breastfeeding policies in Kenya, we examined community perspectives on the facilitators and barriers in adherence to EBF for the HIV positive mothers.

Methods: Qualitative research was conducted in Koibatek, a sub-County in Baringo County Kenya, in August 2014 among 205 respondents. A total of 14 focus group discussions (n = 177), 14 In-depth Interviews and 16 key informant interviews were conducted. Transcribed data was analyzed thematically. NVivo version 10.0 computer qualitative software program was used to manage and facilitate the analysis.

Results: Facilitators to exclusive breastfeeding were perceived to include counselling at the health facility, desire to have a healthy baby, use of antiretroviral drugs and health benefits associated with breastmilk. Barriers to EBF included poor dissemination of policies, knowledge gap, misinterpretation of EBF, inadequate counselling, attitude of mother and health workers due to fear of vertical HIV transmission, stigma related to misconception and misinformation that EBF is only compulsory for HIV positive mothers, stigma related to HIV and disclosure, social pressure, lack of male involvement, cultural practices and traditions, employment, food insecurity.

Conclusions: There are multiple facilitators and barriers of optimal breastfeeding that needs a holistic approach to interventions aimed at achieving elimination of mother to child transmission. Extension of infant feeding support in the context of HIV to the community while building on existing interventions such as the Baby Friendly Community Initiative is key to providing confidential support services for the additional needs faced by HIV positive mothers.

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Improving Viral Load Suppression Among Children and Adolescents Using People-Centered Metrics and Caregiver DOTS Model in Acholi Region, Northern Uganda, October 2022 – March 2024

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Background: In the Acholi region, 69.7% of children and adolescents <20 on antiretroviral therapy had a suppressed viral load (VL) as of October 2022. Children and adolescents living with HIV (CALHIV) encounter challenges in achieving viral load suppression (VLS), including dependence on their caregivers for daily HIV treatment adherence and non-disclosure. Client-centered approaches were introduced, comprising people-centered metrics (PCM) and a novel intervention, Caregiver Direct Observed Therapy (CagDOTs). We measured the effect on VLS.

Methods: Of the 971 unsuppressed children under 20 years with detectable VL ≥1000 copies/ml, 757 were enrolled in CagDOTS and 81 on PCM only. 70 remained on routine intensified adherence counseling. PCM data were collected on their experiences of care and quality of life. The feedback loop between clients and providers facilitated tailored care to address client needs. CagDOTS leveraged peer support, with caregivers of virally suppressed children providing daily personalized, home-based support to unsuppressed children and caregivers. Paired within proximity, consenting caregivers were trained in treatment literacy and DOTS, conducted daily home-based DOTS for 90 days, and reported bi-weekly results. Program and PCM data were analyzed from October 2022 to March 2024 from 70 Ministry of Health facilities.

Results: 82% of children were on their preferred models of care compared to 65% at baseline. The proportion of unsuppressed children feeling socially supported increased from 56% to 71%. Those reporting no or minimal mental health issues increased from 77% to 81%. Post-intervention, 96% of the 757 unsuppressed children had their blood drawn, and 70% achieved suppression.

Conclusions: Receipt of client-centered approaches and interventions like PCM and CagDOTs was associated with an improvement in viral suppression among children and adolescents in addition to the standard of care. Integration of routine PCM collection and feedback identifies psychosocial factors affecting suppression and tailor treatment approaches. Engaging caregivers through CagDOTS highlighted the importance of community empowerment to adherence and treatment outcomes. The involvement of caregivers as mentors presents a promising strategy to enhance adherence. Given the challenges in achieving VLS among CALHIV, these interventions merit further evaluation.

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Global Trends in CD4 Measurement and Immunosuppression at ART Initiation Among Children Aged <15 Years

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Background: CD4 cell measurement at antiretroviral therapy (ART) initiation has declined substantially following guideline changes that recommended treatment regardless of the level of immunosuppression. However, CD4 remains an important clinical tool and key indicator for ART programs. We described CD4 measurement and immunosuppression among children age <15 years at ART initiation using data from the International epidemiology Databases to Evaluate AIDS consortium.

Methods: We included children aged <15 years starting ART between 2005-2020 and described the proportion with a CD4 measurement at ART initiation (6 months before to 2 weeks after), utilizing CD4% for <5 years and absolute CD4 cell count for ≥5 years. We described severe immunosuppression (SIS) per WHO 2006 criteria: CD4% <20% for ≤12 months, CD4% <15% for 13–59 months, CD4 count <200 cells/µL for 5-15 years of age.

Results: We included 92,616 children from 7 regions/countries: Asia-Pacific, 5,219; Latin America & the Caribbean, 1,563; East Africa, 15,721; West Africa, 6,569; Central Africa, 2,291; Southern Africa excluding South Africa, 42,501; South Africa, 18,752. Annual ART initiations peaked in 2009 at 7354, declining to 3238 by 2020. Between 2005-2020, among 45,762 children <5 years, median age at ART initiation decreased from 2.2 (IQR 1.1-3.5) to 1.6 years (IQR 0.5-2.9). CD4% measurement declined from 51% to 13% and varied regionally (across 2005-2020: 11% (Southern Africa)-74% (Asia-Pacific)). Median CD4% increased from 12% (IQR 7.8-18) to 21% (IQR 13-34). SIS prevalence decreased across all regions (41%-100% in 2005 to 24%-41% in 2020). Between 2005-2020, among 46,854 children aged 5-15 years, median age at ART initiation increased from 8.8 (IQR 6.8-11.2) to 9.9 years (IQR 7.3-12.6). CD4 count measurement declined from 72% to 18% and varied regionally (across 2005-2020: 48% (Southern Africa)-84% (Asia-Pacific)). Median CD4 count increased from 200 (IQR 70-368) to 392 cells/µL (164-711). SIS prevalence declined across all regions (40%-71% in 2005 to 19%-46% in 2020).

Conclusions: Despite declining numbers of children starting ART and the potential over-estimation in SIS as CD4 measurement declined, both the infrequent measurement of CD4 and the persistent prevalence of immunosuppression at ART initiation are concerning. Developing risk-based CD4 monitoring of children may be indicated.

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Assessing the Impact of an Integrated Community Service Delivery Approach in Improving Case Identification, HIV Viral Suppression and Other Health Outcomes at Community Level

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Background: The HIV epidemic continues to be a major public health challenge and the highest cause of vulnerability in Uganda. With 1.4 Million people living with HIV of which 82,000 are non-suppressed. Approaches to support them suppress are not linked to case identification because of siloed programming and the country continues to struggle to reduce new infections.

The Integrated Community Service Delivery approach (ICSDA) has shown great improvement in treatment outcomes, identifying the undiagnosed HIV positives, addressing socio-economic issues. We assessed the impact of ICSDA to improving health outcomes and epidemic control in Uganda.

Methods: A comprehensive analysis was conducted using data collected from various districts within 3 sub-regions. The study involved mapping all virally non-suppressed clients by village, Mapping all Community Health Workers (CHW) to determine the patient ratio attachment and effectiveness, success of socioeconomic support programs and DOTS.
We attached all Non suppressed clients to the mapped CHWs/peers within their proximity of a radius of 2 kilometers on a ratio of 1:4, provided a minimum service package which included DOTS, screening and testing of family members for HIV, TB, Malaria, NCD and linkage of household heads to social-economic programs. They followed the households attached for 30 days.

Results: A total of 11,243 unsuppressed clients were attached to 2,955 CHWs during the study. 3,373 Males and 7,870 females. Of which 75% were on 1st Line, 25% were on 2nd Line. The interventions led to a notable increase in viral load suppression rates of 97% across all age groups, index testing for the contacts of non-suppressed individuals resulted in 6% yield among sexual partners, referral of 2,430 malaria cases to the facility. Additionally, Socioeconomic interventions showed varied success, with significant strides in vocational training linkage and kitchen gardens.

Conclusion: Integrated Community HIV service delivery interventions have shown promising results in improving viral suppression rates and case identification for HIV and Malaria.
It is cost effective to use 1 peer/CHW to support a household with an integrated service package, reduces duplication, improves efficiency and coordination and if scaled, it can support the country to achieve epidemic control.

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The Effect of Viremia, Immunosuppression, and Dolutegravir on Risk of Virologic Failure in Children and Adolescents Living With HIV on Antiretroviral Therapy in Sub-Saharan Africa (CLOVES), a Multicenter, Retrospective Cohort Study

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Background: Children and adolescents living with HIV (CALHIV) make up an increasing proportion of new HIV infections worldwide. Strategies to predict and prevent viremia in CALHIV are essential to limiting the spread of HIV.

Methods: A retrospective chart review was performed on data collected from October 2004 to December 2022 from the Baylor College of Medicine Children's Foundation – Tanzania sites in Mbeya and Mwanza. CALHIV on antiretroviral therapy (ART) for ≥6 months, with ≥2 total viral loads (VL), were included. Multivariable logistic regression modeling was performed to evaluate the risk factors for virologic failure (VF) (defined as VL ≥1000 copies/mL); odds ratios (OR) with 95% confidence intervals (CI) are presented.

Results: A total of 2825 CALHIV were included in the analysis (median age 13.1, 52.5% female). A history of low-level viremia (LLV) (50-999 copies/mL) increased the risk of current VF (OR 2.07 [1.27, 3.38]), as did a history of VF (OR 4.38 [2.81, 6.81]). Other factors associated with increased VF risk included using an alternate 1st line ART regimen (OR 2.70 [1.64, 4.45]) or 2nd line (OR 2.25 [1.53, 3.31]) and immunosuppression with CD4 of 200-499 cells/mm3 (OR 1.54 [1.01, 2.37]) or <200 cells/mm3 (HR 1.96 [1.09, 3.65]). Adolescents aged 15-19 years were at higher risk of VF (OR 1.89 [1.15, 3.11]) and dolutegravir (DTG)-based ART regimens were protective (OR 0.40 [0.30, 0.54]). The incidence rates (IR) of current VF (per 1000 person-years) were 9.55 (6.55, 24.24), 16.82 (12.64, 22.39), and 30.26 (25.83, 35.43) for VL always <50, history LLV (no VF), and VF respectively. The IR of current VF was 29.66 (18.68, 47.07) at <1 year and reached 10.75 (4.48, 25.83) by 2-3 years since last LLV. For time since VF, IR was 69.62 (56.29, 86.11) at <1 year and dropped to 8.06 (4.58, 14.20) by ≥4 years.

Conclusion: Risk of current VF increased with history of LLV or VF. Risk of VF returned to near-baseline in 2 years after LLV and 4 years after VF. Other factors associated with VF include non-standard or 2nd line ART regimen, being on a non-DTG regimen, immunosuppression, and age 15-19 years.

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Predictors of Viral Load Non-suppression Among Orphans and Vulnerable Children Living With HIV in South Africa

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Background: UNAIDS-2022 retrospective epidemiological analysis showed that South Africa's antiretroviral treatment (ART) coverage in children 0-14 years remained at 52% from 2020, adults increased from 74% in 2020 to 76% in 2022. Sixty percent of children not on ART were aged 5-14yrs. According to the National Institute for Communicable Diseases of South Africa, two-thirds of children living with HIV ages 0-17 years old (y/o) on ART is virally suppressed. We used case-profiling to examine factors that influence viral suppression among children/adolescents living with HIV(C/ALHIV) in a U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and U.S. Agency for International Development (USAID)-funded orphan and vulnerable children program in South Africa.

Methods: Quantitative data on children, caregivers, and treatment factors were collected from a simple random sample of 537 C/ALHIV ages 0-20 y/o on ART for ≥6 months with a documented viral load test. Beneficiary data were collected (May-June 2021) from implementing partners in Limpopo, Gauteng, KwaZulu-Natal, and Eastern Cape Provinces using a structured questionnaire and program data triangulation. Chi-Square tests were used to identify association of variables. A multivariate logistic regression model was used to identify factors associated with non-suppression using STATA v.14. Social demographic, treatment, and quality of care/facility factors associated with non-suppression in bivariate analyses at a p-value <0.05 were included, followed by backwards selection. A p-value <0.05 was considered significant.

Results: 258 (48%) C/ALHIV were male and 279 (52%) were female; 159 (30%) were 0–9 y/o, 335 (62%) were 10-17 y/o, 43 (8%) were 18–20 y/o; 371 (69%) were suppressed and 166 (31%) were unsuppressed. Missed ART appointments (adjusted odds ratio (AOR): 1.9 (95% CI: 1.1-3.2)), psychosocial support (AOR): 3.4 (95% CI: 1.96-5.8), and poor adherence to ART medication (AOR: 9 (CI: 4.32-19) were significantly associated with increased odds of non-suppression. Care worker support (AOR: 0.4 (95% CI (0.23-0.68),caregiver responsible for ART administration (AOR: 0.5 (95% CI (0.25-0.83)), were protective of suppression.

Conclusion: Missed appointments, no psychosocial support, and poor adherence to ART are factors that impact viral suppression for C/ALHIV. These factors should guide program design that supports family-centered case-management to facilitate accelerated viral suppression among children.

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Harnessing Enhanced Adherence Counseling to Improve HIV-1 Viral Suppression Rates Among Children on DTG-Based Regimens in Malawi

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Despite the transition to optimized antiretroviral therapy (ART), viral suppression (VS) rates in children remain lower than in adults. We describe the effect of enhanced adherence counseling (EAC) on VS among pediatric clients with high HIV-1 viral load on dolutegravir (DTG) based ART in a program setting in Malawi.

We included all clients aged <15 years with a high viral load result (>1,000 copies/mL), after taking DTG-based ART for a minimum of six months. The data were abstracted from facility-based high viral load registers and the electronic medical records system for the period between January 2022 and March 2023 from 104 healthcare facilities, which the Elizabeth Glaser Pediatric AIDS Foundation supports in Malawi. We used descriptive statistics to summarize the distribution of demographic characteristics, the number of EAC sessions completed, and VS (<1,000 copies/mL) after completing EAC sessions. Multivariable logistic regression was used to determine the factors associated with VS following EAC, adjusting for demographic characteristics, initial ART regimen, and number of EAC sessions completed.

Overall, 1,475 participants were enrolled, of whom 884 (59.9%) were aged 10-14 years and 1,008 (68.3%) were from rural areas. A total of 1,448 (98.0%) were enrolled in EAC, of whom 787 (54.3%), 308 (21.3%), and 353 (24.4%) completed 3, 2, and 1 sessions, respectively. Approximately three-quarters of participants who were enrolled in EAC (1,091, 74%) had a follow-up HIV-1 viral load test; 782 (71.7%) achieved VS. Clients from urban areas were less likely to achieve VS post-EAC than those from rural areas (aOR:0.58, 95%CI: 0.42-0.80). There were no significant differences in the likelihood of VS following completion of EAC by age, gender, initial ART regimen, or the number of EAC sessions completed. Of the children who did not achieve VS post-EAC, 10 (3.3%) had HIV-1 drug resistance testing; one (10.0%) had DTG resistance.

Our results show that nearly three-quarters of treatment failure on dolutegravir-based regimens in children was related to ART adherence. Viral load monitoring is critical for early identification and management of pediatric clients with treatment failure. Further research on the contribution of resistance to virologic failure among children in Malawi is required.

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Pillars of Pediatric Antiretroviral Therapy Success: Factors Influencing Adherence in Malawi's Dolutegravir Era

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Suboptimal antiretroviral therapy (ART) adherence remains one of the major causes of treatment failure among children in the era of optimized regimens. Identifying challenges to ART adherence is critical in ensuring viral suppression among children living with HIV (CLHIV). We explored the client and caregiver characteristics associated with poor ART adherence in children on dolutegravir-based regimens in a resource-limited setting.

Using a cross-sectional approach, we analyzed routinely collected individual-level health data from five high-HIV-burden districts which the Elizabeth Glaser Pediatric AIDS Foundation supports in Malawi, between March and September 2023. We included all children (<15 years) on dolutegravir-based regimens attending pediatric ART clinics and their caregivers. We utilized descriptive statistics to summarize demographic and clinical characteristics. We used logistic regression to analyze factors associated with good adherence, adjusting for the child's sex, age, duration on ART, nutritional status, HIV status disclosure, caregiver's gender, caregiver's relationship to the child, caregiver's age, and caregiver's HIV status. Good adherence was defined as missing ≤2 doses/month at the last visit and nutritional status was assessed using weight-for-age z scores in children aged 10 and under, and BMI-for-age z scores in children above ten years.

A total of 404 children were included, 52.2% between age 5-9 years. Nearly two-thirds had been on ART for more than 48 months and 74.5% had good adherence. Most (91.2%) of the caregivers were female and 80.0% were HIV positive. In a multivariate analysis, children aged 10-14 years were less likely to have good adherence than children aged 5-9 [Adjusted odds ratio (AOR) 0.48, 95% confidence interval (CI) 0.24-0.99]. Children with moderate/severe malnutrition had reduced odds of good ART adherence than those with normal/mild nutritional status (AOR 0.24 95% CI 0.10-0.73). Children whose HIV status had not been disclosed had a reduced likelihood of having good ART adherence than those who were aware of their HIV status: AOR 0.39 (95% CI 0.18-0.83).

Good ART adherence was associated with age, nutritional status, and child disclosure of HIV status. Interventions focusing on malnourished CLHIV, disclosure of HIV status, and older CLHIV are of critical importance in improving ART adherence outcomes.

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Multi-Month Dispensing of Antiretroviral Therapy and Viral Load Outcomes Among Children and Adolescents Receiving HIV Services in Burundi

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Background: Many USAID/PEPFAR-supported countries, including Burundi, committed to increasing multi-month dispensing (MMD) of antiretroviral therapy (ART) to reduce clinic visits, increase adherence, and improve health outcomes among children and adolescents <15 years living with HIV (CALHIV). This analysis assesses MMD uptake, viral load testing coverage (VLC), and viral load suppression (VLS) trends among CALHIV attending USAID/PEPFAR-supported facilities in Burundi.

Methods: We analyzed aggregate quarterly (Q) program data on MMD, proxy VLC, and VLS among CALHIV <15 collected from USAID/PEPFAR-supported facilities in 18 Burundi provinces between fiscal years (FY) 2022 to 2023. FY22 Q1 (October 1, 2021 - December 31, 2021) was defined as baseline and FY23 Q4 (July 1, 2023 - September 30, 2023) was defined as endline. MMD represented the proportion of CALHIV receiving an ART supply of three or more months.

Results: Between FY22 Q1 to FY23 Q4, the proportion of CALHIV receiving MMD changed from 70% (1689/2399) to 84% (1741/2073), resulting in a 20% increase. Eight provinces had ≥20% increase in the proportion of CALHIV receiving MMD ("rapid MMD") while ten provinces had <20% increase in the proportion of CALHIV receiving MMD ("limited MMD").

Overall, VLC among CALHIV on ART increased over time in both rapid MMD provinces (76% to 87%, 14% increase) and limited MMD provinces (74% to 83%, 12% increase). In FY23 Q1, VLC decreased across all provinces due to VL reagent stockouts but rebounded by Q4.

For VLS trends among CALHIV on ART, rapid MMD provinces demonstrated a larger increase (+6.8%, 89% to 95%) compared to limited MMD provinces (+0.8%, 91% to 92%), with VLS rates peaking in FY23 Q2 and then decreasing by 3% for rapid and limited MMD provinces.

Conclusion: VLS for CALHIV increased more in USAID/PEPFAR-supported Burundi provinces with the most rapid MMD uptake for CALHIV, while all provinces experienced increases in VLC. CALHIV dolutegravir coverage over time by province was not available to assess relative contributions of MMD and ART optimization to increasing VLS in CALHIV.

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"Reaching the Reached": Missed Opportunities in Providing HIV Services for Children in 15 USAID/PEPFAR-Supported Programs

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Background: Significant progress has been made in identifying and treating children living with HIV, yet those documented in programs often lack adequate coverage of HIV services. This analysis aims to understand missed opportunities (MO) to provide pediatric HIV testing and treatment services across 15 USAID/PEPFAR-supported country programs.

Material and Methods: We reviewed Monitoring, Evaluation, and Reporting (MER) data for children <15 years, including proxy early infant diagnosis coverage by 2 months (EID <2mo), proxy index contacts testing (child contacts listed vs. contacts tested), proxy linkage to antiretroviral treatment (ART), and proxy viral load testing (VLT) coverage from fiscal year 2021 (FY21) to FY23 (October 1, 2020 to September 30, 2023). Trend data was analyzed in aggregate and by individual country program.

Results: MOs for proxy EID <2mo reduced from 16% of infants without a sample collected (42,654/269,892) in FY21 to 7% (14,544/230,924) in FY23, with four countries reporting <5% (Burundi, Eswatini, South Africa, Zimbabwe) and four countries >25% (DRC, Kenya, South Sudan, Zambia).

The proxy proportion of child contacts listed but not reached with index testing decreased from 28% (151,540/545,200) in FY21 to 7% (59,903/808,835) in FY23; decreases were reported in 14 out of 15 countries, with an increase in DRC (4% to 16%). In FY23, Lesotho (20%), South Africa (37%), and Malawi (41%) reported high percentages of MOs in index testing.

The overall proxy linkage rates to ART remained >100% for each fiscal year. In FY23, the following countries had MOs for children not linked to ART: Zambia (7%), DRC (5%), Uganda (3%) and Burundi (1%).

MOs in proxy VLT decreased from 22% (52,971/239,986) in FY21 to 19% (44,944/230,539) in FY22 and increased to 22% (47,777/215,238) in FY23. From FY21 to FY23, VLT MOs decreased in 13/15 countries, with a reduction in South Sudan from 46% to 6% in FY23, and increased in 2/15 countries (Eswatini and Haiti).

Conclusions: MOs remain in EID, index testing, VLT services, and minimally, in linkage to ART. Country programs must address the root causes of MOs to ensure that children receive comprehensive services to achieve optimal health outcomes and live long, healthy lives.

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Accelerating Progress in Pediatric HIV and Elimination of Vertical Transmission in Seven PEPFAR Focus Countries, October 2022–September 2023

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Background: Gaps and inequities remain in elimination of vertical transmission (EVT) and HIV diagnosis, treatment, and viral suppression for children. Between October 2022 and September 2023, PEPFAR introduced the Accelerating Progress in Pediatrics and PMTCT effort (AP3) in seven countries with the largest gaps in PMTCT and pediatric HIV outcomes: Democratic Republic of the Congo, Mozambique, Nigeria, South Africa, Tanzania, Uganda, and Zambia.

Methods: AP3 objectives were to: (1) reduce new child infections, (2) identify children living with HIV and link them to treatment, and (3) increase rates of pediatric viral suppression. PEPFAR AP3 country teams planned and implemented a six-pronged surge approach for pediatric and EVT programming that included dedicated human resources; strategic budgeting and expenditure monitoring; strengthened monitoring and evaluation efforts; pediatric community-led monitoring (CLM); socioeconomic support, psychosocial support, and case management; and regular review meetings. Teams used routine PEPFAR monitoring, evaluation, and reporting and custom indicators to monitor implementation. An AP3 steering committee composed of pediatric, PMTCT, and orphans and vulnerable children experts facilitated cross-country sharing, ensured quality technical assistance, and monitored quarterly progress.

Results: AP3 countries demonstrated progress across all objectives. Notably, between July and September 2022 and July and September 2023, maternal HIV retesting increased from 39% to 62%, pediatric viral suppression (<1,000 copies/mL) increased from 85% to 88%, and the volume of pediatric dolutegravir bottles dispensed increased 32%. AP3 encouraged collaborations and synergies across program areas to achieve key results and strengthened collaborations with ministries of health, social welfare workforce, civil society, and other stakeholders. Best practices included use of granular data and custom indicators and CLM to monitor implementation; regular, timely meetings to review data and adjust strategy; and cross-sectoral and cross-country sharing of implementation successes and challenges.

Conclusions: Through a concerted effort to close pediatric and EVT gaps, AP3 made progress toward its objectives, but did not fully reach them. Continued and dedicated support for EVT and pediatrics is needed in country plans to end HIV and AIDS in children. A population-specific initiative like AP3 may be useful in helping to achieve these goals in other settings.

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Incidence of Loss to Follow-up and Its Predictors Among Children Receiving HIV Treatment in Private Mine Hospitals and Clinics in Copperbelt Province, Zambia

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Background: Over the years, the private sector has emerged as a key participant in the fight against HIV/AIDS worldwide. However, information on outcomes for persons receiving treatment in private health facilities is scarce. We performed a 10-year survival analysis to establish the incidence and predictors of loss to follow-up among children (below 15 years) initiating antiretroviral therapy (ART) at privately owned mine hospitals and clinics supported by the USAID Zambia Accessible Markets for Health Project in Copperbelt Province, Zambia.

Methods: This was a retrospective cohort analysis for children who initiated ART between 2005 and 2013 at five project-supported mine hospitals and clinics in Copperbelt Province, Zambia. Kaplan-Meier survival analysis was performed to compare the loss to follow-up (LTFU) for various client groups. The Cox proportional hazards model was used to identify predictors of LTFU.

Results: Of the 1,219 children who initiated ART, 53% (n=640) were male, with a median age of seven years, and the baseline median CD4 count was 632 cells per cubic millimeter (interquartile range, 388). Ten years after ART initiation, 764 (63%) persons were alive in care, 28 (2%) were dead, 139 (11%) were LTFU, and 288 (24%) had transferred to other facilities. The overall incidence rate of LTFU was 3.7 per 1,000 person-years of observations (95% CI=2.7-4.0). Over half (51%) of the LTFU occurred in the first six months of treatment. Predictors of LTFU included ages 5-9 years (AHR=1.2, 95% CI=0.9-1.7), and 10-14 years (AHR=1.2, 95% CI=1.3-2.4), compared to those aged 0-4 years, and WHO stages II (AHR=1.5, 95% CI=0.4-5.9), stage III (AHR=13.5, 95% CI=4.7-37.9) and IV (AHR=11.5, 95% CI=4.78-37.9) compared to those in WHO stage I.

Conclusion: The incidence of LTFU among persons receiving ART in private health facilities was lower than that in the public sector. Children older than four years and those in WHO stages III and IV were at an elevated risk of LTFU. Interventions to prevent LTFU among children receiving ART in private health facilities should address these predictors.

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VAttrition and Tracking Outcomes Among Children, Adolescents and Young Adults Living With HIV and Lost to Program in Two Regions of Cameroon

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Background: Retention in care among children, adolescents and young adults (0-24 years) living with HIV (CAYA-HIV) remains challenging in Sub-Saharan Africa. We explored factors associated with 12-month outcomes among CAYA-HIV and described outcomes of intensive tracking among those out of care.

Method: We retrospectively analyzed data from CAYA-HIV initiated on treatment between October 2019 and September 2020 in 72 healthcare facilities in the Littoral and South Cameroon. We defined attrition as reported either lost to follow-up (LTFU) or dead. CAYA-HIV found transferred out (TO) were tracked through phone calls to parents/caregivers and the receiving health facilities. Those LTFUs were tracked through phone calls and home visits. We used a multinomial logistic regression model to explore factors associated with 12-months clinical outcomes.

Results: Of 1,018 CAYA-HIV, 247 (24.3%) were ≤14 years, 106 (10.4%) 15-19 years, and 665 (65.3%) 20-24 years. At 12 months, 606 (59.5%) remained in care, 267 (26.2%) were LTFU, 94 (9.2%) were TO and 51 (5.0%) were dead. Age 20-24 years (aOR: 4.40, 95%CI:1.80-10.90) was associated with increased odds of LTFU compared to 0-14 years, while living in rural vs urban setting (aOR: 0.337, 95%CI:0.17-0.67) was significantly associated with reduced odds of LTFU. Baseline WHO clinical stage III/IV was associated with increased odds of death (aOR: 4.41, 95%CI:1.53-12.66). Among the 94 CAYA-HIV found TO at 12 months, 87 (92.6%) were successfully tracked, of which 23 (26.4%) were still in care at the new facility, 3 (3.4%) were transferred again to another facility, 48 (55.2%) were LTFU, 2 (2.3%) were dead and 11 (12.6%) interrupted treatment. Among the 267 CAYA-HIV found LTFU, 209 (78.3%) were tracked, of whom 16 (7.7%) were brought back to care, 8 (3.8%) were self-TO, 6 (2.9%) were dead, 86 (41.1%) declined returning to care and 80 (38.3%) provided wrong numbers and fake localization plans.

Conclusion: The main drivers of LTFU and death among children, adolescents and young adults living with HIV are age 20-24 years and WHO clinical stage III/IV respectively. Tracking of LTFU and TO provide poor results, emphasizing the need for specific interventions to prevent LTFU and better prepare transition of TO.

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Paediatric-Focused Client Management Approach Improves Biannual Viral Load Coverage among Children Living with HIV: Implementation Outcomes from Southern Nigeria

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Background: Challenges with antiretroviral therapy (ART) adherence and monitoring put children living with HIV (CLHIV) at increased risk of treatment failure hence the need for more frequent viral load (VL) testing. ECEWS introduced a Paediatric-focused client-management system (PFCM) to improve VL coverage among CLHIV after Nigeria introduced biannual VL tests in 2022, where children are eligible for VL six months after ART commencement and six-monthly thereafter. This study describes the PFCM strategy and its outcomes among CLHIV in southern Nigeria.

Methods: Advocacy was conducted to service providers across 153 health facilities in Akwa Ibom and Cross River States, Nigeria to communicate the change in VL testing among CLHIV. Caregivers were sensitized during clinic visits, through phone calls and home visits. VL line lists for eligible CLHIV were developed based on this change and shared with service providers. Appointments for drug pickups and blood sample collection were aligned at differentiated ART service delivery (DSD) points, and VL samples were collected during refills at DSD points, with weekly monitoring using a dedicated paediatric dashboard. This paper assessed VL testing coverage (the proportion of eligible CLHIV who had VL tests done six-monthly). Trends in VL coverage from September 2021 to September 2023 were assessed using logistic regression.

Results: In total, 18,014 CLHIV were eligible for VL test over 24 months, with a median age of 8.0±3.8 years and 50.4% males. The mean duration on ART was 3.1±2.8 years, and 56.2% were on DSD. VL coverage improved from 61.7% (2,319/3761) to 87.6% (3242/3701) between September 2021 to September 2023 (Table-1) (OR:1.48, 95%CI:1.44-1.51) and with increasing age (OR:1.04, 95%CI:1.02-1.07), but was comparable across sexes. Longer duration on ART (OR:0.97, 95%CI:0.96-0.98,) and being on DSD (OR:0.92, 95%CI:0.87-0.99) were associated with lower VL coverage.

Conclusions: Coverage of biannual VL testing for CLHIV progressively improved using PFCM in this setting. Further interventions targeted at subgroups with lower VL coverage are recommended.

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Unraveling the Critical Factors for Maternal and HIV Exposed Infant Retention in a Faith Based HIV Program in Kenya

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Background: Retention of mothers and HIV-exposed infant (HEI) pairs remains a pervasive challenge in sub–Saharan Africa, with studies estimating one in three pairs interrupting treatment and lost to follow up within a year of new case identification and antiretroviral therapy (ART) use. Understanding the critical factors associated with retention along the Elimination of Mother to Child Transmission of HIV continuum is important for tailored interventions to this population.

Methods: De-identified data from 78 health facilities supported by the Christian Health Association of Kenya was abstracted from routine facility data sources for the period 1st April 2017 to 30th September 2019, with the mother and infants tracked for 24-month retention. Descriptive analyses using bivariate and multivariate regression for predictors of retention were done.

Results: A total of 3,340 HEI and 3,314 mothers were evaluated, of whom 435 (13.2%) were young mothers aged <25years with the median age of 33years (inter quartile range [IQR] 28-37). In total, 91.4% of HEI were enrolled by 6 weeks of age. The 24-month retention rate was 96.3% and 94.6% for mothers and infants respectively. Lost to follow up and mortality rate was 2.9% and 0.8% among mothers, and 4.2% and 1.2% among infants. Factors associated with maternal retention were: age above 25 years (odds ratio [OR]=2.960, 95% CI (1.245-7.040), partner with known HIV status (OR=2.132, 95% CI (1.218-3.733), prior antenatal clinic attendance (OR=3.114, 95% CI (1.380-7.031), good ART adherence (OR=12.166, 95% CI (7.1118-20.794), and hospital delivery (OR=2.667,95% CI (2.667-7.855). Infant retention was associated with being on schedule immunization status (OR=2.909, 95% CI (1.469-5.760), maternal age above 25 years (OR=3.482, 95% CI (1.250-9.702), and good maternal ART adherence (OR=14.124, 95% CI (7.661-26.039), at p<0.05. The age at infant enrolment, whether mode of delivery was normal or caesarean section, infant ART prophylaxis, maternal opportunistic infections and viral suppression, had no correlation with infant retention.

Conclusions: Retention was high for both mothers and infants, with a lower retention among infants. Young mothers may benefit from intensified and tailored support to improve their retention and that of their infants, as well as strategies to support partner testing and ART adherence.

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Optimized Paediatric Focused Care Towards Achieving High Viral Suppression Among Children and Adolescents Living With HIV in Resource-Constrained Setting: NorthCentral, Nigeria

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Background: In Nigeria, despite increased availability of resources to ensure uninterrupted access to ARVs, retention among children and adolescents living with HIV (CALHIV) has been challenging. Viral load coverage (VLC) and suppression (VLS) rate for children(0-14) were 56% and 53.8% respectively while for adolescents(15-19), 59.6% and 51.7% respectively (FMOH, 2020). The aim of the study was to evaluate effectiveness of paediatric focused intervention package in improving viral suppression among CALHIV.

Methods: Mixed method that collected data of children and adolescents living with HIV from Kwara and Niger states, Nigeria between October, 2022 and September 2023 was employed. Focused group discussion was conducted with randomly selected 8-13 adolescents from each of 4 sites to explore the root-causes of the poor VLC and VLS with suggestions to address them. Inductive analysis was conducted to construct themes. Based on the findings, we had consultative workshop with key stakeholders and rolled out intervention package - VEMCLEEP targeting CALHIV which include:

- Paediatric Viraemia clinic targeting all unsuppressed CALHIV
- Extending clinic days/hours to facilitate seamless access to ARVs
- OTZ clubs/Meetings
- Caregivers forum – to provide disclosure, literacy and adherence messages
- Link up to OVC program
- Engage dedicated peadiatric healthcare providers
- Engage dedicated paediatric case managers
- Paediatric surge team to drive and coordinate implementation of intervention.

Retrospective program data was reviewed and descriptively analysed to evaluate VLC and VLS among CALHIV.

Results: Some of the identified causes of suboptimal VLC and VLS include long client wait time, conflicting social engagement, poor treatment literacy, disclosure and difficulty navigating health facilities. The adolescents requested special interventions/support. At the end of Sept. 2023, program data revealed sustained increase in VLC and VLS among CALHIV. The VLC increased from 86% to 95% and 89% to 96% among children and adolescents respectively while VLS increased 83% to 90% and 86% to 88% among children and adolescents respectively.

Conclusions: The study delineates excellent potential for use of client-centric approach in improving HIV/AIDS program quality. It clearly indicates that the interventions are effective in improving VLC and VLS and deserve been adopted among other struggling populations.

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Outcome of HIV-Positive Children and Adolescents Diagnosed and Followed in Brazzaville Since 2015: An Interrupted Time Serie Analysis

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Objective: We assessed the outcome of children and adolescents registered at the Brazzaville Ambulatory Treatment Center of Brazzaville (ACT) according to national and international guidelines for access to antiretroviral treatment since 2015.

Methods: We obtained, through the computerized database (SANTIA®), which is used for routine monitoring of HIV patients, information on children and adolescents naïve to antiretroviral treatment, aged 0 to 19 years, registered between January 2015 and May 2023 and regularly followed at the ACT. Interrupted time series analysis was used to evaluate the outcome of patients as well as their changes during the study period, taking into account the period before and after the adoption of DTG-based protocols as the preferred treatment in 2019.

Results: A total of 198patients (distributed as follows: <2 years:47; 2and<5 years:27; 5and<15years:72; and 15and19 years:52) were included in the ACT during the study period. The percentage of ART initiation remained at 100% for all age groups (<2 years:100% in 2016, 50% in 2019, and 100% in 2021; 2 and <5 years: 100% in 2016, 2019 and 2021; 5 and <15 years: 100% in 2016, 2019 and 2021; 15 and 19 years: 100% in 2016, 2019 and 2021). The percentage of patients remaining on antiretroviral treatment beyond 6 months and more varied (<2 years: 67% in 2016, 59% in 2019, and 75% in 2021; 2 and <5years: 100% in 2016, 2019 and 50 % in 2021; 5 and <15years: 100% in 2016, 2019 and 72% in 2021; 15 and 19 years: 100% in 2016, 2019 and 2021). The percentage of patients lost to follow-up varied (<2 years: 72% in 2016, 71% in 2019 and 25% in 2021; 2 and <5 years: 63% in 2016, 0% in 2019 and 33% in 2021; 5 and < 15 years: 53% in 2016, 0% in 2019 and 25% in 2021; 15 and 19 years: 71% in 2016, 0% in 2019 and 2021).

Conclusion: We noted an improvement in access to antiretroviral treatment for age groups over 2years old with an increase in the duration of antiretroviral treatment and a reduction in loss to follow-up, despite the COVID period.

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HIV and TB among Adolescents: Index, Prevalence, and Risk Factors in DRC

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HIV/TB co-infection remains a public health challenge among adolescents, and poses major dual threat barriers. However, there are strategies to improve access to care, strengthen early detection, and adequate treatment.

Methods: A study based on CD4, blood sampling on DBS cards for early diagnosis in exposed adolescents and on HIV+ adolescents on DBS cards for Viral Load analysis.

Results: 17,798 HIV+ adolescents benefited from active TBC research among those enrolled in the ESS, (23%), among whom 13,956 presented presumptive signs of tuberculosis, (12%). Among these, 11,593 completed the TBC detection test, (39%), and 1,636 of whom presented with TBC, of whom 1,436 received Anti-T according to the national protocol, (37%).

Only 15% of adolescents with tuberculosis were tested for HIV, and this is justified by the shortage of tests in the CSDTs. 28% of co-infected adolescents are on ARVs. The average prevalence of HIV among adolescents with tuberculosis is 0.9%.

1735 adolescents with tuberculosis received HIV screening among the 1329 cases diagnosed, (75.7%). In 1735 cases tested, 72 were confirmed HIV+. HIV prevalence among them is estimated at 0.9%. Regarding ART, 18 out of 74 received ART according to standards, which represents 48.5%

Only 108 newly enrolled HIV+ adolescents benefited from active TB research out of the 205 enrolled, approximately 21% of the completion rate. Furthermore, in 108 screened for TB, 7 were confirmed to have TB.

Only 108 HIV+ adolescents benefited from active TB research among the new enrollees 4.1%. It appears that in 63 HIV+ adolescents screened for TB, 0.7 HIV+ adolescents had TBC, representing 0.6% prevalence of TB among HIV+ adolescents. Furthermore, of the 108 adolescents who were supposed to benefit from INH, only 87 did, representing 14.2% of the need for new inclusions.

Conclusion: Although 6 PIMA devices are available at 6 of the 11 health zones, CD4 analysis is no longer carried out at the sites due to lack of cartridges. The country is responsible for communicating and transmitting samples and results. The province has 5 Gen-Xpert devices installed and two benefit from the setting of the Viral Load module but the cartridges are lacking.

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High Prevalence of Common Mental Health Disorders Amongst Adolescents With HIV in Zimbabwe: IMPAACT 2016

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Background: Adolescents living with HIV (ALHIV) are more prone to common mental health disorders (CMDs) than those without HIV. However, CMD prevalence data among ALHIV in Zimbabwe are scarce. As CMDs can negatively affect treatment outcomes, HIV management guidelines recommend screening and management of CMDs. We describe the prevalence of moderate to severe CMDs among ALHIV being evaluated in Harare, Zimbabwe for participation in a trauma-informed cognitive behavioral therapy trial (IMPAACT 2016).

Methods: A conveniently selected sample of ALHIV aged 15-19 years were recruited from HIV treatment clinics between March-April 2024 with their consenting parent/guardian. ALHIV completed three self-administered electronic questionnaires in their preferred language to screen for: (1) Anxiety, using the Generalized Anxiety Disorder scale (GAD 7), with a score ≥10 considered positive; (2) Depression, using the Patient Health Questionnaire (PHQ 9, score ≥10); and (3) Trauma, using the University of California Los Angeles Post-traumatic Stress Disorder Reaction Index (UCLA PTSD RI, score ≥30). Scores were calculated automatically and returned immediately by e-mail to the study team, then tabulated manually. Further electronic questionnaires completed pre-entry generated automated e-mail safety alerts for reported suicide attempts, kidnapping, transactional sex, and sexual coercion.

Findings: Of the 94 ALHIV screened (54% female), 62 (66%) had positive scores on at least one CMD assessment. Of the 62 ALHIV with CMD positive scores, 54 (57%) scored positive for depression, 52 (55%) for PTSD, 38 (40%) for anxiety, and 52 (84%) had symptoms of more than one condition. Thirty ALHIV had co-existing depression, trauma and anxiety; 15 scored positive for depression and trauma; 6 for anxiety and depression; and 1 for anxiety and trauma. Safety alerts were received for 28 (45%) ALHIV with CMDs; 23 suicide attempts, 3 kidnappings, 8 transactional sex, and 11 sexual coercion.

Conclusion: Two thirds of ALHIV recruited from primary care facilities in Zimbabwe screened positive for CMD, with most exhibiting symptoms of multiple mental health conditions. The high frequency of CMDs detected underscores the importance of integrating routine screening and management of CMDs with HIV programmes in Zimbabwe to achieve and sustain targeted treatment outcomes.

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A Cross-Sectional Evaluation of Depression, Coping Strategies, and Adherence to Antiretroviral Therapy as Determinants of Quality of Life Among Pregnant Women Living With HIV in Northwestern Nigeria

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Background: Quality of life (QoL) is an invaluable indicator of the overall well-being of individuals. In pregnant women living with HIV, QoL could be affected by different clinical and non-clinical factors, which ought to be determined and incorporated into their routine care. This study aimed to determine the effect of depression, coping strategies, and adherence to antiretroviral therapy (ART) on the QoL of PLHIV in northwestern Nigeria.

Methods: This cross-sectional study was conducted among pregnant women living with HIV in the three federal teaching hospitals in northwestern Nigeria between February to May 2023. Four standard questionnaires were used to seek responses from 900 randomly sampled PLHIV: P-Health Questionnaire-9, PHQ-9 (depression), BREF (coping strategies), Simplified Medication Adherence, SMAQ (adherence), and 15D (quality of life). IBM-SPSS was used for data analysis, considering appropriate descriptive and inferential statistics, with significance set at $p<0.05$. Ethical approval was obtained from the participating hospitals.

Results: A total of 877 persons participated in the study (response rate = 97.44%). Participants aged 31-50 years were 517(66.0%). DTG-based first-line ART was being used by 658(71.5%) PLHIV. With a PHQ-9 score of 4 and above, 326(37.2%) PLHIV reported depressive symptoms, 230 of whom were first-trimester females (p=0.004). On the BREF scale, self-distraction and acceptance coping mechanisms were the preferred coping strategies of 456(56.6%) and 524(60.6%) PLHIV, respectively. Non-adherence to ART was identified in 456(52.5%), with all the participants' QoL score being 0.97±0.42. Whereas higher depressive symptoms were negative predictors of the PLHIV's QoL (ß= -0.29, p= 0.0001), higher adherence led to better QoL(ß= 0.09, p= 0.0017). Maladaptive coping strategies had inverse relationship with the QoL of the participants (r = -0.119, p=0.001), they had no predictive strength.

Conclusion: Although the proportion of the persons in the study who expressed clinically significant depressive symptoms was less than half, it is a cause for concern that the majority of such PLHIV were females in the second trimester, despite the adoption of different coping strategies. The findings of this study suggest that targeted interventions that reduce depression and increase the level of adherence to ART will lead to enhanced QoL among PLHIV.

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Pathobiological Determination of Atherosclerosis in Youth Risk Score in Adolescents With and Without Perinatally Acquired HIV in the Cape Town Adolescent and Antiretroviral Cohort (CTAAC)-Heart Study

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Background: There are limited data on the Pathobiological Determinants of Atherosclerosis in Youth (PDAY) coronary arteries (CA) and abdominal aorta (AA) risk scores in youth with HIV.

Methods: We determined the PDAY CA and AA scores among youth with perinatally acquired HIV (YPHIV), youth with non-perinatally acquired HIV (YNPHIV) on antiretroviral therapy (ART) and HIV- youth. PDAY score of ≥1 is elevated. Logistic regression models were fit to assess the association of HIV status (YPHIV vs. YNPHIV vs HIV-) with elevated PDAY CA and AA scores separately after adjusting for covariates. Subgroup analyses were performed among youth with HIV to assess the association of integrase inhibitor (INSTI)-based ART with elevated PDAY scores. Models were stratified by sex.

Results: Overall 237 YPHIV, 56 YNPHIV, and 71 HIV- youth [median age IQR 18 years [6;22], 58% females were included. Among YPHIV vs YNPHIV respectively: 59% vs 87% had viral suppression (<50c/mL), 53% vs 58% had CD4 > 500 cells/mm3, and 32% vs 86% were on an INSTI. Participants with an elevated CA PDAY included: 47.3 % (YPHIV); 62.5% (YNPHIV); and 40.8% (HIV-); and with AA PDAY: 29.9% (YPHIV), 39.3% (YNPHIV), and 22.5% (HIV-). HIV status was not associated with an elevated CA [adjusted odds ratio (aOR)= 1.05, 95% confidence interval (CI): 0.57, 1.92] for YPHIV vs. HIV- and (aOR=2.29, 95%CI: 0.93, 5.59) for YNPHIV vs. HIV-; or AA (aOR=1.04, 95%CI: 0.51, 2.14) for YPHIV vs HIV- and (aOR= 1.75, 95%CI: 0.65, 4.68) for YPNHIV vs HIV- PDAY score. In youth with HIV, INSTI was associated with higher odds of elevated CA (aOR=2.29, 95%CI: 1.31, 4) and AA (aOR=2.0, 95%CI: 1.09, 3.67) PDAY score. In stratified analyses, the association between INSTI and elevated CA PDAY score persisted in females (aOR=2.73, 95%CI: 1.32, 5.63), not in males (aOR=2.0, 95%CI: 0.78, 5.13), and not for AA PDAY (females: aOR=2.08, 95%CI: 0.88, 4.62; males: aOR= 2.14, 95%CI=0.83, 5.48).

Conclusion: We did not find that youth with HIV have higher PDAY score or ASCVD risk compared to HIV- in South Africa. Larger studies are needed to confirm differences in the relationship between INSTI and higher PDAY score.

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Scale up of Advanced HIV Disease Assessment and Package of Services for Children and Adolescents Living With HIV in Kenya

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Background: Advanced HIV disease (AHD) contributes to mortality among children and adolescents living with HIV (CALHIV). In 2023, CDC-supported partners in Kenya implemented a continuous quality improvement (CQI) initiative to improve identification and management of AHD in CALHIV. The CQI included a root cause analysis for missed opportunities, targeted efforts to address gaps, health care worker trainings, regular data review, and sharing lessons learnt. We reviewed changes in AHD assessment, prevalence, and service uptake among CALHIV before and after the initiative.

Methodology: We analyzed data from the Kenya National Data warehouse describing CALHIV 0-19 years at 963 CDC-supported sites. Using chi-square testing (p-value <0.05), we compared proportions among CALHIV aged <5 years (younger) and 5-19 years (older) who had WHO stage and CD4 documentation and AHD diagnosis between Oct 2021-Sept 2022 and Oct 2022-Sep 2023. AHD was defined as being on ART for <12 months or having treatment failure in younger children, and either having WHO stage 3/4 or CD4<200 in older CALHIV. Of those with AHD, we compared proportions receiving cotrimoxazole, malnutrition services, and TB services.

Results: Among CALHIV on ART, WHO stage documentation significantly improved among younger (74% to 94%, p<0.001) and older CALHIV (71%92%, p<0.001). Among those eligible, CD4 documentation significantly improved in younger (8%-13%, p=0.001) and older CALHIV (49%-77%, p<0.001). AHD diagnosis significantly increased among younger (36%-44%, p<0.001) and older CALHIV (4.7%-5.2%, p<0.001). TB screening (89%-94%, p<0.001) and TPT uptake (62%-74%, p<0.001) significantly improved in younger children with AHD. Cotrimoxazole uptake (92%-93%, p=0.30) and malnutrition screening (73%-76%, p=0.13) did not change significantly among younger children. No statistically significant improvements in AHD service uptake were noted among older children including TB screening (97%-95%, p<0.001), TPT uptake (95%-94%, p=0.030), cotrimoxazole uptake (77-79%, p=0.06), and malnutrition screening (87%-87%, p=0.84).

Conclusions: Following the Kenya CQI initiative significant improvements in AHD assessment, increased AHD diagnosis among CALHIV, and increased TB service uptake among younger children were seen. However, more work is needed to understand why gaps persist and improve AHD diagnosis and service uptake among CALHIV.

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Integration of the World Health Organization Pediatric and Adolescent Advanced HIV Disease Package into National HIV Guidelines: A Policy Review

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Introduction: In July 2020, the World Health Organization (WHO) released their STOP AIDS Package offering recommendations for identifying, preventing, and managing advanced HIV disease (AHD) in children and adolescents living with HIV (CALHIV). Comprehensive inclusion of these recommendations in national policy can help guarantee CALHIV receive the recommended services and help reduce AHD-related mortality. We identified national guidelines updated after July 2020 from six high HIV-prevalence countries (Kenya, Malawi, South Africa, Uganda, Zambia, and Zimbabwe) and reviewed their inclusion of the package's recommendations.

Methods: We categorized STOP AIDS Package recommendations into themes, encompassing general AHD considerations, malnutrition, TB, cryptococcal meningitis (CM), rapid ART initiation and optimization, miscellaneous aspects including serious bacterial infections (SBIs), immunizations, and other general pediatric services, and monitoring and evaluation (M&E). We reviewed the inclusion of 37 recommendations in publicly available national HIV guidelines. Frequencies describing the inclusion of these recommendations were summarized.

Results: The number of recommendations included in the national guidelines ranged between 20 (54%) and 35 (94%). Five countries included AHD definitions for CALHIV, though only two included reinitiating care after treatment interruption in their definitions. Five countries included recommendations on malnutrition screening and four on treatment for severe acute malnutrition. All countries included TB screening recommendations; five included TB prevention, diagnosis, and treatment recommendations. All countries included CM screening and prophylaxis recommendations; five included treatment recommendations. All countries recommended rapid optimized ART initiation within seven days of diagnosis cotrimoxazole prophylaxis, but two lacked SBI treatment recommendations. Five countries included immunization recommendations, though none highlighted measles revaccination after immune reconstitution. Three countries included recommendations on other pediatric services like vitamin A and deworming. One country included M&E considerations for CALHIV with AHD.

Conclusion: This review demonstrated varying inclusion of WHO-endorsed pediatric AHD recommendations in recently updated national HIV guidelines, noting gaps in recommendations on general pediatric services, immunizations (specifically measles revaccination), and M&E considerations. Expanding options for integration with maternal child health services may facilitate better adoption of WHO's STOP AIDS Package within national policies and programs and improve CALHIV health.

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Accelerated Model for the Prevention of HIV/HPV Co-Infection among Adolescent Girls Living With HIV in Parts of Lagos State Nigeria

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Background: Nigeria has HIV prevalence of 1.4% with 1.9 million persons living with HIV and adolescents account for 3.5% of this population. Lagos State shares the same HIV Prevalence of 1.4% with National. The USAID supported Integrated Child Health and Social Services Award (ICHSSA 2), being implemented in Lagos State by the Association for Reproductive and Family Health (ARFH), works to mitigate the impact of HIV/AIDS on Children/Adolescents and their households, in addition to preventing co-infections, including Human Papillomavirus (HPV). A total of 12,075 women are diagnosed with cervical cancer annually in Nigeria with 7,968 mortality. Adolescents living with HIV (ALHIV) are at higher risk; but vaccine hesitancy and beliefs, retard the uptake of HPV vaccination. This implementation mechanism seeks to address barriers to first dose HPV Vaccination amongst ALHIV aged 9-14 years.

Methods: With Caregivers' consent, ART pick up dates doubled as HPV Vaccination opportunities for ALHIV. The 'Peer Driven' platforms of Adolescents and Youth Friendly Centers (AYFCs) and OTZ Clubs were used to drive HPV vaccination. Partnership with Government for in and out of - school sensitization, including Town Hall meetings with Stakeholders, to address beliefs. Case Managers visited households to educate families on HPV and facilitated referrals to vaccination points. Routinely reported and aggregated retrospective data were used to assess HPV vaccination rates in eleven localities, over a period of 3 months, sequel to October 2023 roll out in Nigeria.

Results: Of the 459 ALHIV aged 9-14 years, enrolled on the Project in Lagos, a total of 237 (51.6%) received the first dose of HPV vaccination across eleven Local Government Areas with zero baseline: Badagry 58 (12.6%), Agege 56 (12.2%), Kosofe 42 (9.2%), Ajeromi Ifelodun 32 (7.0%), Apapa 12 (2.6%), Ojo 9 (2.0%), Lagos Island 8 (1.7%), Lagos Mainland 7 (1.5%), Shomolu 6 (1.3%), Ikorodu 5 (1.1%) and Surulere 2 (0.4%).

Conclusions: Alignment of ART pick up dates and HPV Vaccination, including interface with stakeholders, Peer Driven Platforms and incentivized referrals, increased uptake of vaccination among Adolescents living with HIV (ALHIV). Intentional programming for ALHIV and integration of HPV Vaccination, holds potentials for the prevention of HIV-HPV co-infections.

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HIV and STIs Prevalence and Associated Risk Factors Among Adolescents Living in the Street in Abidjan (Côte D'Ivoire)

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Background: HIV and sexually transmitted infections (STIs) in adolescents (10-19 years) living in the street (ALS) are an important public health challenge. We conducted a mixed-method study in Abidjan (Côte d'Ivoire) to estimate the prevalence of HIV and others STIs among ALS and to explore perceptions and barriers to HIV screening.

Description: The implementation of this study involved the collaboration with a local community-based NGO (CASES) working with children and ALS. A mapping exercise was undertaken to target the areas in which to reach the maximum possible number of ALS, with 15 community health workers (CHW) from the NGO. Leaders (adolescents living in the street) were then selected from each targeted area to mobilize their peers to visit the two mobile health centers set up for HIV and STIs screening. A capacity strengthening training was provided to nurses and midwives for STIs symptoms elicitation, vaginal and urethral swabs and training for provided in basics of research to CHW. This study obtained ethical clearance.

Lessons Learned: A total of 518 ALS was enrolled in this study, 121 (23.4%) of them were females, with median age of 17 [15-18]; 339 (65.4%) adolescents lived entirely in the street. ALS were entirely or partially in the street for a median of 2 years [9 months–3 years] and 231 (44.6%) had never attended school. Main reasons for being in the street were to earn a living (76.6%), being a victim of abuse (11.0%) and conflict with parents (6.0%). Almost all participants (n=513; 99.0%) were tested for HIV and 2 (0.3%) were positive and linked to treatment. For STIs, 69 (13.3%) had STIs symptoms and were treated free of charge. Qualitative results indicated limited knowledge on HIV and no knowledge on STIs, as well no awareness on screening methods for HIV and STIs, despite most adolescents being sexually active.

Conclusions: ALS in Abidjan are highly vulnerable to HIV and STIs. This project is ongoing and next steps include follow-up of HIV-positive ALS, continued awareness campaigns and organization of advocacy meetings to improve access and use of HIV and STI screening services among ALS.

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The Silent Loud Cry: Profiling Violence Against Children (VAC) Cases Among Boys That Received HIV Services at an HIV Clinic in the Suburbs of Kampala, Uganda

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Introduction: Violence against children in Uganda is widespread, and occurs in a range of settings. Many children are routinely exposed to physical, sexual and emotional violence in their homes, schools and other settings. Much of the violence against children remains normalized and socially condoned. Orphaned children and children with absentee parents are at greater risk of being trafficked and in addition, poverty, polygamous/broken families, alcohol and drug abuse create an enabling environment for VAC. Whereas rights and protection for the girl child have been championed, violence against boys has often been unrecognized or unseen. Data was reviewed to profile VAC among boys referred for HIV services.

Methods: We conducted a review of health data from children files, laboratory and gender based registers for the period between January 2019 and August 2023 using a pre-tested data abstraction tool to analyze data on male children who received HIV services ranging from HIV testing to ART care and Treatment. Data was collected and entered into STATA version 14. Appropriate summary statistics were used to describe the results.

Results: 116 boys received HIV services between September 2021 and August 2023. Median age was 10 years (6,15). 99% were brought in by a legal charity organization. 69 (59.4%) had experienced physical violence, of which 27 (40.9%) had physical scars of burns/lacerations and 7 (10.1%) had delayed healing wounds. 10.3% had experienced sexual assault. 40% of the 102 boys who had been trafficked/found on the streets had been sexually abused and were found to be most affected by psychological harm such as anger outbursts, anxiety and depression. 100% received HIV testing and 6 (5.2%) were HIV positive, however none was ART naïve. And 2 (25%) of these were severely ill with opportunistic infections such Tuberculosis and Malnutrition. Other Sexually transmitted infections such as syphilis were commonest among the sexually abused - 8 (35%)

Conclusion: This study highlights an unprecedented layered VAC where boys escaping from physical violence in their communities end up in unsafe settings that expose them to sexual abuse/exploitation. And this only highlights a profile of VAC cases that have received HIV services.

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Willingness to Use and Willingness to Pay for Long-Acting Injectable PrEP Among Adolescents and Young Adults in Thailand

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Background: Long-acting cabotegravir (CAB-LA), a bimonthly injection approved by the US FDA in 2021 for HIV prevention, is not yet available in low-/middle-income countries. Oral daily HIV Pre-Exposure Prophylaxis (PrEP) has been available in Thailand since 2013, which costs 14 USD monthly, but coverage and adherence remain suboptimal. This study aimed to evaluate willingness to use and pay for long-acting injectable PrEP (LAI-PrEP) among Thai adolescents and young adults (AYA).

Material and Methods: We conducted a cross-sectional study at the Buddy CU clinic, a youth-focused HIV clinic. Inclusion criteria were (1) aged 18-24 years and reporting (2) multiple sexual partners, inconsistent condom use, or a history of STI within the past 3 months. Participants watched an introductory video on LAI-PrEP, then completed a self-administered questionnaire rating their willingness to use it and concerns on a 5-point Likert scale. Proportions of AYA who had willingness to use LAI-PrEP, willingness to pay, and concerns regarding LAI-PrEP were reported.

Results: From March to April 2024, 100 AYA with a median age of 22.6 years (IQR: 20.7-23.6), with 88% LGBT (70 MSM, 11 bisexual, 7 TGW) were enrolled. 50% of participants reported 2-5 sexual partners in the past 3 months, 51% had self-perceived moderate to very high HIV acquisition risk, and 54% were currently on oral PrEP. Only a fifth (19%) had heard of LAI-PrEP prior to the study.

Willingness to use LAI-PrEP was 55% [95% CI 44.7-65.0], 76% [95%CI 66.4-84.0], and 74% [95%CI 64.2-82.3] at 2-, 6-, and 12-months injection intervals, respectively. Willingness to pay was 51%, 42%, and 7% for a price equal to, twice, or 2-6 times that of current oral daily PrEP, respectively. Concerns about LAI-PrEP side effects (68%) and long-term health consequences (65%) were more prevalent compared with concerns about interference with other concomitant medications (33%) and injection related issues (22%).

Conclusions: Thai AYA at risk of HIV acquisition are willing to use LAI-PrEP, especially with extended injection intervals. Cost is a potential barrier to access, since almost all were willing to pay only up to twice the cost of oral PrEP.

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High Proportion of Recent HIV Infections Among Adolescents Girls and Young People; An Analysis of Recency Testing Data in Zambia

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Introduction: Recency assays use one or more biomarkers to identify whether HIV infection in a person is recent or longstanding. Recency assays have been used to estimate incidence in representative cross-sectional surveys and in epidemiological studies to better understand the patterns and distributions of new and longstanding HIV infections.

In Zambia the recency testing program was launched in 2020 and over 120,000 samples have been tested cumulatively. We analyzed recency testing data to better understand the transmission patterns of HIV across geographical area and subpopulation and to monitor the proportion of the population living with HIV who are diagnosed early versus late in infection.

Method: We extracted recency tests data from an electronic database in Zambia between 2020 and 2023. Records that were found to be recent by the screening test but did not have the confirmatory test result were excluded. The PEPFAR Monitoring, Evaluation and Reporting version 2.7 definition was used to assign recency result as binary variable; recent (below 12 months) or long-term after the confirmatory test result came back. We further analyzed result by sex, age category and HIV testing entry point.

Results: Recent infections were 1,747 (3.4 %) out of a total 51,749 tests done. Females were found to have a recent infection in 3.8 % of samples as opposed to males (2.7 %). The entry point with higher percentage was PMTCT (4.6 %) and lowest was Index testing at 2.9 %. Young ages are associated with a higher proportion (15-19 yrs at 8.0 %; 20-24 yrs at 5.6 %, compared to 40-44 yrs at 2.2 % and 45-49 yrs at 1.8 %)

Conclusion: This analysis revealed that adolescent and young people as well female of reproductive age are found with recent HIV infection in Zambia. This data correlate with findings from 2021 Population based HIV Impact Assessment that shows high HIV incidence among female, adolescent and young people. While further analyses are needed to better understand social demographic factors linked with HIV transmission in this population, findings from this study justifies the urge to scale up age and population specific HIV prevention interventions in Zambia.

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Considerations for the Inclusion of Adolescents in a Gonorrhoea Treatment Trial: Experiences From the Zoliflodacin Study in Cape Town, South Africa

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Despite the high prevalence of sexually transmitted infections in adolescents globally, they are often excluded from clinical research. The possible consequence of ethical and regulatory guidance designed to protect children is delayed access to potentially lifesaving interventions. We sought to demonstrate that older adolescents (16- and 17-year-olds) could be safely enrolled in a phase 3 clinical trial and parental proxy consent safely waived.

The Zoliflodacin study (NCT03959527) was a pivotal phase 3 trial evaluating the efficacy and safety of a single, oral, dose of zoliflodacin compared to a combination of a single intramuscular dose of ceftriaxone and a single oral dose of azithromycin in the treatment of patients with uncomplicated gonorrhoea. We reviewed scientific literature and advocacy calls to include adolescents in adult clinical trials. We consulted with key stakeholders including youth advisers, legal experts, ethicists, trial investigators, the ethics committee, and community advocates before and during trial execution, and identified priority actions to facilitate inclusion of adolescents without the need for parental consent.

Specific actions that promote the inclusion of adolescents include 1) Early engagement with community stakeholders and parents, with written documentation of consultations 2) Dialogue with adolescent community advisory board on how best to engage adolescents and ensuring consent forms were age-appropriate 3) Consultation with legal experts, ethicists and the ethics committee to draft a robust and detailed ethical justification for the waiver of proxy parental consent 4) Engaging with regulatory authorities and implementing a protocol requirement for test of cure and standard of care for treatment failure 5) Implementing enhanced protection measures to mitigate risk including frequent follow-ups, encouraging involvement of a trusted adult and conducting the research in an adolescent-friendly space 6) Providing the ethics committee with frequent progress reports for minor participants

Early and robust stakeholder engagement can facilitate the inclusion of adolescents in phase 3 studies. The Zoliflodacin study is the first treatment study in South Africa to have been granted a waiver of parental consent for older adolescents and will hopefully result in further engagement around the inclusion of adolescents in treatment and prevention clinical trials in South Africa.

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A Combo Pack (Pill Pack, Alarm Watch, and Water Bottle) for Improved Antiretroviral Therapy Adherence Among Adolescents and Young People Living With HIV in Kisumu County, Kenya

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Adherence is critical for antiretroviral therapy (ART) treatment success and long-term viral suppression. Adolescents and young people living with HIV (AYPLWH) face challenges in ART adherence which leads to viral replication, increased risk of HIV transmission, disease progression, drug resistance and preventable HIV-related deaths. Commonly cited factors of poor adherence include stigma, pill burden and poor medication time keeping. Promoting strategies such as using alarms, calendars and pillboxes are individually effective in facilitating ART adherence but we do not know their combined effect.

We employed a randomized trial design, with improved ART adherence as the primary outcome. We enrolled AYPLWH aged 15-24 years with documented high viral loads (>1000 copies/ml), enrolled in care in 3 public health facilities in Kisumu County, Kenya.We randomized half to intervention arm and half to control arm. Participants in the intervention arm received a combo package consisting of an Ankara print bag with enough space for a water bottle, pillpack and alarm watch. Participants the control arm received the standard of care from the health facility. We abstracted data on pill count from participating facilities and Viral Load from the Ministry of Health data base.

We enrolled 202 participants and randomized them 1:1 to two study arms. Mean age was 17.9 years and 51.5% were females. The proportion of AYPLWH reporting missed clinic visits in the intervention arm declined by 8.0% , compared to the control arm, where the proportion increased by 1.6% .Forgetfulness, which was cited as the major reason for missing pills, declined in the intervention group by 20.7% as well as in the control arm by 15.3%.Interms of pill count, acomparable proportion, 37.0% in the intervention arm and 37.3% in the control arm, achieved good adherence. Regarding VL; participants with VL >300 c/ml declined by 1.0% in the intervention arm compared to control arm where the proportion declined by 3.9%.

The intervention showed minimal impact on ART adherence when assessed using both pre-post intervention and control designs. Further research may be needed to understand factors influencing adherence and to explore additional interventions or modifications to the combo pack to enhance its effectiveness.

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Adolescents, Parents/Guardians and Community Perceptions of Contraception Use and Its Impact on Recruitment for HIV Prevention Trials; A Case Study of the HPTN 084-01 Study

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Background: HPTN 084-01, a clinical trial examining the safety, tolerability, and acceptability of Long-Acting Cabotegravir (CAB LA) for prevention of HIV among adolescent females. To participate in HPTN 084-01, it was required that girls agree to use a reliable method of long-acting contraception. In Uganda, contraceptive nonuse is estimated at 40%. Modern contraceptive utilization is 9.4% among Ugandan female adolescents aged 15–19 years. Adolescents 16-17 years were less likely to use contraceptive methods than adult women due to issues surrounding parent/guardian consent, insufficient knowledge and a lack of experience. This study explored the reactions of parents/guardians and community on adolescent contraception uptake.

Methods: The site held a dialogue and community capacity building session with parents/guardians (6-7 August 2020, onsite and via zoom), discussing concerns, perceptions, reactions and experiences around contraception and sexual activity messaging. Community door to door sensitizations were also utilized. The prescreening clinic log captured adolescents already on contraception and willingness for continued use, as well as uptake. A contraception sessions log captured opinions and reactions and the clinic contraception log captured choice of contraception. The HPTN 084-01 prescreen checklist was used to prescreen for willingness to use contraception.

Results: Parents/Guardians (96%) had concerns about contraception including: safety for adolescents, ability to conceive after use, driver of promiscuity, and promotion of sex before marriage. Within the community, the site led 45 sensitizations, 177 were prescreened, 45 presumptively eligible, and 132 were ineligible; 53% not willing to use contraception and 47% other factors. Of the 56 prescreened at the clinic, 16 (29%) were already on contraception and 40 (71%) were not. 21 adolescents and 4 parents/guardians received contraception at the clinic and 19 declined. Different thoughts stood out about contraception: it being for adults, should not be used before childbirth and adolescents' preference to use waist beads, a black market pill once a month, and traditional methods (e.g. putting the first menstrual pad in the roof and drinking herbals).

Conclusions: Despite several community perceptions about contraception use among adolescents, systematic contraception engagements with parents/guardians and the community at large enhanced adolescent recruitment for HPTN 084-01, which required contraception use.

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Effectiveness of the Use of an Evidence-Based Curriculum in the Reduction of Sexual Violence Among Adolescent Girls at Risk of HIV Infection in Kano State, North-West, Nigeria

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Background: Sexual violence against adolescent girls and young women (AGYW) increases their risk of HIV infection. In parts of the sub-Saharan Africa, sexual violence among adolescents is as high as 24% (pediatrics). The No Means No Worldwide reported that nearly half of sexual violence is against girls aged 15 and younger. This study evaluated the effectiveness of an evidence-based curriculum (No Means No) that teaches empowerment self-defense skills for adolescent girls in preventing sexual violence in Kano Municipal Council, Tarauni, Fagge, Ungogo and Nassarawa LGAs of Kano State, Nigeria.

Methods: We conducted an orphaned and vulnerable children vulnerability assessment to identify adolescents at risk of HIV infection. The intervention collected data from the Sexual Assault Referral Centre, Kano State to identify communities with high cases of sexual violence. We taught the adolescent girls (N = 8,955) the skills to prevent sexual violence for 11 months. We sampled 71 training cohorts of adolescent girls (n = 4,622) aged 9-17 to measure the knowledge gained and change in attitude through pre/post-test and focused-group discussions. We measured behavioral outcome using anonymous beneficiary disclosure data from the total size of the population. We established a network referral system to provide post-GBV care to the survivors of sexual violence.

Results: The average increase in immediate knowledge on how to prevent sexual violence was 76% (pre-test 44%, post-test 78%); while the average change in attitude on gender and socialization was 68% with (pre-test 42%, post-test 71%). At baseline, adolescents had 65.5% rate of awareness about the occurrence of sexual violence in their communities. After 11 months of intervention, 70 adolescents disclosed sexual assault against them and used the skills to prevent it. Sampled caregivers n =12 representing 100% of the sample size, reported the effectiveness of this intervention on their children. 55 adolescent girls voluntarily conducted peer education for their peers in their communities.

Conclusions: The adolescent girls prevented sexual violence in these LGAs by using these skills. The intervention should be adapted by the Federal Government of Nigeria for implementation in secondary schools across the country to improve impact.

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Extreme Weather Events and HIV Vulnerabilities Experienced by Young Female Sex Workers and Young Men Who Have Sex With Men in Nairobi, Kenya: Implications for Climate-Informed HIV Prevention

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Background: Climate change contributes to increasingly frequent extreme weather events (EWE) in Kenya, including extreme heat, floods, droughts, and storms. The effects of EWE on HIV vulnerabilities among young key populations, including female sex workers (FSW) and gay, bisexual, and other men who have sex with men (gbMSM), are understudied. We aimed to explore the lived experiences of climate change and HIV vulnerabilities among young FSW and gbMSM in Nairobi, Kenya.

Methods: This community-based study conducted from June-November 2023 involved mixed-methods interviews using the SenseMaker platform with a venue-based sample of young (ages 16-24) FSW and gbMSM in Nairobi. This interview involved a story prompt on climate change and sexual health. We then conducted two-day digital storytelling workshops with one group of young FSW and one group of gbMSM in Nairobi. The workshop led participants through a series of individual and group activities to consider how climate change impacts HIV vulnerability. Using a video editing app, participants created 2-3 minute videos drawn from lived experiences of climate change and HIV risk. Videos were transcribed, translated, and analyzed with thematic analysis.

Results: Interview participants included FSW (n=11; mean age: 21.4, standard deviation [SD]: 1.6) and gbMSM (n=10; mean age: 20.7; SD: 2.2). Digital storytelling participants included FSW (n=12; mean age: 23.1, SD: 1.0) and gbMSM (n=9; mean age: 20.8, SD: 1.6). Across participants, narratives emphasized multi-faceted implications of climate change on increasing risks to personal safety and sexual health. Participants shared stories that generally included the following sequence of events: 1) EWE directly/indirectly lead to a lack of safe housing; 2) EWE contribute to an increase in food and water insecurity; 3) EWE increase risks of sexual violence by strangers and acquaintances when searching for food, water, and housing; and 4) to secure basic needs, participants engaged in transactional sex, often without having the agency to negotiate safer sex practices.

Conclusions: Climate change and related EWE exacerbate co-occurring resource insecurities, exposure to violence, and transactional sex for survival needs among young FSW and gbMSM in Nairobi. Urgent attention is needed to adapt HIV prevention for young key populations affected by EWE.

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"I Had Not Fully Understood How It Works:" Key Influences on Adolescent Girls and Young Women's Decisions to Decline or Delay Daily Oral PrEP Initiation in Western Kenya

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Background: Adolescent girls and young women (AGYW) have high HIV incidence and are a priority population for ending the HIV epidemic. While daily oral PrEP is an effective HIV prevention strategy, uptake among AGYW has been limited. Better understanding why high-risk AGYW delay rather than decline PrEP initiation may identify strategies for overcoming initial barriers to uptake among this key population.

Methods: Within an ongoing programmatic trial evaluating PrEP integration into family planning clinics (FP) in Western Kenya (FP Plus project), we conducted semi-structured individual interviews (IDIs) with AGYW who declined or delayed PrEP initiation. IDIs were conducted at two FP clinics between Sept-Nov 2023 by trained Kenyan social scientists and were audio recorded, translated, and transcribed. We conducted a thematic analysis of IDI summaries and a subset of full transcripts to explore and compare experiences, beliefs, and rationale between women who delayed versus declined PrEP.

Results: Twenty AGYW completed IDIs, including 10 who declined PrEP use and 10 who delayed PrEP initiation. AGYW were a median of 23 years (IQR 20-24) and the majority were single/never married (55%). All AGYW noted that alternative PrEP modalities, such as long-acting injectables or vaginal rings would improve PrEP utilization. Most described having insufficient information on PrEP after receiving initial counseling, leading them to feel unprepared to accept PrEP and fear side effects, including infertility. AGYW also noted concerns about pill size, conflation of PrEP pills with ART and fear of stigma as key influences on initial decisions to decline. For AGYW who never initiated PrEP, concerns about negative partner reactions, inability to conceal PrEP pills, and daily pill burden were primary reasons for declining use. AGYW who delayed initiation sought support from peers, partners, and family members, and searched for additional information, before deciding to initiate. Among delayed initiators, HIV risk perceptions and a desire to remain HIV negative overcame pill-taking concerns and contributed towards PrEP acceptance.

Conclusions: Community support opportunities and improved access to information could improve the uptake of oral PrEP among AGYW who perceive themselves at higher HIV risk, while additional PrEP options may improve PrEP initiation.

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Mapping the Geographic Differences of HIV Prevalence and Examining the Spatial Link Between Urbanicity and HIV Among Adolescent Mothers and Non-parenting Adolescent Girls in Sub-Saharan Africa

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Across sub-Saharan Africa (SSA), majority of new HIV diagnoses occur within micro-epidemics (areas with high HIV prevalence) and 80% of adolescent HIV diagnoses are among adolescent girls (AGs), with adolescent mothers (AMs)—an overlooked population—at increased risk. Urbanicity is a structural determinant of HIV risk. Yet, no studies have examined by maternity: geographic differences in micro-epidemics and HIV prevalence or the spatial link between urbanicity and HIV prevalence. Understanding geographic differences and spatial determinants of HIV prevalence by maternity is important for designing tailored prevention strategies for AMs. Therefore, the study's purpose is to: (1) map HIV prevalence among all AGs, AMs, and non-parenting AGs; (2) examine geographic differences in HIV prevalence and micro-epidemics by maternity; (3) examine the association between travel time to an urban center and HIV prevalence.

Data are drawn from the Demographic Health Surveys (DHS) of 5 countries in SSA. Using a sample of 8,500 AGs (15-19 years old) across 1,944 DHS clusters, we interpolated and mapped cluster-level HIV prevalence using empirical Bayesian kriging for all AGs and by maternity. To examine geographic differences, we mapped micro-epidemics (2 standard deviations above the mean) by maternity and the difference in HIV prevalence estimates between AMs and non-parenting AGs. We examine the association between travel time to urban centers and HIV prevalence amongst all AGs, AMs, and non-parenting AGs, separately, using OLS linear regression.

There was geospatial heterogeneity in HIV prevalence across all three groups. When mapping micro-epidemics (2 standard deviations above the mean), there were locations with high HIV among AMs that were not present among non-parenting AGs. Mapping differences showed that AMs tend to have higher prevalence than their non-parenting peers. Among all AGs, travel time was associated with HIV prevalence (β=-1.60; SE=0.002). Estimates were smaller for non-parenting AGs (β=-1.13; SE=0.002) and AMs, and (β=-0.43; SE=0.005).

Results show that AMs are a particularly vulnerable population, with micro-epidemics that are not consistently present in non-parenting AGs. This heterogeneity coupled with the differing associations between traveling time and HIV prevalence by maternity emphasizes the need to further understand the micro-epidemics for AMs by identifying structural drivers.

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Sex and Safety: Examining HIV Risks amongst Adolescent girls who are in sexual relationships with older men in Eswatini

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Background: Sex is a normal pleasurable healthy part of life, however, it can also be a health risk. Studies conducted in several sub-Saharan African countries revealed that inter-generational sex is an important driver of HIV/AIDS among young women. Phila Unotse project implemented by Young Heroes Organization supports the government of Eswatini to prevent new HIV infections and reducing the HIV vulnerabilities among young children and adolescent girls (AGYWs).

Objective: To examine the HIV associated risks of Phila Unotse enrolled adolescent girls who were in sexual relationships with older men at time of enrolment in the project.

Methods: Descriptive and regression analysis were performed on secondary routine data collected from January 2023 to September 2023 within ongoing implementation of Phila Unotse project. Trained Mentors identify AGYWs in their communities and provide enrolment consents where an HIV risk assessment is administered. 1437 AGYWs responded to the question on “being in sexual relationship with men 10 years older”. Variables included in the model were, Age of AGYW, sexual abuse experience, STI experience, unprotected sex exposure, drug abuse and relation with older men being the dependent variable.

Results: 169/1437 (12%) were in sexual relationship with older men. 15% of those had STI experience against 2% from those in other relationships, 77% had unprotected sex against 48%in other relationships and 41% experienced sexual abuse against 3% from other relationships. Regression analysis found that being in sexual relationship with older men was associated with increased chances of having unprotected sex (Odd ratio 0.046, 95% CI 0.014 to 0.059, p< 0,0050). Variables like sexual abuse, age, sexually transmitted infections experience were not significant.

Conclusions: Conclusions: AGYWs in intergenerational relationships face high risks of unprotected sex and sexual abuse than AGYWs in other relationships. To prevent HIV spread amongst AGYWs and the older male population, there is urgent need for evidence based new HIV interventions targeting AGYWs and old men.

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HIV Prevalence Among Pregnant and Lactating Adolescent Girls and Young Women: An Analysis of Demographic and Health Data from Ten African Countries

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Background: Adolescent girls and young women (AGYW) aged 15-29 years are disproportionately impacted by the HIV epidemic, especially in sub-Saharan Africa. AGYW face higher risk of HIV acquisition, as well as unique obstacles in accessing testing, treatment, and care. Within this population group, pregnant and lactating AGYW face additional challenges and have unique needs that must be met. This analysis seeks to better understand factors related to HIV prevalence among pregnant and lactating AGYW and inform tailored programming.

Methods: We obtained cross-sectional Demographic and Health Survey (DHS) data from ten countries - two from West and Central Africa and eight from East and Southern Africa. The pooled sample included 43,345 AGYW aged 15-29. We estimated HIV prevalence ratios for the 10 countries using logistic regression to measure associations between HIV status and different exposure variables, such as background characteristics, sexual and reproductive and family planning (SRH/FP) service outcomes, HIV-related behavioral characteristics, and intimate partner violence (IPV).

Findings: Overall AGYW HIV prevalence (HIV-P) was 7.1%, with HIV-P for pregnant and lactating AGYW being 9.7%. HIV-P among multiparous AGYW was 10.0%, which was almost three times greater compared to nulliparous AGYW (3.6%). For pregnant and lactating AGYW, factors with significant associations were older age group, unmarried status, other religion, positive history of emotional and physical IPV, positive history of physical IPV, fewer than four ANC visits during pregnancy, and having multiple sexual partners in the past 12 months preceding the survey.

Recommendations: Pregnant and lactating AGYW have increased HIV risk, with heightened risk and vulnerability of HIV for their babies if they are not engaged in HIV prevention and the full continuum of care. Programmes must be tailored to address the unique needs of all AGYW, especially those who are parenting or lactating, with evidence used to guide decisionmakers and policymakers in mitigating different risk and vulnerability factors.

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Sexual Behaviors and Vulnerability to HIV Among Adolescent Girls and Young Women in Cameroon

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Background: Adolescent girls and young women (AGYW) are one of the population groups most affected by HIV in Cameroon, emphasizing the necessity for context-specific and targeted preventive strategies. Therefore, this study aimed to assess sexual behaviors and their social determinants among AGYW in Cameroon.

Methods: A cross-sectional study was conducted among 637 AGYW in Yaounde, Cameroon, from February through June 2023. An online survey was utilized to collect AGYW's sexual behaviors and vulnerability to HIV as well as their history of sexually transmitted infection (STI) diagnosis, HIV testing history, and awareness of pre-exposure prophylaxis (PrEP). Data were analyzed using R software, employing descriptive statistics and logistic regression.

Results: The mean age of participants was 22 (±3) years, of whom 84.9% had received secondary education or above and 6% identified as sexual minorities, such as bisexual and lesbian. Among the 637 AGYW surveyed, 25.3% reported the likelihood of having condomless sex with multiple partners in the next 12 months, 43.8% reported the likelihood of condomless sex with someone of unknown HIV status, and 22.4% reported the likelihood of condomless sex with someone known to be HIV positive but with unknown treatment status. Additionally, the percentages of participants who reported having been diagnosed with the following STIs within the past six months were: chlamydia (15.7%), gonorrhoea (3.3%), syphilis (5.7%), hepatitis B (15.9%) and hepatitis C (8.2%). Furthermore, 32.8% of AGYW reported having tested for HIV within the past 12 months and 19% having heard of PrEP. Vulnerability to HIV was more likely among AGYW who identified as bisexual or lesbian (aOR=2.04, 95% CI=1.05–3.98), those with primary or no education (aOR=1.87, 95% CI=1.08–2.65) and those who were employed (aOR=1.63, 95% CI=1.09–2.42).

Conclusions: The study findings highlight the vulnerability of AGYW to HIV in Cameroon. There is a critical need to initiate sexual education and innovative interventions focusing on promoting condom use and PrEP uptake among AGYW, particularly among sexual minorities and individuals with lower education.

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Breast Feeding Practices Among Women Living With HIV: Experiences From Breast Feeding Women Enrolled in Facility Based Groups at a HIV Clinic in the Suburbs of Kampala, Uganda

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Background: In Uganda, guidelines for preventing mother to child transmission of HIV recommend that women living with HIV breastfeed their children to one year of age. The purpose of this study is to understand the breast feeding patterns of women with HIV during the Early Infant Diagnosis period of 18 months and the duration of breast feeding. Facility Based Groups provide psychosocial interventions and are run by peer mothers, counsellors and supported by doctors/clinicians.

Materials and Methods: A retrospective cohort study of breast feeding women with HIV enrolled in the facility based group from 2021 at AIDS Information Centre Kampala. Women were recruited at very group visit/meeting which took place quarterly basis. These were followed up until the children made 18 months of ages. Data was collected and entered into STATA version 14. Appropriate summary statistics were used to describe the results.

Results: A total of 86 mothers were enrolled and their children were followed-up until 18 months of age. 34 (40%) of mothers breastfeed children until one year. 9 (10%) breastfed for < three months, 17 (20%) breastfed for 3-6 months and (26) 30% breastfed > 1 year. Median age was 28 years (IQR 20.2-34). Approximately 90% were virally suppressed with undetectable viral loads. 5% were non-suppressed (VL>1000 copies) and 5% were newly diagnosed. The most common reason for breast feeding beyond 1 year was fear of disclosure of HIV status (71%). Mixed feeding was highest among those who breastfed for 3-6 months. Fear of HIV transmission to baby was the commonest reason among those who breastfed < six months (65%) due to non-adherence, detectable viral load results and peer pressure. 10 (12%) babies that breast < 6 months were either malnourished and/or had frequent ill-health. One baby tested positive for HIV at 18 months.

Conclusion: Women struggle with replacement feeding/ exclusive breast feeding and end up mixed feeding their children. This increases risk of HIV transmission and malnutrition of their babies. It highlights that breast feeding patterns of women living with HIV deviate from guidelines which underpins the high mother to child transmission rate of HIV in Uganda.

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Longitudinal Changes in PrEP Use During Pregnancy Among South African Women Accessing Oral PrEP

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Background: Pregnant women are vulnerable to HIV acquisition. Oral HIV pre-exposure prophylaxis (PrEP) is safe and recommended for pregnant women vulnerable to HIV, however, adherence can be challenging. Longitudinal data on drug concentrations, coupled with electronic monitoring of daily dosing (pillcap), among women prior to and during pregnancy are limited.

Methods: We conducted a trial to evaluate how the HealthyFamilies PrEP intervention could support oral PrEP use among women aged 18-35 years, planning for and with pregnancy in Durban, South Africa. This secondary analysis is restricted to enrolled women who used oral PrEP, had a pregnancy, and a live birth (n=24). PrEP adherence was assessed using plasma tenofovir (TFV), tenofovir diphosphate (TFV-DP) in dried blood spots (DBS), and electronic pillcaps at quarterly follow-up. Plasma TFV≤10ng/mL and TFV-DP≤16.6fmol/punch were below detectable limits. Data were analysed descriptively. Pre-pregnancy refers to the quarter prior to pregnancy, and pregnancy was divided into trimesters.

Results: Among 24 women, 63% were aged 18-24 years, 38% were nulliparous, and 92% did not know their partner's HIV-serostatus. Pillcap data were available for 14, 19, 16 and 11 women during pre-pregnancy and trimesters 1-3 respectively. Median pillcap adherence was 57%-72% and was highest during pre-pregnancy (72%, IQR:54%-85%) and the third trimester (72%, IQR:30%-94%). Tenofovir samples were available for 14, 21, 17 and 13 women and TFV-DP samples for 13, 20, 16 and 13 women during pre-pregnancy and trimesters 1-3 respectively. Median TFV concentrations were 50.7ng/ml, <10.0ng/ml, <10.0ng/ml and <10.0ng/ml and TFV-DP were 74.0fmol/punch, 38.2fmol/punch, <16.6fmol/punch and <16.6fmol/punch, respectively, during pre-pregnancy, trimesters 1-3. The proportion of women with detectable TFV was 57% (n=8/14) pre-pregnancy and 38% (n=8/21), 18% (n=3/17) and 15% (n=2/13) for trimesters 1-3, respectively. TFV-DP was detected in 62% (n=8/13) pre-pregnancy, and 40% (n=8/20), 19% (n=3/16) and 15% (n=2/13) for trimesters 1-3, respectively.

Conclusions: TFV and TFV-DP concentrations declined during pregnancy by all measures. Discrepancies between pillcap measurements and drug concentrations could be due to physiologic changes during pregnancy or under- or over-use of the pillcaps. Gaps exist in determining drug concentrations needed to confer protection during pregnancy to optimize counselling and prevention support.

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Delivering Integrated Next Step Counselling (iNSC) to Perinatal Women at Risk of Acquiring HIV-Site Experiences from the IMPAACT 2009 Study in Zimbabwe

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Background: Clinical trials offering pre-exposure prophylaxis (PrEP) to perinatal women often embed adherence support counselling into study visits. Integrated Next Step Counselling (iNSC) is a person-centered, motivational-interviewing informed discussion that allows participants to create their own goals and develop strategies to reach them. In the IMPAACT 2009 study, which enrolled pregnant women wanting to protect themselves against HIV, an embedded iNSC approach broadened the scope of discussions about sexual health protection to include overall mental health and well-being. We report the Zimbabwe site experiences delivering iNSC.

Description: Trained counselors implemented iNSC at each study visit regardless of whether participants opted to initiate PrEP. For women on PrEP, monthly dried blood specimens were collected to monitor adherence via Tenofovir Di-phosphate testing, and these results were used to guide targeted iNSC discussions (t-iNSC). The counselors (n=6) met periodically to discuss their experiences. We used the Objective, Reflective, Interpretive, Decisional framework to collate the counselors' observations of participants' mental health, well-being, and sexual health during the study.

Lessons Learned: In practice, counselors reported several advantages of iNSC/t-iNSC over traditional adherence-focused counselling. On reflection, a counselor reported that iNSC opened helpful conversations to the contextual and structural challenges women faced. Counselors recalled women sharing that PrEP was not a priority when there is no food on the table or when experiencing stressors related to pregnancy. The interpretation is that concerns about sexual health are secondary to fundamental requirements; before talking about sexual health difficulties, social and mental health issues needed to be addressed. Furthermore, iNSC/t-iNSC activated and improved participants' abilities to manage and adapt to social situations while on PrEP. Despite cultural barriers associated with partner dynamics, iNSC/t-iNSC assisted participants in assessing and determining their sexual health protection, regardless of PrEP use.

Conclusions: iNSC/t-iNSC was a crucial tool used by IMPAACT 2009 counselors working with perinatal participants wanting to protect themselves against HIV. Discussing sexual and mental health in addition to HIV-related issues created growth opportunities and reflected lived realities of perinatal women with limited resources. Our experiences suggest that iNSC/t-iNSC addressed the overall needs of participants and may improve upon traditional approaches.

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Adolescent Perspectives on Enrolling in Two HIV Clinical Research Vignettes During Pregnancy

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Background: Pregnant adolescents face greater challenges related to HIV compared to pregnant adults, including higher risk of HIV acquisition and maternal/fetal morbidity and mortality. However, pregnant adolescents are often excluded from clinical HIV research participation, resulting in less evidence to inform safe and effective treatment/prevention strategies. We sought to understand the views of adolescents on potential enrollment in HIV prevention/treatment research in order to develop ethical guidance that can help expand the responsible inclusion of pregnant adolescents in clinical research.

Methods: Eighty in-depth interviews were conducted with ever pregnant adolescents (40 living with HIV, 40 at-risk) recruited from local clinics in Botswana and Malawi. Questions in the semi-structured interview guide explored decision-making around enrollment during pregnancy using two vignettes depicting hypothetical HIV studies: (1) testing a new medication to prevent/treat HIV that has not yet been studied in pregnancy, and (2) a randomized control trial (RCT) comparing a daily pill vs. a new injectable that has not yet been studied in pregnancy. Interviews were transcribed, translated to English, and coded in NVivo, and emergent themes were identified.

Results: Most adolescents reported willingness to join at least one of the two vignette studies. The most common reasons for willingness to join were potential benefit of treating and/or preventing HIV in themselves and the fetus and helping women or people who can become pregnant in the future. Some participants also noted interest in joining an HIV prevention study to prevent potential HIV acquisition from unfaithful partnerships. However, some participants were reluctant to join the RCT, citing uncertainty of randomization because of wanting to decide for themselves which medication they will take during pregnancy.

Conclusions: While adolescents highlighted concerns of randomization and medication safety during pregnancy, their ability to assess study risks and benefits and their high willingness to join at least one vignette study suggests that current HIV research, which largely excludes pregnant adolescents, may be misaligned with the views, interests, and capacities of potential participants. These findings underscore the need for ethical guidance to support adolescent inclusion in HIV research during pregnancy.

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Adolescent Perspectives on HIV Clinical Research Participation Rules During Pregnancy

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Background: Relative to pregnant adults, pregnant adolescents face increased risk of HIV acquisition, vertical transmission, and poor pregnancy outcomes. Addressing the ethical and regulatory barriers to HIV research with pregnant adolescents is crucial to providing safe and effective prevention/treatment. We examined adolescent decision-making related to clinical HIV research participation during pregnancy to help develop ethical guidance for responsible inclusion of pregnant adolescents in clinical research.

Methods: Eighty in-depth interviews were conducted with ever pregnant adolescents (40 living with HIV, 40 at-risk) recruited from local clinics in Botswana and Malawi. Questions in the semi-structured guide explored adolescents' views on study participation during pregnancy with reference to three common rules governing adolescent inclusion in clinical research: (1) parental and non-gestational parental consent, (2) disclosure of abuse, and (3) two required forms of birth control (BC). Interviews were transcribed, translated to English and coded using NVivo, and emergent themes were identified.

Results: Thematic analysis revealed mixed support for the three common rules, with adolescents describing both risks and benefits. Although most adolescents expressed parental consent was a right/responsibility that could provide protection, some also noted that it could limit access to beneficial research. Some adolescents felt that pregnant individuals under 18 can provide independent consent. Conversely, most adolescents were against non-gestational parental consent requirements because it infringes on adolescents' decision-making autonomy. Most favored disclosure of abuse, citing protection for the adolescent or fetus by authorities; however, some also noted this rule could increase risks for research participants. Some adolescents felt that tangible support (e.g. counselling) should also be provided when abuse is discovered. Finally, supporters of the BC requirement indicated it provides contraception access and pregnancy prevention but noted that some may decline study participation if BC is required, due to side effects.

Conclusions: Adolescents identified advantages and disadvantages of common clinical research rules that would impact inclusion of pregnant adolescents in research, highlighting concerns specific to their social contexts and family dynamics. These findings underscore the need to advance the interests of adolescent research participants in developing guidance for their ethical inclusion during pregnancy.

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Finding Missed Opportunities Across the PMTCT Cascade to Improve Interventions to Reduce the Transmission of HIV Among Infants in Mozambique DOD-Supported Facilities

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Background: In Mozambique, mother-to-child transmission (MTCT) of HIV has reduced from 12% in 2022 to 10% in 2023. As part of the U.S. Department of Defense-funded program, Jhpiego works with the Forças Armadas de Defesa de Mozambique (FADM) to implement a comprehensive HIV program, which includes the elimination of MTCT. The purpose of this study was to identify missed opportunities in preventing MTCT.

Methods: This is a retrospective descriptive analysis of missed opportunities across the PMTCT cascade leading to HIV vertical transmission, using data from October 2022 to September 2023. De-identified data on HIV status, antiretroviral therapy (ART), viral load suppression (VLS), antenatal care (ANC) visits of mothers, and early infant diagnosis (EID) were extracted from monthly programmatic reports.

Results: From October 2022 to September 2023, 1094 HIV-exposed infants (HEI) were expected based in proxy measure HIV positive woman but only 889 (81%) were identified across nine sites. 99.5% (n=885) EID PCR DNA samples were collected; of those identified, 3% (n=29) were diagnosed with HIV and 86% (n=25) started ART. Of the 29 infants diagnosed with HIV, 51% (n=15) were <2 months of age and 49% (14) were aged 2-9 months. A total of 67.9% (19/28) of the pregnant mothers attended ANC visits in FADM-supported sites and the remaining 32.1% (9/28) were followed up at other MOH health facilities. About 42% (8/19) of pregnant mothers were already on ART at the start of their pregnancy; 53% (10/19) were newly diagnosed as HIV-positive and 90% (10/11) started ART. About 36% (10/28) had VLS (< 1000 copies/ml), 14% (4/28) had unsuppressed VL, and 50% (14/28) had no VL testing requested. Of the 29 infants diagnosed with HIV, 65.5% (19) were identified through EID testing. The remaining 34.5% (9) had interrupted follow-up in MoH sites and were identified in routine screening at the Expanded Vaccination Program.

Conclusion: This initial analysis reveals missed opportunities across various PMTCT cascade stages, including VL monitor, retention of HIV-infected pregnant and breastfeeding women on ART, insufficiently monitoring HIV-exposed children and inconsistent PCR collection impacting MTCT. Additionally, conduct thorough studies at each stage for detailed insights into targeted interventions.

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Assessing ARV Prophylaxis and Early Infant Diagnosis Compliance among HIV-Exposed Infants in Nigerian States: Experiences from the Pediatric Breakthrough Partnership Study

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Background: Nigeria's national guidelines recommend 1) timely administration of infant ARV prophylaxis from birth (initiation within 72 hours) and completion of a 6-week regimen to reduce the risk of vertical transmission and 2) early infant diagnosis (EID) testing by age two months and eighteen months to ascertain infant HIV status and HIV final outcome. We investigated the rate of compliance with HIV prophylaxis and EID testing for HIV-exposed infants in two Nigerian states in the Pediatric Breakthrough Partnership (PBP) study.

Material and Methods: Secondary, routinely collected pediatric HIV program data for 12-months (March 2020 to February 2021) were abstracted from registers and electronic records at 3 PEPFAR-supported PBP study sites (two secondary and one primary) in Rivers and Taraba states. Data was collected on infant prophylaxis and EID testing. Data was analyzed descriptively and by chi-square.

Results: Our database included 206 HIV-exposed infants; 138 (67%) from secondary sites, 68 (33%) from primary sites. Total number of infants who received prophylaxis within 72 hours of birth with full completion of six weeks' regimen was 129/138 (94%) at secondary sites and 38/68 (56%) at primary sites (p =0.0000). The rate of timely initiation of infant prophylaxis for secondary and primary sites was 98% versus 53% (p=0.0000). The total number of infants with timely EID tests within six weeks of age was 102/138 (74%) at secondary sites and 57/68 (84%) at primary sites (p=0.0001). Infants with EID test results at 18 months were 189/206 (92%); 6/189 (3%) tested positive at primary sites and 2/189 (1%) at secondary sites. The percentage of infants with a positive HIV final outcome at primary sites versus secondary sites was 3% and 1% (p=0.0001).

Conclusion: Our findings show a significantly low rate of success in administering ARV prophylaxis to HIV-exposed infants at primary vs secondary health facilities. However, EID testing rate was higher at primary vs secondary sites. Continued advocacy and support to caregivers of HIV-exposed infants, job aids and human resources to track mother-infant pairs and training of service providers will be essential for improving achievements in sub-national and national outcomes in infant HIV prophylaxis and diagnosis.

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Mother-To-Child Transmission of HIV in Kenya: A Cross-Sectional Analysis of the National Database Over Nine Years

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Objective: To describe factors associated with mother-to-child HIV transmission (MTCT) in Kenya and identify opportunities to increase testing/care coverage.

Methods: 365,841 Kenyan infants were tested for HIV from January 2007-July 2015 and results, demographics, and treatment information were entered into a national database. HIV risk factors were assessed using multivariable logistic regression.

Results: 11.1% of infants tested HIV positive in 2007-2010 and 6.9% in 2014-2015. Greater odds of infection were observed in females (OR: 1.08; 95% CI:1.05-1.11), older children (18-24 months vs. 6 weeks-2 months: 4.26; 95% CI:3.87-4.69), infants whose mothers received no PMTCT intervention (vs. HAART OR: 1.92; 95% CI:1.79-2.06), infants receiving no prophylaxis (vs. nevirapine for 6 weeks OR: 2.76; 95% CI:2.51-3.05), and infants mixed breastfed (vs. exclusive breastfeeding OR: 1.39; 95% CI:1.30-1.49). In 2014-2015, 9.1% of infants had mothers who were not on treatment during pregnancy, 9.8% were not on prophylaxis, and 7.0% were mixed breastfed. Infants exposed to all three risky practices had a seven-fold higher odds of HIV infection compared to those exposed to recommended practices. The highest yield of HIV-positive infants were found through targeted testing of symptomatic infants in pediatric/outpatient departments (>15%); still, most infected infants were identified through PMTCT programs.

Conclusion: Despite impressive gains in Kenya's PMTCT program, some HIV-infected infants present late and are not benefitting from PMTCT best practices. Efforts to identify these early and enforce evidence-based practice for PMTCT should be scaled up. Infant testing should be expanded in pediatric/outpatient departments, given high yields in these portals.

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Epidemiology of HIV Infection Among HIV-Exposed Infants, Nairobi County, Kenya

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Objective: To characterize human immunodeficiency virus (HIV)-positive infants among HIV-exposed infants (HEIs) in Nairobi County for public health action.

Methods: We conducted a retrospective review of records of HEIs' HIV polymerase chain reaction (PCR) results in Nairobi County in 2015, excluding confirmatory PCR-positive results. HIV-exposed infant registry data were entered into Microsoft Excel and descriptive and associative statistics were calculated with OpenEpi software.

Results: A total of 5802 HEI records were analyzed, with a median age of 4.5 (interquartile range, 8.5) months; 342 (5.9%) tested positive, 51% were female, and 4420 (76.2%) were seen at maternal and child health clinics. Standard highly active antiretroviral therapy intervention was given to 184 (60.3%) of the mothers of exposed infants, and 178 (53%) of the HIV-positive infants received active antiretroviral therapy. A total of 3464 (59.7%) HEIs had PCR done within the first 2 months, and 119 (3.4%) tested positive. The average turnaround time for PCR samples was 28 ± 22 days, and a total of 191 (3.3%) HIV-positive HEIs were exclusively breastfed for the first 6 months of life.

Conclusion: The recorded mother-to-child transmission (MTCT) rate of 5.9% in Nairobi County is lower than the 2015 national rate, which suggests the Nairobi prevention of mother-to-child transmission efforts are moderately effective. However, results from this study show that Kenya will struggle to meet the MTCT 2020 target rate of <5%.

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Improved Tracing and Enrolment of Children Living With HIV in the Orphaned Vulnerable Children and Youth (OVCY) Project in South Africa

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Background: In 2020 UNAIDS estimated approximately 230 000 children and adolescents living with HIV (C/ALHIV) in South Africa. HIV prevention, care and treatment efforts targeting HIV exposed infants (HEI) and C/ALHIV reduces their morbidity and mortality. Enrollment of C/ALHIV into HIV and OVCY programs remains a challenge. The USAID-funded FHI 360-led Capacity Development and Support (CDS) program used innovative strategies under Early Childhood Household Stimulation (ECHS) and Reaching Adolescents and Children in their household (ReACH) projects to reach, link and retain C/ALHIV into services contributing to the 95-95-95 goals. The study examined strategies that improved C/ALHIV enrollment into OVCY projects and support to remain in care.

Description: The OVCY projects were implemented in Mpumalanga, Kwa-Zulu Natal, Gauteng, Limpopo, and Eastern Cape provinces. The aim was to promote known HIV status at household level and support OVCY to access HIV services. Targets sub-populations included C/ALHIV, HEI, children of caregivers living with HIV and children of female sex workers. The projects established memorandums of understanding with the department of health to formalize relationships between high-volume health facilities. For effective bi-directional referrals project-based clinical staff supported case-finding and enhanced HIV literacy among beneficiaries.

Baseline data (September 2018) showed 6.5% (ECHS) and 5%(ReACH) pediatric case finding. In October 2018-September 2019, these projects increased enrollment to 19300 C/ALHIV. HIV testing referrals for 3213 HIV exposed infants, identified 119 positive infants (Early Infant Diagnosis). Additional C/ALHIV were enrolled from TIER.Net, Antiretroviral Therapy, PMTCT and pediatric HIV-defaulters registers. Pediatric case finding increased from 6.5% (614/9513) to 28% (4002/14129) for ECHS and from 5% (2664/57731) to 20% (15298/75913) for ReACH.

Lessons Learned: Collaboration with health facilities through effective data-driven bi-directional referrals improved identification, enrollment and support for C/ALHIV. This multi-disciplinary approach demonstrates value addition of community projects in care and treatment.

Conclusion: Community-based OVCY projects play a crucial role in supporting health care systems. Integration of clinical and non-clinical services is a model that offers a comprehensive package of services for the most-at-risk beneficiaries in South Africa. This model can be scaled to address the slow progress in achieving the 95-95-95 UNAIDS goals among children in South Africa.

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Designing a Complex Intervention to Increase Neonatal HIV Test-And-Treat and Maximize the Long-term Impact on Infant Health (LIFE2Scale)

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Introduction: Progress in eliminating pediatric HIV has slowed despite significant improvement in access to antiretroviral treatment for pregnant women living with HIV. Achieving better clinical outcomes for infants affected by HIV in resource-poor settings requires robust decentralized early infant diagnosis and treatment programs. In the LIFE study, conducted in Mozambique and Tanzania, maternal point-of-care HIV viral load monitoring at delivery increased detection of high-risk mother-child pairs, and neonatal birth test-and-treat reduced early mortality among HIV-positive infants. However, challenges persist in optimizing linkage and adherence to prevention and treatment.

Methods: Using a collaborative approach and feedback from stakeholders and health workers in the LIFE study, we designed an intervention package to include universal point-of-care maternal HIV viral load at delivery for high-risk case detection, dedicated case managers for high-risk infant care, and eHealth systems for rapid result communication. To improve access to point-of-care diagnostic services in rural settings, interventions are implemented in a semi-decentralized hub-and-spoke delivery model leveraging multi-module GeneXpert systems. Our primary endpoint is completion of infant diagnostic, preventive, and therapeutic procedures within 7 days post-delivery, evaluated in a stepped-wedge cluster-randomized trial (LIFE2Scale). Additionally, enhanced counselling, focused on socio-behavioral support, is provided to high-risk pairs.

Results: We organized 50 primary care health facilities into a hub-and-spoke network in Mozambique and Tanzania (6 hubs with 2-7 spokes each per country) and plan to enroll 6000 mother-child pairs. Vertical transmission is expected at 1.7%. Existing country-specific eHealth systems (Electronic Sample Referral System (ESRS)/UCS Kituoni App in Tanzania and DISA Lab/Link in Mozambique) were expanded in functionality and reach. Over 50 counsellors were trained in enhanced high-risk counselling. Health outcomes of HIV-positive infants will be evaluated up to 12 months of age and viral isolates will be characterized against various broadly neutralizing antibodies to advance preventive and therapeutic strategies.

Conclusion: Reducing early HIV-related mortality in infants will likely require context-specific, patient-centered interventions aimed at diagnosing and treating HIV soon after birth in primary healthcare facilities. Targeted testing of high-risk infants with health system strengthening may increase the proportion of infants receiving comprehensive and timely HIV care and ultimately improve clinical outcomes.

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Prevalence of Early Infant Diagnosis and HIV Infection in Mombasa, Kenya: A Retrospective Analysis

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Background: Early diagnosis of HIV in infants is critical for timely initiation of antiretroviral treatment, which significantly reduces mortality rates. This study aims to report the prevalence of HIV infection among infants participating in an Early Infant Diagnosis (EID) program in Mombasa, Kenya.

Methods: A retrospective review of records from 4326 HIV-exposed infants, aged under 2 months to above 2 years, who underwent HIV-1 DNA PCR testing in Mombasa, Kenya, in 2023 was conducted.

Results: Of the 4326 infants tested, 1583 underwent initial PCR testing, followed by 1427 and 1287 for the second and third PCRs, respectively. Confirmatory testing was conducted on 29 samples. Infants aged under 2 months constituted 1266 of the total, while those between 2 months and 2 years were 3058; only 2 infants were above 2 years old. Thirteen samples were rejected. The median age at initial PCR testing was 2 months. The overall prevalence of HIV infection among infants was 1.3%. The positivity rates for initial, second, and third PCRs were 2%, 0.4%, and 0.2%, respectively. The confirmatory test yielded a positivity rate of 58.6%. Among infants under 2 months, the positivity rate was 1%, while no infections were detected in infants above 2 years old. The rejection rate was 0.03%.

Conclusion: The study demonstrates that the EID program in Mombasa, Kenya, has achieved the national target of less than 5% positivity among HIV-exposed infants. However, ongoing efforts are necessary to sustain these achievements and ensure continuous monitoring of EID performance.

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Mother-To-Child Transmission of HIV and Child Mortality among Women Living with Perinatally-Acquired HIV: Cohort Data from Argentina

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Background: People living with perinatally-acquired HIV (PLpaHIV) are a particularly vulnerable population with a high HIV-related morbimortality and numerous social and behavioral challenges to face. In 2021, the rate of mother-to-child transmission of HIV (HIV-MTCT) in Argentina was 5.9%, almost three times the WHO HIV-MTCT target rate of <2% for non-breastfeeding populations; and the child mortality rate in the general population was 0.8%. Limited data is available in Latin America regarding HIV-MTCT and child mortality among PLpaHIV. This study aims to describe the proportion of pregnancies resulting in live birth, HIV-MTCT rate, and child mortality rate in a cohort of PLpaHIV in Buenos Aires, Argentina.

Methods: Retrospective cohort study. Pregnancies occurring in PLpaHIV who received care at an HIV clinic were included. The study period was Feb-2011 to Sep-2023. Data was collected from clinical records and surveillance systems. Following national epidemiological surveillance criteria, no evidence of HIV infection in the exposed child was defined as a negative virological test after 12 weeks of age and/or a negative serologic test after 18 months of age.

Results: A total of 107 pregnancies in 54 cis-women were included. Median age at pregnancy was 20 years (Q1-Q3 18-23). There were 82 live births and 3 deaths during the first year of life, representing a 3.6% child mortality. None of the deaths were considered HIV-related, although infection could not be ruled out in any of the cases. Due to missing laboratory and clinical data, 5 children were excluded from the HIV-MTCT analysis. There were 2 cases of confirmed HIV-MTCT representing a 2.7% HIV-MTCT rate (2/74) and 97.3% (72/74) of the children had no evidence of HIV infection.

Conclusions: The proportion of HIV-MTCT in our cohort is considerably below the national average, though statistical significance cannot be inferred due to the small number of cases. The child mortality rate in our cohort exceeds the national child mortality rate within Argentina's general population. Further research is needed to better understand the implications of these findings and consequently tailor the healthcare services offered to this population.

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Pediatric HIV testing beyond EID: Strategies, challenges and opportunities to achieve greater equity for children

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In 2022, children <15 years accounted for four percent of all people living with HIV, but 13 percent of HIV-associated deaths. HIV mortality has always been higher in children, but the gap has reached new heights due to the stark imbalance in treatment access. Globally, only 23 percent of adults living with HIV are not on treatment. For children this figure is almost double at 43 percent, which amounts to more than 640,000 children who need life-saving ART now.

This abstract explores the importance of expanding paediatric HIV testing programs as a means to end this longstanding inequity. The expansion of the AIDS response for children saw largescale uptake of testing innovations that resulted in high levels of EID coverage especially in high HIV burden countries. And yet children continue to face disproportionate vulnerability to undiagnosed HIV.

Notably, the majority of undiagnosed children living with HIV in low- and middle-income countries (LMICs) are older than 18 months old. The Global Alliance to End AIDS among Children by 2030 prioritizes scaling HIV case finding among children, underlining the pivotal role of HIV testing to end AIDS. This abstract discusses the Technical Brief to Scale Up HIV Case Finding among Children Beyond Infancy, jointly developed by UNICEF, CDC, EGPAF, and a consortium of partners and development organizations, to introduce innovative methodologies to augment testing uptake among children, mitigate barriers to access including stigma and discrimination, and leverage community-based interventions for focused outreach.

It advocates for a multifaceted approach integrating clinical, social, and structural determinants to increase case identification and attain equity in treatment access for pediatric populations. Prioritization of multimodal testing is an essential first step to end AIDS mortality and improving health outcomes of affected children globally.

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Optimizing Pediatric and Adolescent HIV Case Finding Through Strategic Weekend-Based Approach to HIV Testing, a Journey Towards Achieving HIV Epidemic Control, Case Study of Kwara, North Central Nigeria

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Background: There have been appreciable efforts towards achieving HIV epidemic control in Nigeria and globally, but we are short of achieving epidemic control. More concerted efforts and innovative strategies are required to achieve it. Strategic Weekend Approach to HIV Testing (SWEAT) is an innovative and targeted community HIV testing implemented during weekends and public holidays. SWEAT employs these strategies: HIV risk stratification, partner/sexual network testing, genealogy/family tree testing, social network testing prioritizing pediatrics, adolescents, and youths. The purpose of the study is to evaluate the impact of SWEAT in HIV epidemic control, North Central Nigeria.

Method: We conducted a retrospective reviews of the HIV testing records from SWEAT conducted by 20 testers over the weekends (Saturdays and Sundays) from December 2022 to January 2023 across 8 randomly selected local government areas (LGAs) to evaluate their achievements and compared it with the achievements from weekday community testing conducted on weekdays (Mondays-Fridays) within the same period across the same LGAs by a different set of 20 testers to evaluate the impact of SWEAT on achieving HIV epidemic control.

Results: From our results, a total of 25,001 clients were reached and their HIV risk profiled/stratified, 10,393 clients (3,952 pediatric and adolescent) with significant risk profile were tested for HIV; 249 (3.0%) tested positive (41 pediatric/adolescent with 1.0% efficiency) from SWEAT strategy in comparison to 23,120 clients reached and stratified for HIV testing from weekday community testing, 19,388 (5,824 pediatric and adolescent) with significant risk were tested, with 208 (1.0%) tested positive (22 pediatric/adolescent with 0.4% efficiency).

Conclusions: SWEAT is a more targeted and efficient HIV case finding strategy for improved pediatric, adolescent, and adult case finding, a critical step in achieving epidemic control. The risk stratification for clients and testing efficiency across sub-populations were better during the weekends than weekdays, clients were more relaxed and receptive during the weekends. We strongly recommend weekend-based community testing for improved and efficient case identification. Future research should compare the achievement of weekend versus weekday-based testing in the urban versus rural areas, this will be useful in strengthening HIV services in urban and rural settings.

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Improving Early Infant Diagnosis among HIV-Exposed Infants Using Tuberculosis-GeneXpert Systems in Resource-Constrained Settings - Northcentral Nigeria

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Background: The availability of PCR laboratories and sample transportation remain major Early Infant Diagnosis(EID) related challenges in resource-constrained countries. In Nigeria, National Integrated Sample Referral Network (NiSRN) was established to streamline clinical sample referrals and improve testing efficiency. Despite this, hard-to-reach terrains, insecurity, inefficiencies among the third-party logistics (3PLs) and disproportionate testing burden on the reference laboratories resulted to long Turn-Around Time(TAT) for EID results and pose a severe threat to the success of EID. The purpose of this study was to review the efficiency of using TB-genexperts for EID.

Description: A retrospective review of collected data from infants that are HIV-exposed (HEIs) across Niger and Kwara states, Nigeria between January and December 2023. Consultative meetings/workshops were held with the key stakeholders including TB and Leprosy program control agencies and implementing mechanisms that led to assessment of GeneXpert machines across the states with the finding that none of the facilities had reached 30% utilization. These findings led to activation/utilization of Genexpert systems and training of healthcare providers in 11 GeneXpert Laboratories across the two states (Niger-8 and Kwara-3) for EID services. A hub-spoke network was established for seamless referral of EID samples and return of test results. A descriptive analysis was conducted to delineate the efficiency including TAT of infant virologic testing (IVT) using TB-genexpert platforms, then compared with conventional method of logging samples to PCR laboratories.

Lessons Learned: 1,356 EID samples were analysed with 40 identified positives across the GeneXpert Laboratories and all the results returned within 3 days. We observed an increased IVT done with reduced TAT from 6 months to 3 days. Additionally, the short TAT made it quite easy to reach the caregivers of the infants within few days of delivery of results. Nevertheless, the major challenge encountered was inadequate supply of HIV-1 Qual cartridge.

Conclusions: Utilization of TB-GeneXpert System was found to be sustainable and provides increased access to EID with quick delivery of results. Based on increasing evidence, services integration is required across diseases areas to address barriers and increase services uptake to respond more easily to public health emergencies in resource-constrained settings.

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Father to Child Transmission of Human immunodeficiency virus Disease While Sero-Discordant Status of the Mother Is Maintained

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Mother to Child Transmission (MTCT) of HIV is considered during perinatal period. However possible risk of paternal transmission of HIV is still not understood. A family of HIV infected father, mother and child was recruited for the study. The mother during first pregnancy was tested HIV seronegative and found seropositive during subsequent pregnancy.

The seronegative wife of HIV infected husband delivered first male child who was tested at the age of four and a half due to pulmonary tuberculosis and found HIV positive. Translated amino acid sequence of C2-V3 region of env gene of HIV1 in PBMCs of father and son showed 86% homology and that with mother and son showed 48% homology. These HIV variants showed the sequence identity with Chinese isolates.

The study suggests the paternal transmission of HIV to the son of HIV negative mother and need for parental diagnosis of HIV during perinatal period. It was demonstrated for the 1st time that HIV binds specifically to hMR and enters into the sperm which may transmit into the distal cells and therefore, the sperm associated virus is a risk factor for sexual transmission of HIV.

It has also been reported that HIV infected spermatozoa have the ability to fertilize the oocytes and transfer the virus into the resulting embryo, but the cell free virus in the semen is not able to bind or penetrate the oocyte in vitro. So one should also think of the possibility of direct transmission of HIV from father to a child where sperm acts as a carrier and to screen all children for HIV even if the mother is not reactive for HIV and if any one of the parent is having the HIV infection.

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Successful HIV Case Identification Strategies for Children and Adolescents in Nigeria: A Baseline Evaluation of UNICEF's Service Delivery Framework

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Background: In Nigeria, ART coverage is only 45% for children and adolescents living with HIV (CALHIV). UNICEF's 2019 Service Delivery Framework (SDF) aims to improve case identification, enrolment and retention-in- care. The Pediatric Breakthrough Partnership (PBP) study is an implementation research-guided evaluation of SDF strategies in Mozambique, Nigeria and Uganda. We present data from SDF evaluation in Nigeria.

Methods: Consolidated Framework for Implementation Research (CFIR) was used to design focus group discussions (FGDs) and in-depth interviews (IDIs) questionnaires. Information was collected on SDF strategy application and impact from purposively selected program implementers, service providers, and service users (i.e. adolescents, caregivers of CALHIV and pregnant women) at four facilities in Rivers and Taraba states. Nine FGDs and 36 IDIs were audio-recorded from July–August 2022 to capture the first 12 months of SDF implementation. Transcripts were validated and analysed using NVivo-14 software, focusing on CFIR domains of Innovation, Individuals Involved and Inner/Outer Setting.

Results: The 89 (56% female) participants included: 10 program implementers, 61 service providers, and 18 service users.
Integration of HIV testing services into pediatric, antenatal, and general outpatient departments (GOPD) increased HIV testing coverage: "we have staff posted to GOPD to test new patient that comes to the hospital to see doctor, they must first pass through [HIV testing]." FGD_service providers.
Community engagement involving traditional birth attendants (TBAs) and patent medicine vendors to identify cases: "So, we trained TBAs…patent medicine vendors, … community gatekeepers in the community… to refer people in the community to the respective places for HIV testing" IDI_program_implementer
House-to-house, genealogy and other index case testing strategies improved case identification.
Self-testing strategy using oral kits were preferred by parents due to ease of use, non-invasiveness and affordability: "Mothers were given self-testing kits to test the children with the saliva on the swabs, then those who are positive, she'll bring them to the hospital" KII_service provider.

Conclusion: Integration of facility-based and self-HIV testing services and diversified community engagement increased case identification of CALHIV at evaluated sites. Combination of implementation strategies such as UNICEF's SDF are key to scaling case identification for CALHIV in Nigeria and other high-burden countries.

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The Role of Geographic Information System (GIS) Application in Accelerated HIV Case Finding Towards Achieving HIV Epidemic Control, a Case Study of Kwara State, North Central, Nigeria

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Background: Geographic Information System (GIS) is a computer software that can be used to analyze data and map locations using the information that is tied to that location on the earth's surface. HIV case finding in community settings is suboptimal. There is a need to apply innovative digital strategies for improved case finding. The purpose of the study is to evaluate the role of GIS in achieving HIV epidemic control, Kwara State, North Central Nigeria.

Methods: We conducted a retrospective review of records of 1,500 clients randomly selected across ten community hotspots mapped with GIS in North Central Nigeria, who had received HIV testing services between August -November 2023 and compared it with previous/historical HIV testing records of the communities. Data was analyzed using statistical tables/formulas.

Result: From our report, out of 1,500 (M 644; F 856), pediatric and adolescent clients aged 1-19 years constituted 40%, while clients 20+ years constituted 60%. A total of 184 clients were identified positive and initiated on anti-retroviral treatment (ART), the case finding efficiency was 12%.in comparison to 1.2% from historical data of the communities. Three community hotspots had the highest case finding efficiency of: 39.4%, 29.3%, and 25%. Out of the 184 positive clients, 19% were aged 1-19 years, while 81% were clients aged 20+ years. A total of 517 HIV negative high-risk clients were initiated on Pre-exposure prophylaxis (PrEP). 4,501 condoms, and 13, 465 lubricants were given for prevention.

Conclusion: The use of GIS resulted to improved access and targeted HIV testing, ART, and prevention services among pediatrics, adolescents, and adult population. This is a major milestone in achieving epidemic control. Also, high-risk clients were reached with HIV combination prevention services, another crucial step in achieving epidemic control. The 12% testing efficiency recorded with GIS was significant (p-value <0.05) when compared to the historical testing efficiency of 1.2% in the communities. We strongly recommend routine use of GIS for mapping hotspots, and training of HIV program staff/managers on its use. Future research should highlight use of GIS for improving client retention/continuity on ART for optimal viral suppression to achieve epidemic control.

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Scaling-up Timely Early Infant Diagnosis for HIV Exposed Infants at Family Hope Centre Kampala, Uganda; A Quality Improvement Initiative

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Background: Ministry of health Uganda guides that early infant HIV diagnosis (EID) be done between 4-6 weeks of child birth. Timely infant diagnosis is a major challenge, where it is estimated that globally, half of all HIV exposed infants receive a test in the first 2 months of life. At family Hope Centre, a Children's Aids Fund clinic, only 68.7%of infants accessed a timely 1st PCR test within 4-6 weeks of life by December, 2022. There were suboptimal mechanisms to track mothers and infants for testing by 6 weeks of life. Some infants who visited the clinic also went without a PCR test due to poor clinic flow processes and minimal integration of EID with the vaccination program.

Method: A continuous quality improvement project was started on the 1st of January 2023 to improve the indicator. EID tracker for pregnant women living with HIV was put in place. Mentor mothers (peer supporter) were identified to utilize it for tacking and follow up. They line-listed all pregnant women with their expected dates of delivery (EDD) and all women with children due for a DNA-PCR test. Pre-and post-calling of women with HIV exposed infants (HEI) due for PCR tests as appointment reminders. They followed-up women who missed a clinic visit and were trained to do community PCR bleeding before 2 months. They mobilized for monthly Family Support Group meetings for pregnant and lactating women living with HIV for client literacy. Alignment of mother's appointments with the HEIs DNA-PCR schedules as also done.

Results: The results showed improvements in timeliness for 1st DNA-PCR tests from 68.7% by December, 2022 to 79.4% by March 2023, 83.5% by June 2023, 86% by September 2023 and 90.4% by December 2023. These are average percentiles for each scheduled test across the 12 months of the project.

Conclusion: Peer-to peer support (mentor mother) with the use of the EID tracker for follow-up improved timeless of 1st PCR test and thus, is a key intervention in the care and management of HIV exposed infants.

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Problematic of Weak Community Support by Mothers Mentors in Monitoring Exposed Children Born From HIV+ Mothers and Retention in Pediatric HIV Care

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Background: In 2023, the DRC had 490,000 people living with HIV, including 60,000 children, 33,000 from them did not have access to ART. Inequalities in access between adults and children are observed: 88% versus 44%. Furthermore, in 16,000 new HIV infections, 46% occur in children under 15 years. Our study aims to evaluate the contribution of the mother-mentor approach in achieving the objectives of the plan to eliminate vertical transmission of HIV.

Methology: The study was conducted in 10 provinces and covered PMTCT data from 2019 to 2021. This involved an evaluation of the performance of PMTCT interventions, identification of bottlenecks as well as the contribution of the mother-mentor approach in the monitoring of infants exposed. A mixed approach was used: The quantitative part focused on the collection, analysis, consolidation of quantitative data. The qualitative part involved semi-structured interviews with HIV+ pregnant and breastfeeding women on ARTs, healthcare providers and Technical and financial stockholders.

Results: Coverage of ARV prophylaxis among infants exposed in 2021 was only 23%. In 28,995 infants exposed, only 2,692 or 9% had received a virological test within six weeks of their birth. These percentages have declined over time.33% of HIV+ children started ART. The study also showed that a set-up of Mother Mentor approach was not effective: The insufficiency of trained Mother Mentors, the lack of standardized tools, the total demotivation of Mother Mentors, which had a negative impact with as a consequence, a high loss of HIV+ women and their children in the PMTCT program (31%).The causes explaining these bottlenecks were Low involvement of mother mentors due to lack of motivation, unavailability of inputs (Nevirapine,cartridges for EID); Lack of funds for shipping samples to the networking laboratory and delay in reporting results; Low proportion of trained health professionals;

Conclusion: The problem of poor community support from mother-mentors in the offer of pediatric service is the determining factor important reason for poor access to pediatric HIV care service. The legislative and political framework agree to revitalize this approach because apart from clinical services and availability of inputs, he success of PMTCT requires the involvement of communities.

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Addressing Inequities in HIV Testing and Counselling Among Pregnant Women in India: Findings From Nationally Representative Data

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Background: Nearly 150,000 children below the age of 15 years in India live with HIV. Prevention of vertical transmission has therefore acquired significance, considering nearly 30% of infection transmission happens in the late stage of pregnancy or antenatally. Multiple social and cultural barriers, including stigma against people living with HIV, contribute to lower acceptance of voluntary counselling and HIV testing. These barriers disproportionately affect the poor and the marginalized, making information on socio-economic inequities in diagnosing HIV, crucial for HIV programs. This paper seeks to investigate socio-economic inequities in HIV testing and counselling during antenatal care.

Methods: We used unit data from large-scale population-based survey, namely the fifth round of the National Family Health Survey, conducted during 2019–21. The individual women recode data file was used in this study since the HIV section was covered only in this section. Total 4897 women with a birth two years preceding the survey received HIV test during antenatal care or labour and received results. Concentration indices were calculated for the multiple indicators on HIV testing during ANC. Subsequently, the Blinder-Oaxaca decomposition method was utilized to explain the socio-economic differences.

Results: Concentration indices revealed a significant pro-rich distribution of multiple HIV testing and counselling indicators during antenatal care. Approximately 29.8% of women received HIV tests during ANC or labor. It was found that as the wealth quintile increased, the likelihood of HIV testing during ANC also increased in India. For instance, the odds of HIV testing during ANC increased from 1.3 times ($p < 0.001$) in the poorest quintile to 2.5 times ($p < 0.001$) in the richest quintile.

Conclusions: The study's results indicate that HIV testing rates during antenatal care are low among women in India. Various sociodemographic and economic factors are significantly linked to HIV testing during antenatal care. Factors such as education level, place of residence, comprehensive knowledge of HIV/AIDS, and regular exposure to mass media play a substantial role in the socioeconomic disparities observed in HIV testing during antenatal care among Indian women.

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Enhancing Pediatric HIV Care Delivery: Experiences from Community Service Providers Implementing Service Delivery Framework (SDF) Strategies through the Pediatric Breakthrough Partnership (PBP) in Nigeria"

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Introduction: In response to the significant challenge of high pediatric HIV rates and poor service coverage, UNICEF introduced the Service Delivery Frame (SDF) work to enhance pediatric HIV care delivery. The Pediatric Breakthrough Partnership (PBP) study is an implementation research-guided evaluation of SDF strategies in Mozambique, Nigeria, and Uganda. This study presents results from the evaluation in Nigeria.

Method: Qualitative questionnaires, designed using the Consolidated Framework for Implementation Research (CFIR), collected information on SDF strategy application and impact from service providers in four health facilities across Rivers and Taraba states. Nine Focus Group Discussions (FGDs) and 2 in-depth interviews (IDIs) conducted from October-November 2023 captured 24 months of SDF implementation, and transcripts were analyzed using NVivo-14 software.

Result: Community service providers are better equipped to provide enhanced services through the SDF strategies. “In almost 15 years of working as a TBA we do not do testing… we don't know how to help these women or even protect ourselves but when this organization came and gave us the testing kits, we improved in our services and how we take care of pregnant women and their unborn babies”. FGD-Traditional Birth Attendant-3

The SDF strategies have empowered service providers through training and incentives to facilitate home-based sample collection for infants.

“They gave us a step-down training in the facility… I’ve been a mentor mother and a DBS-collector, this gives me joy because even here or outside, I can collect samples, I can send it, I can fill the form … we have so many success stories of our babies”. FGD-Mentor Mother-3

For the outcome of 18-month-old babies…they have supported us. They give us some money…, sometimes we go to the houses of those mothers that are too stubborn to come, we collect samples, and bring it to the facility or take it to the lab…it has helped us a lot”. FGD-Mentor Mother-1.

Conclusion: The provision of essential tools-testing kits, trainings, and incentives from the SDF strategies has enhanced the quality of care provided to pregnant women and infants and ultimately fostered a sense of confidence and efficacy among community-based service providers.

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Siyakha Plus: A Person-centered Approach to Bridging Gaps in PMTCT Services

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Background: Mozambique's vertical HIV transmission rate of 10% exceeds the regional average. Despite the availability of maternal and child HIV treatment and prevention services, preventing mother to child transmission (PMTCT) remains a challenge, especially among mothers aged 15-24.

Description: The Siyakha Plus pilot program enrolled 55 young mothers living with HIV in Beira, Mozambique in a person-centered approach to improve health outcomes by addressing socio-economic barriers to treatment continuity. It uses peer groups to build skills and livelihood opportunities linked to local markets while also providing guidance on viral suppression (e.g. treatment literacy and nutrition) and preventing HIV transmission to infants (e.g. breastfeeding guidance, early childhood stimulation, immunization, and early infant diagnosis (EID)). Peer groups serve as a support network that addresses stigma, discrimination, and self-esteem issues for young mothers living with HIV.

Lessons Learned: In accordance with national guidelines, samples were collected from infants for testing at different stages: at 6 weeks old (EID 1), at 6 months old (EID 2), and at 18 months old following the stoppage of breastfeeding (EID 3). At the beginning of the pilot in October 2022, 67% (n=37) of eligible infants were tested, and all tested negative. As the infants became eligible for EID 2, all infants in the program (n=55) were tested and all were negative. After EID 2, three mother-infant pairs moved away. By April 2024, 71% (n=37) of the infants in the cohort were eligible for EID 3, and all tested negative.

Conclusion: Although limited in sample size, the 0% vertical transmission rate in this pilot provides evidence that integrated socio-economic and health programming can improve uptake and adherence to critical PMTCT services. While this combination of support has been broadly applied to girls and young women without HIV to prevent new transmissions, this pilot implies that providing this support to young mothers living with HIV can prevent vertical transmission and improve health outcomes for young mothers living with HIV and their babies. We are eager to expand the use of this model to improve health outcomes for more young mothers living with HIV and their babies.

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A Case-Based Management Approach to Strengthen the Follow-Up of HIV-Exposed Infants in Tanzania

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Background: The success of prevention of mother-to-child transmission of HIV (PMTCT) programs relies on the ability to monitor the full cascade until the final outcome of HIV-exposed infants (HEIs). In Tanzania, the mother-child cohort register was introduced to enhance follow-up, but it is still paper-based. Through its successive USAID-funded projects in Tanzania, the Elizabeth Glaser Pediatric AIDS Foundation established a case-based management (CBM) approach in 2019 to strengthen follow-up of HEIs. The CBM approach includes on-site mentorship, an electronic dashboard to visualize PMTCT cascade data, virtual data review meetings, and service provider WhatsApp communication groups. This study evaluates the progress made to date.

Methods: A retrospective analysis was conducted on the annual PMTCT cohorts at 472 health facilities in five supported regions, documenting the final outcome status of HEIs at 18 months of age. Data were extracted from the national mother-child cohort registers and care and treatment databases from October 2016 - September 2023.

Results: Overall, the annual number of HEIs dropped from 5,433 in 2017 to 4,696 in 2023, and the percentage of HEIs with a documented final outcome status increased from 61% (3,288/5,433) to 91% (4,290/4,696). The number of HEIs with a confirmed positive HIV test dropped from 196 to 80, with the positivity among those tested dropping from 6.1% in 2017 to 1.9% in 2023. Out of the 406 HEIs (9%) in 2023 with unknown status, 55% were recorded as transfer-out and no final outcome was captured in the system. See figure showing the annual trend.

Conclusion: The intensified CBM approach improved the follow-up of HEIs. We recommend scaling up the CBM model that includes the use of digital health tools to enable timely and complete monitoring of mother-baby pairs across all service delivery points and facilities to further close the MTCT cascade gaps.

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Navigating Sustainability: An Assessment of USAID/PEPFAR-Supported Mentor Mothers Programs

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Introduction: Evidence has shown that peer-support activities involving prevention of vertical transmission (PVT) services and ongoing support promotes higher continuity of treatment and empowers healthy living for women living with HIV (WLHIV). PEPFAR supports numerous Mentor Mothers (MM) programs across various countries that employ such a peer-support model. To promote sustainability, it is useful to identify challenges and leverage successes observed across these various MM programs. Thus, this abstract reviewed the implementation and evolution of MM programs to better understand sustainability options.

Methods: This mixed-methods study sought to learn about the varying structures and practices employed in MM interventions across USAID/PEPFAR-supported PVT programs. The in-country USAID/PEPFAR PVT technical expert staff involved with managing MM programs were asked to complete a 40-question survey that combined quantitative close-ended questions exploring the structure of Mentor Mother programs and qualitative open-ended questions assessing the respondents' perceptions of program successes and challenges. Survey responses were categorized into two broad themes: logistical program information and qualitative responses.

Results: Authors independently reviewed 13 survey responses from 11 of 16 countries with USAID/PEPFAR-supported MM programs. Though responses varied, recurrent themes emerged in respondents' perceptions of successes, challenges, and the sustainability of MM programs. Nearly 70% of MM respondents noted their MM programs lowered vertical transmission rates, increased continuity of treatment, and/or improved viral suppression for mothers and their children. Contrastingly, almost 40% of respondents remarked that donor dependence, sustainable funding sources, and/or lack of remuneration for MM volunteers perceivably challenged MM programs. Two respondents also voiced concerns of MM volunteers not being recognized as formal health cadres and thus not being integrated into national health systems, another challenge for sustainability.

Conclusion: As PEPFAR and other donors strategize with host countries on sustainability plans for their national HIV response, integrating MM program models into the PVT programs is an important and needed inclusion. Optimizing synergies in funding, enhancing program management, and further integrating MM program models into national healthcare systems with local governments may address the perceived sustainability challenges threatening the impactful work and continued critical support of MM programs.

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An Evaluation of Infant/ child HIV case-based surveillance system in Mazowe District, Zimbabwe, 2023

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Introduction: Pediatric HIV remains a public health threat. Zimbabwe has the infant/ child HIV case-based surveillance system (CBS) to identify gaps and provide data driven decisions in prevention of vertical transmission of HIV for children below 2 years. Mazowe district had constant under-reporting from 2021 to 2023 of infant/ children who acquired HIV. We evaluated the infant/child HIV CBS in Mazowe district to assess reasons for under-reporting, healthcare worker (HCW) knowledge, usefulness and system attributes of the surveillance system i.e. simplicity, acceptability, stability, timeliness, data quality and representativeness.

Methods: We conducted a descriptive cross-sectional study using updated CDC guidelines for evaluating surveillance systems. Questionnaires were administered to 66 HCW to assess knowledge on a likert scale and reasons of under-reporting. Checklist were used to assess surveillance system attributes. Thirty-two case investigation forms were assessed for data quality. We performed descriptive statistics on quantitative data and thematic analysis on qualitative data.

Results: Reasons for under-reporting were inadequate training 61/66 (92%), poor surveillance system knowledge 61/66 (92%), lack of appreciation on importance of reporting 45/66 (68%) and not knowing where to send the forms 43/66 (65%). Overall, 23/66 (35%) HCW had poor knowledge, 13/66 (20%) had good knowledge and 30/66 (45%) had fair knowledge on a 3-point likert scale. All 66/66 (100%) HCW perceived the surveillance system to be useful, however 2/20 (10%) facilities had minutes to show data use and 1/20 (5%) facilities had recommendations actioned. Eighteen 18/20 (90%) public health facilities and no private facilities participated in the surveillance system. No 0/20 health facility reported stock ruptures of reporting forms. Sixty-five 65/66 (98%) HCW were willing to continue participating in the surveillance system and 63/66 (95%) HCW had no difficulties in completing the forms.

Conclusion: Poor health worker knowledge, inadequate training and not knowing where to report were major reasons for under-reporting. The Infant/ child HIV CBS is simple, stable and acceptable but had poor timeliness and not representative. There is lack of data-driven decision making from the surveillance system hence there is need for training of HCW on objectives, reporting channels and prevention of vertical transmission data use.

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Knowledge, Practices and Contributions of Traditional Birth Attendants (TBAs) to Antenatal, Childbirth and Postnatal Care in the Lake Chad Basin of Cameroon

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Background: Maternal mortality remains high in Cameroon, especially in the three northern regions. These regions are characterized by high proportions of women who conduct prenatal, childbirth and postnatal care with traditional birth attendants (TBA) and without any contact with the health system.

Objective: This study is proposed to assess the knowledge, practices and contributions of TBAs to antenatal, childbirth and postnatal care within communities in the Lake Chad basin of Cameroon.

Methods: We conducted a cross-sectional descriptive survey with an exhaustive sample of TBAs in the Kousseri and Mada Health districts in April 2018. The data were collected via interviews with a face-to-face questionnaire administered to TBAs. Data on their involvement in antenatal, childbirth and postnatal care were collected and analysed using SPSS 25.

Results: A total of 641 TBAs were included in the survey, 426 (66.5%) of which were from Kousseri. Among the surveyed TBAs, 428 (66.8%) reported having received training to deliver babies, among which 289 (67.5%) received training from other TBAs. Advise on sexual behaviors prior to marriage was given by the majority of TBAs (60.4%). A total of 411 (64.8%) TBAs reported contributing to helping pregnant women during pregnancy, 180 (43.8%) of whom recommended hospital visits. Also, 231 (36,0%) TBAs reported encountering difficulties when performing deliveries, of which 73 (31,6%) TBAs mentioned prolonged labor. Only 232 (36, 2%) respondents were aware of the possibility of mother-to-child transmission (MTCT) of disease, among whom 105 (45.3%) mentioned HIV as a possible MTCT. A total of 636 (99.2%) TBAs used sharp edged equipment's during childbirth, 339 (52, 9%) used water and soap as sterilizers.

Conclusion: The knowledge, practices and contributions of TBAs regarding antenatal and maternal care in the Lake Chad Basin need to be improved to improve maternal and child access to some pregnancy and perinatal interventions.

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Mother-To-Child Transmission of HIV and Its Associated Factors Among Infants Exposed to HIV in a Region With High HIV Prevalence in Togo: Case of the Maritime Region

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Background: Achieving elimination of mother-to-child transmission (MTCT) of HIV remains a challenge in developing countries. The objective of this study was to estimate the MTCT rate of HIV among HIV-exposed infants and to describe the associated factors among HIV-exposed infants in a health region with high HIV prevalence in Togo.

Methods: This was a retrospective cohort study focusing on infants exposed to HIV and their mothers registered and followed in health facilities in the maritime region between January 1st 2016, and December 31st , 2021. The couple's mother-child medical follow-up recording file was used to collect the data. An analysis using logistic regression was carried out to identify the association factors.

Results: 1454 HIV-exposed infants and their mothers were included in the study. The median age of mothers was 31 years (IIQ = 21 – 48 years). the prevalence of HIV infection among pregnant women in the maritime region was 1.60%; 95% CI (1.53%-1.67%). 80 infants were infected with HIV, nearly 75% of whom were detected at 6 weeks of life. The rate of mother-to-child transmission of HIV from our cohort in the maritime region was 5.5%; 95% CI (4.44%-6.80%). The discovery of the mother's serology after pregnancy (OR = 1.83; 95% CI = 1.16-2.88; p = 0.049), the duration of maternal ART less than 3 months before delivery (aOR = 2.63; 95% CI = 1.56-4.41; p=0.00), premature rupture of membranes (OR = 0.191; 95% ; IC 95% = 1,13-2,49 ; p=<,001); and resuscitation of the infant at birth (OR = 1,77 ; IC 95% = 1,12-2,80 ; p=0,04) were found as factors significantly associated with MTCT of HIV.

Conclusions: A good understanding of the factors associated with HIV MTCT coupled with the intensification of proven interventions would protect future generations from HIV infection, opening hope for a reality of e_MTCT in our developing countries.

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Cascade of Care: Mother-To-Child HIV Transmission Prevention During COVID-19 Pandemic in a Reference Center in Rio de Janeiro, Brazil

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l

Background: In Brazil, the prevention of mother-to-child HIV transmission (PMTCT) program reached several milestones, including several cities already moving towards vertical HIV transmission elimination. In Instituto de Puericultura and Pediatria Martagão Gesteira (IPPMG), reference center for PMTCT in Rio de Janeiro, we observed, since 2020, an increase of 20% of incidence of children living with HIV (HIC). To understand this increase, we compared the cascade of PMTCT from the HIC born during the COVID-19 pandemic in two cohorts.

Methods: We studied two cohorts, both followed up at the IPPMG: Cohort 1) Comparison between HIC born in the pre pandemic period (HIVPP): 2010 to 2019, and during the pandemic period (DPHIV): 2020-2023. Cohort 2) Comparisons were performed between children born in the pandemic period, living with HIV (DPHIV) and HIV exposed but not infected (HEU). We used Fisher exact test and Student T-test for the comparisons.

Results: Cohort 1: Sixty-four HIC were followed in our Center: 47 HIVPP and 17 DPHIV. Among HIVPP mothers, 25 (61%) had access to antenatal care. Cohort 2: From 2020 to 2023, we followed 177 children: 17 DPHIV and 160 HEU. Three (18%) mothers from DPHIV group and 4 (3%) in HEU group did not have access to antenatal care ($p<0.01$).

Conclusions: Comparing the PMTCT cascade of care from HIC born during or before the pandemic, we observed that ARV access improved, as well as neonatal care, since half of PPHIV group were breastfed, and none of the DPHIV. In the cohort 2 comparison, we were able to observe that the access to antenatal care and ARVs during the pandemic period were major determinants of the increased incidence on MTCT in our center.