AIDS 2024
AIDS 2024, the 25th International AIDS Conference

INTERNATIONAL WORKSHOP ON PEDIATRICS & HIV | 2024

IAS 2024 & Pediatric HIV Workshop

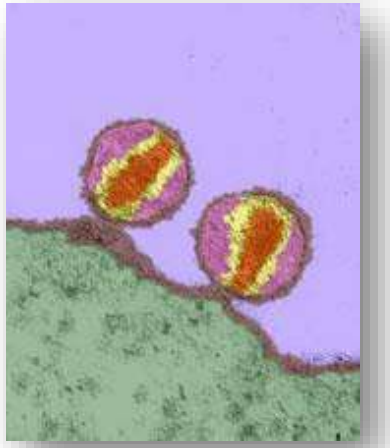
Selected PMTCT, Pediatric, Adolescent, and Maternal/Adult Abstracts

Extended slide set

Lynne M. Mofenson MD

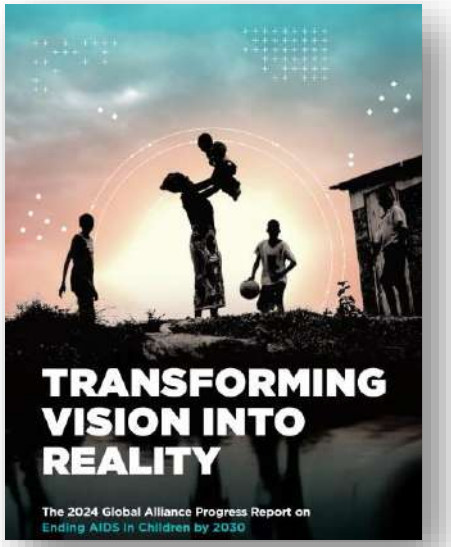
Elizabeth Glaser Pediatric AIDS Foundation
Fighting for an AIDS-free generation

08/14/2024



Update on Epidemiology of Pediatric HIV

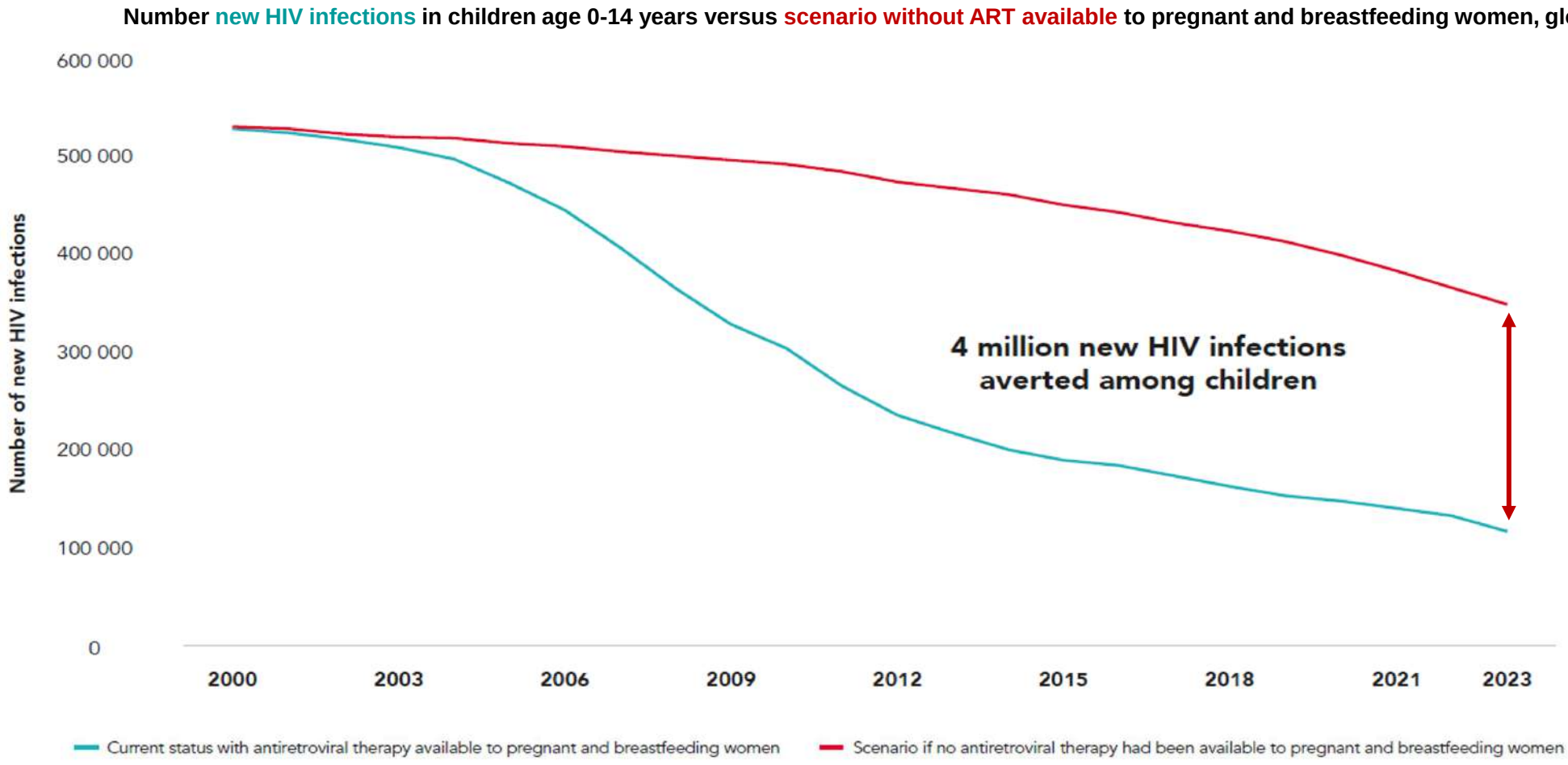
2024



UNAIDS

End AIDS in Children by 2030
THE GLOBAL ALLIANCE

The Good News: Over 4 Million New Infections Averted in Children With Maternal ART and PMTCT Programs Since 2000

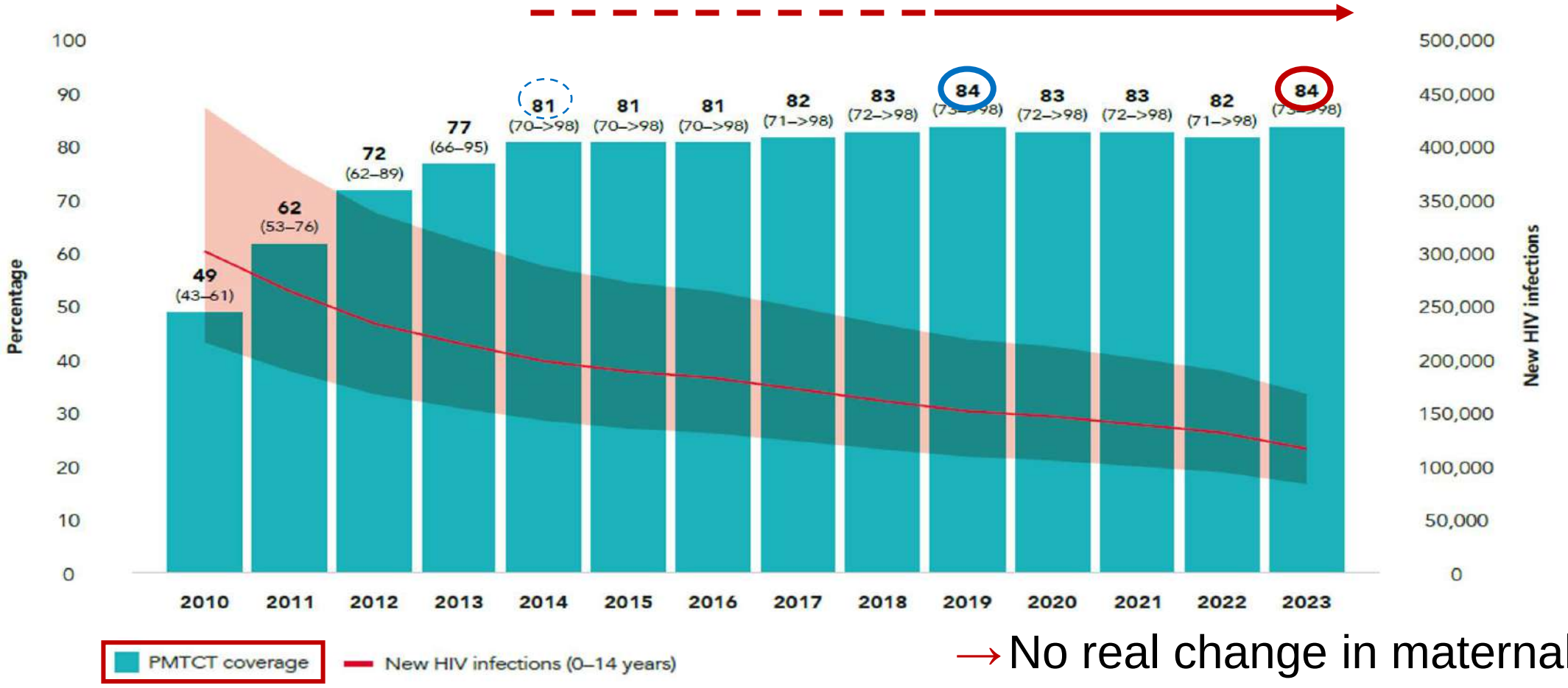


Cumulative **4 million** new infections **averted** in children due to maternal ART

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

The Bad News: However, ART Coverage in Pregnant/ Breastfeeding Women Has Remained Stalled Since 2019 (Really Since 2014…)

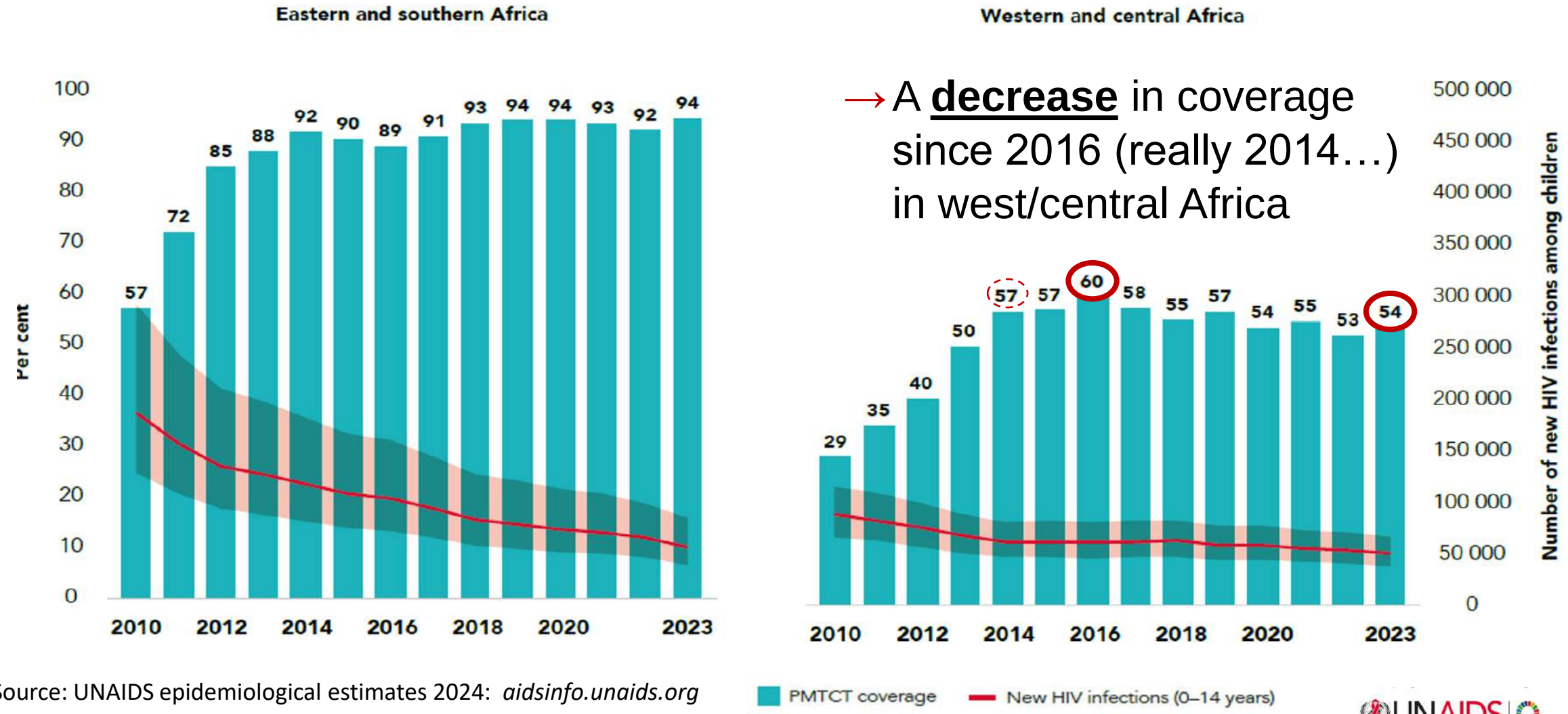


→No real change in maternal ART coverage really since 2014!

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

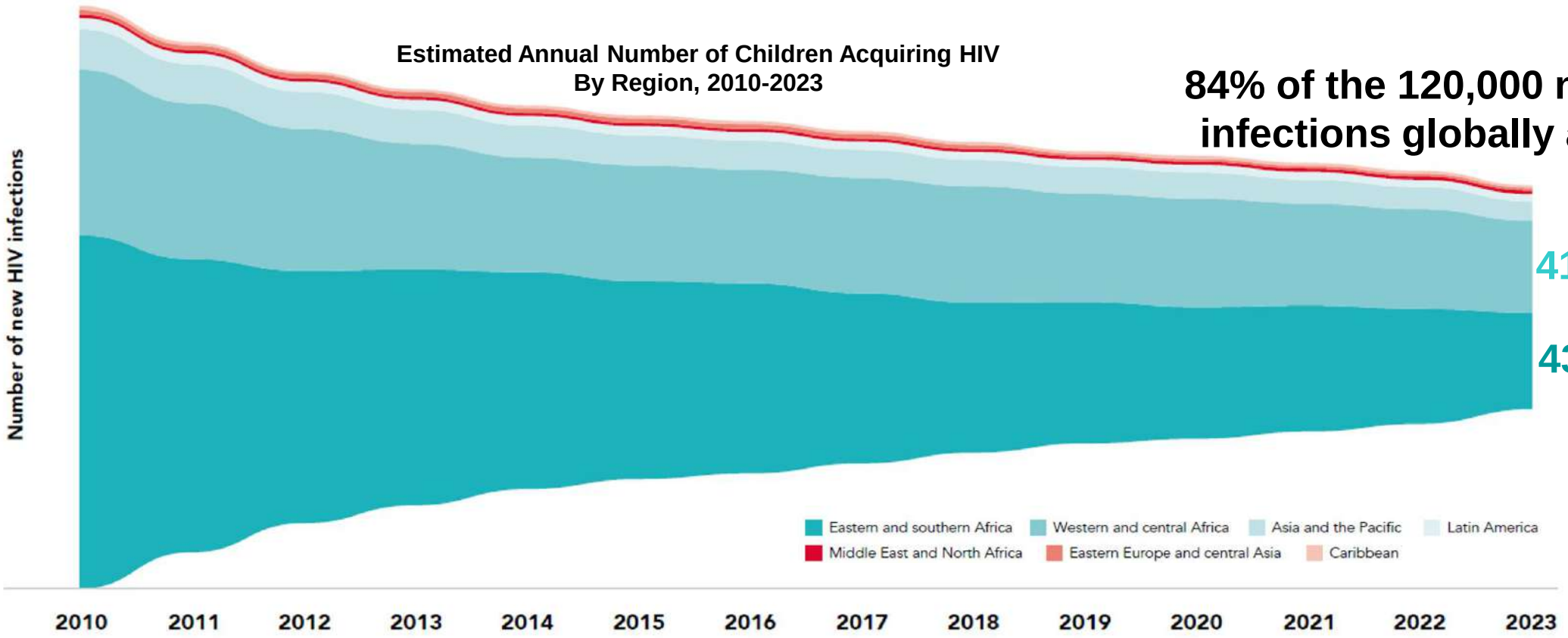
ART Coverage in Pregnant/Breastfeeding Women Varies Considerably by Geographic Region



Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

New Child Infections Have Only Slightly Decreased



84% of the 120,000 new pediatric infections globally are in Africa

41% west/central Africa

43% east/southern Africa

↓

despite 94% maternal ART coverage!

→ **120,000 (83,000-170,000) pediatric HIV infections** estimated in 2023

→ Since 2015, ↓ new infections is only 10,000/year

→ At this pace, to reach *2020* target of 20,000 new infections/year will take more than a decade!

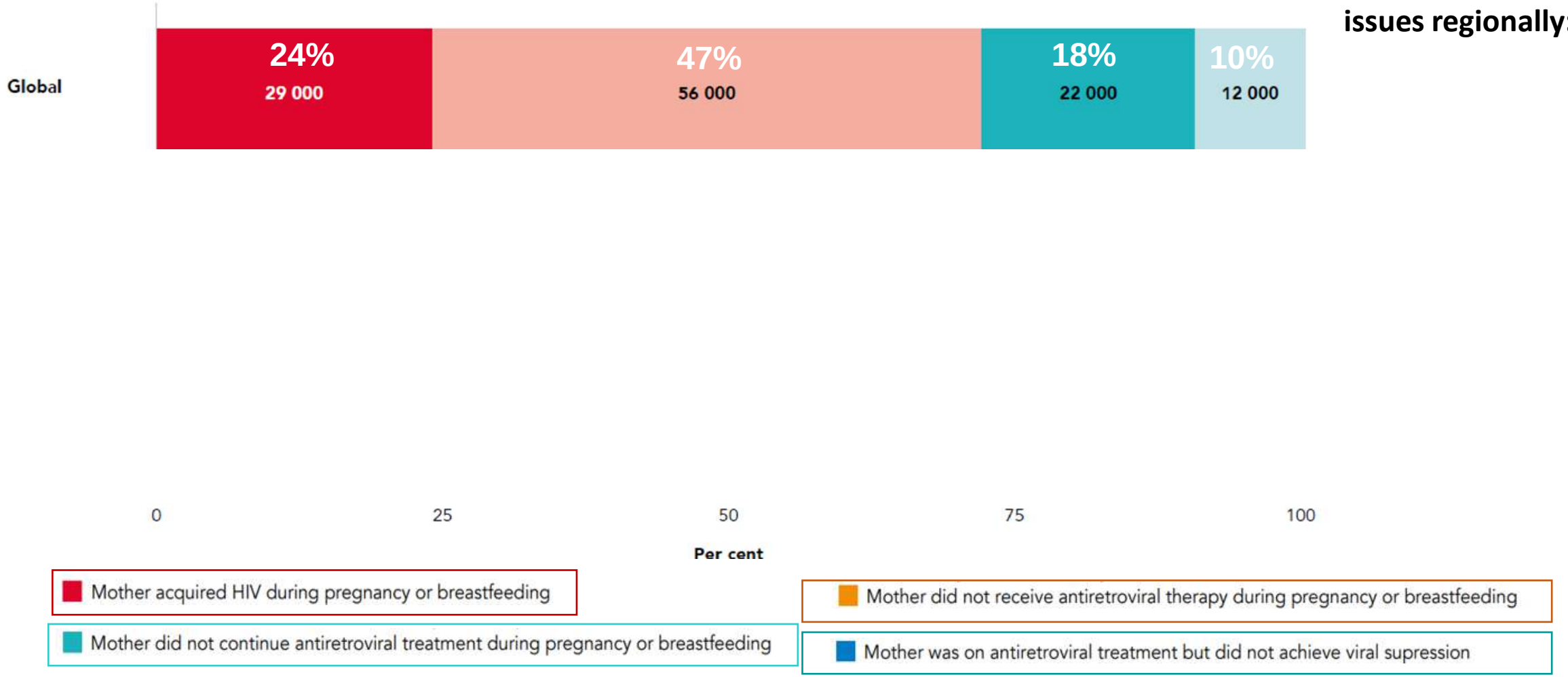
Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

Causes of New Child Infections Globally 2023 Varies by Region

- Globally 56,000 new child infections – nearly 50% - still occur because **pregnant women are not diagnosed and started on ART**

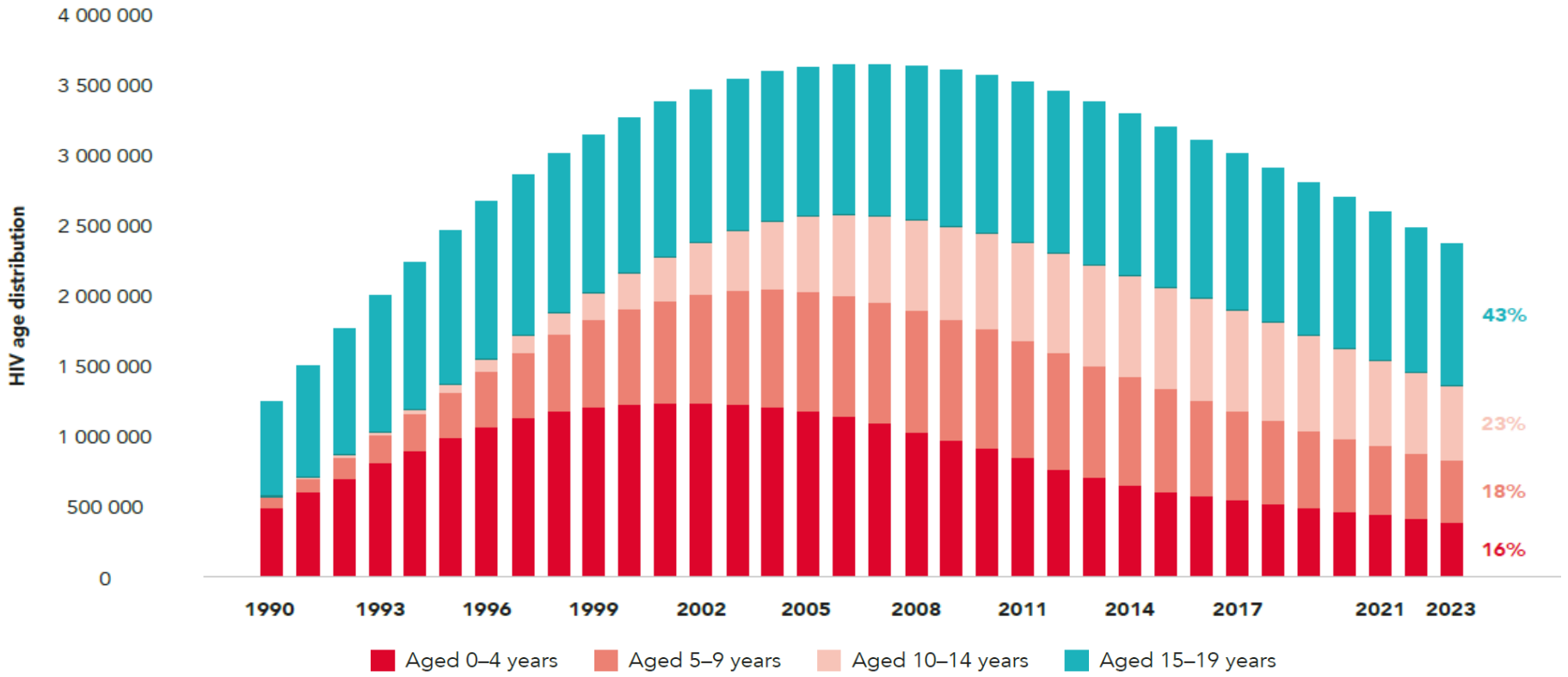
Different primary issues regionally:



Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

Number Children 0-19 Years Living with HIV Globally (by 5-Yr Age Grps)
Evolution of the Age Distribution of Children with HIV Over Time



→ In 2023, infants and young children 0-4 years are a declining proportion of children with HIV (16%)

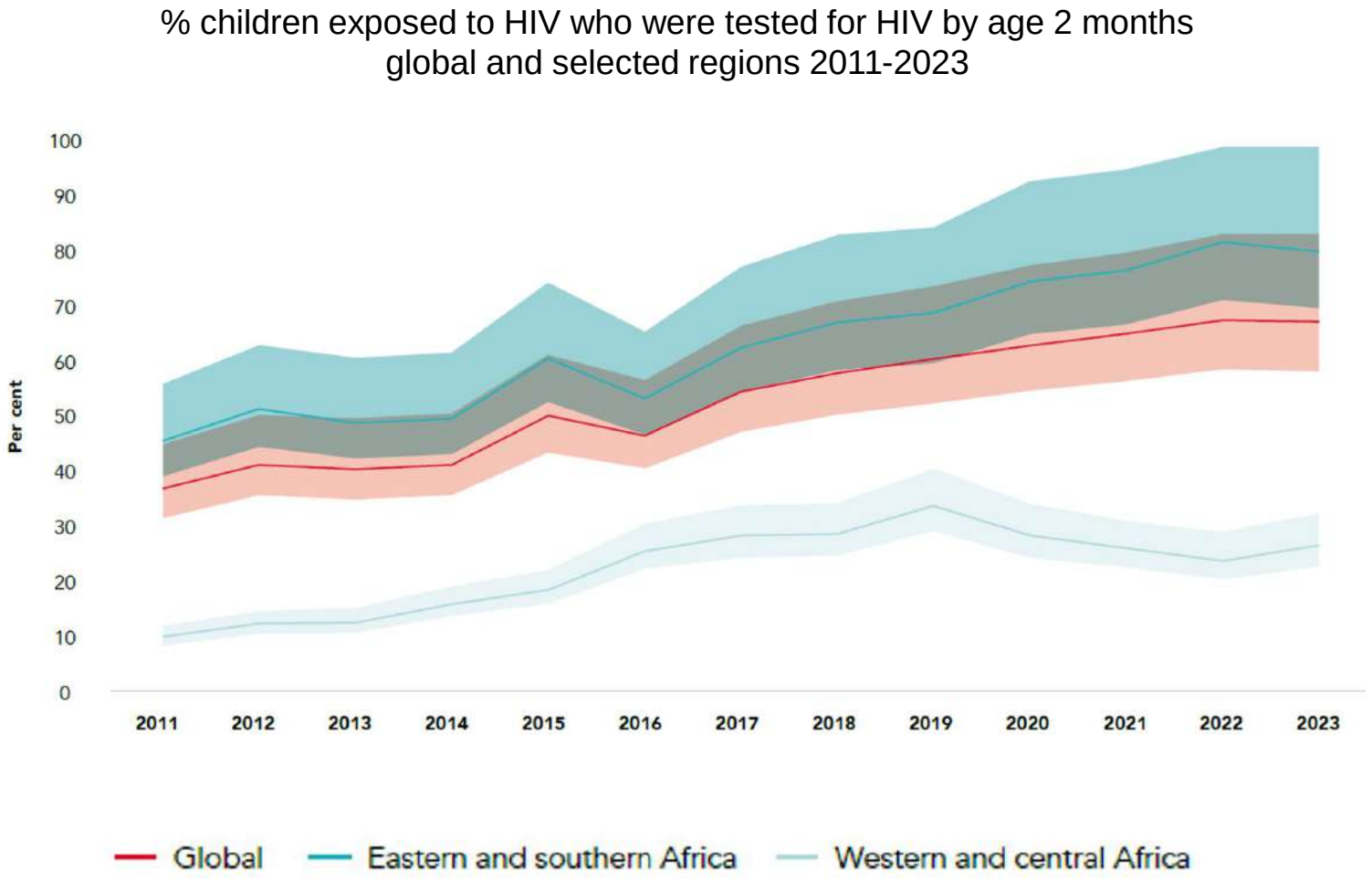
→ Older children 5-9 years and 10-14 years have remained relatively stable at 41%

→ Older adolescents 15-19 years represent 43% of children with HIV globally
(many represent sexual rather than perinatal transmission)

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

Early Infant Diagnosis Globally
Slightly Decreased from 68% in 2022 to 67% in 2023



→ **Globally, 67% of infants had EID by age 8 weeks in 2023**, without much change from 2022

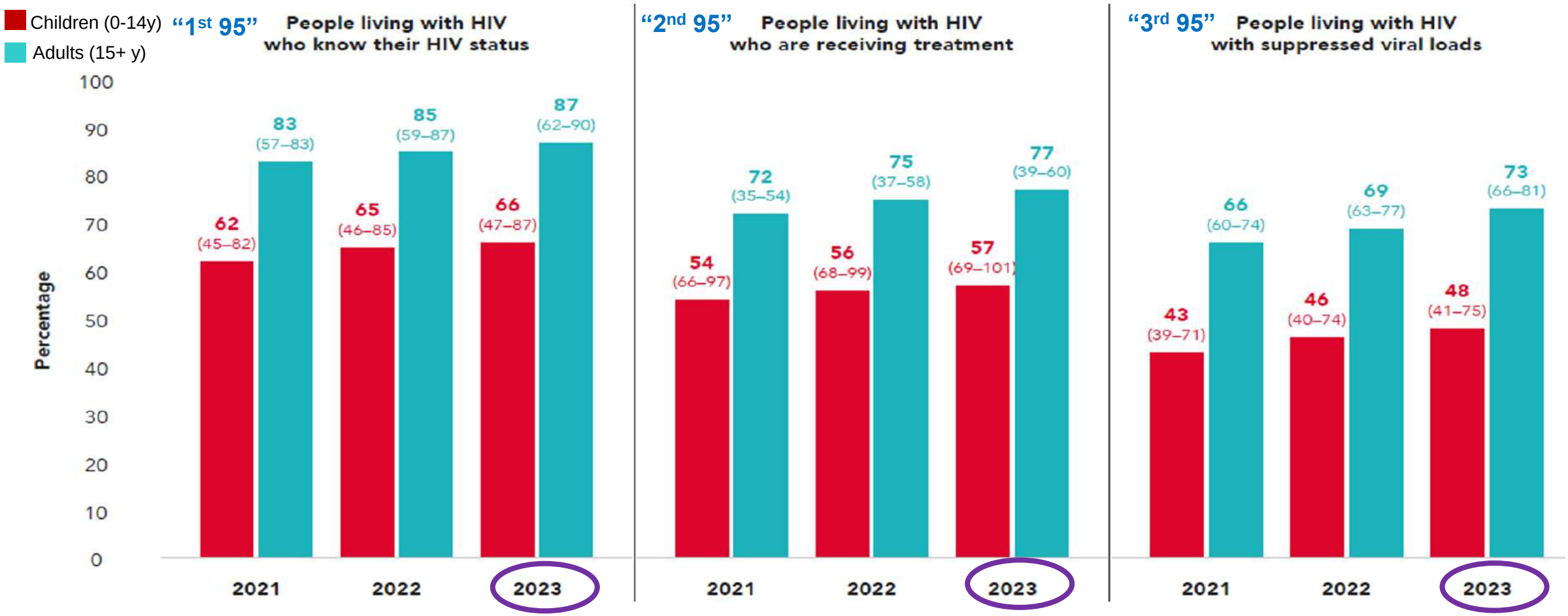
→ **EID in west/central Africa lags behind** with coverage in 2023 being only **27%**

→ **EID in east/southern Africa increased** in 2023, from 77% in 2021 to **80%** in 2023

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

Children Continue to Lag Behind Adults in HIV Testing, Treatment and Viral Suppression in 2023 - With Minimal to No Change from 2022

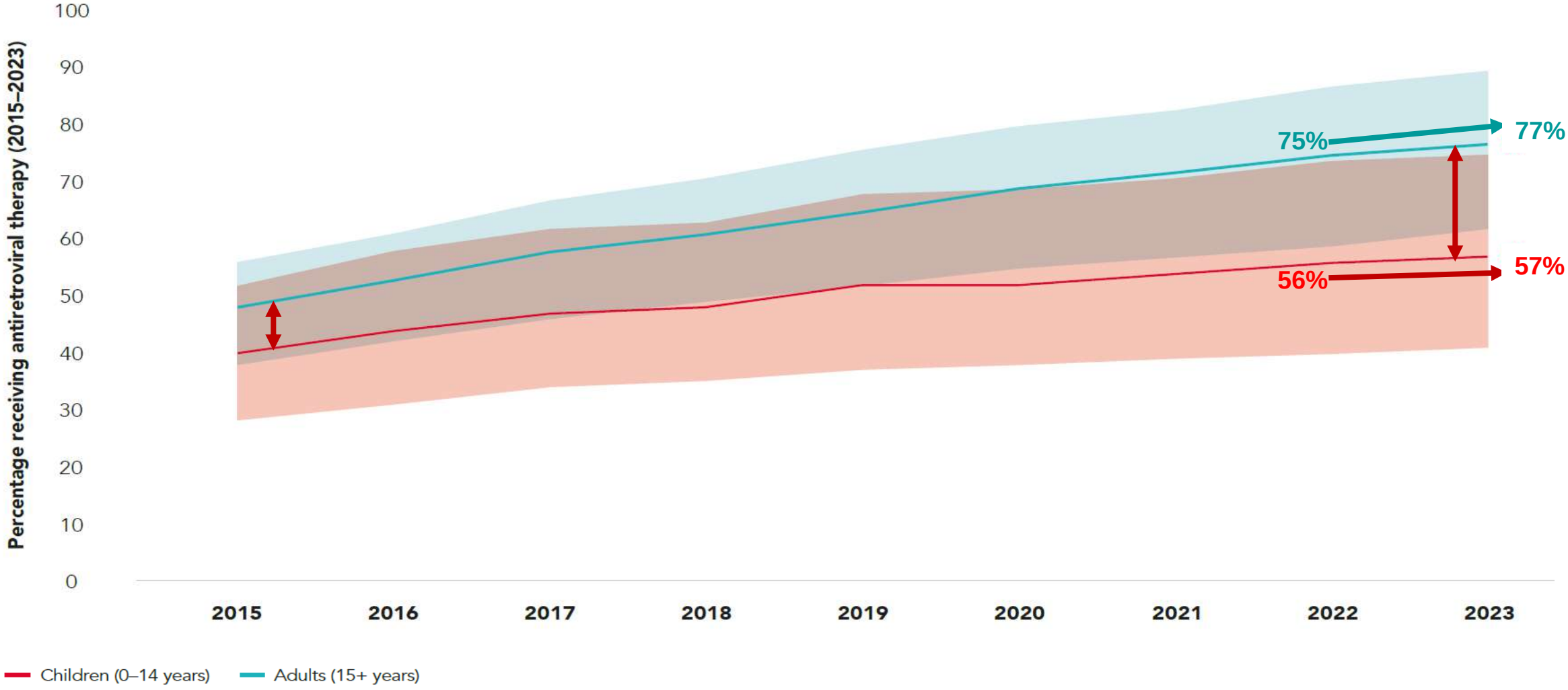


→Children lag behind adults in knowing HIV status (66% vs 87%), being on ART (57% vs 77%), and viral suppression (48% vs 73%)

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

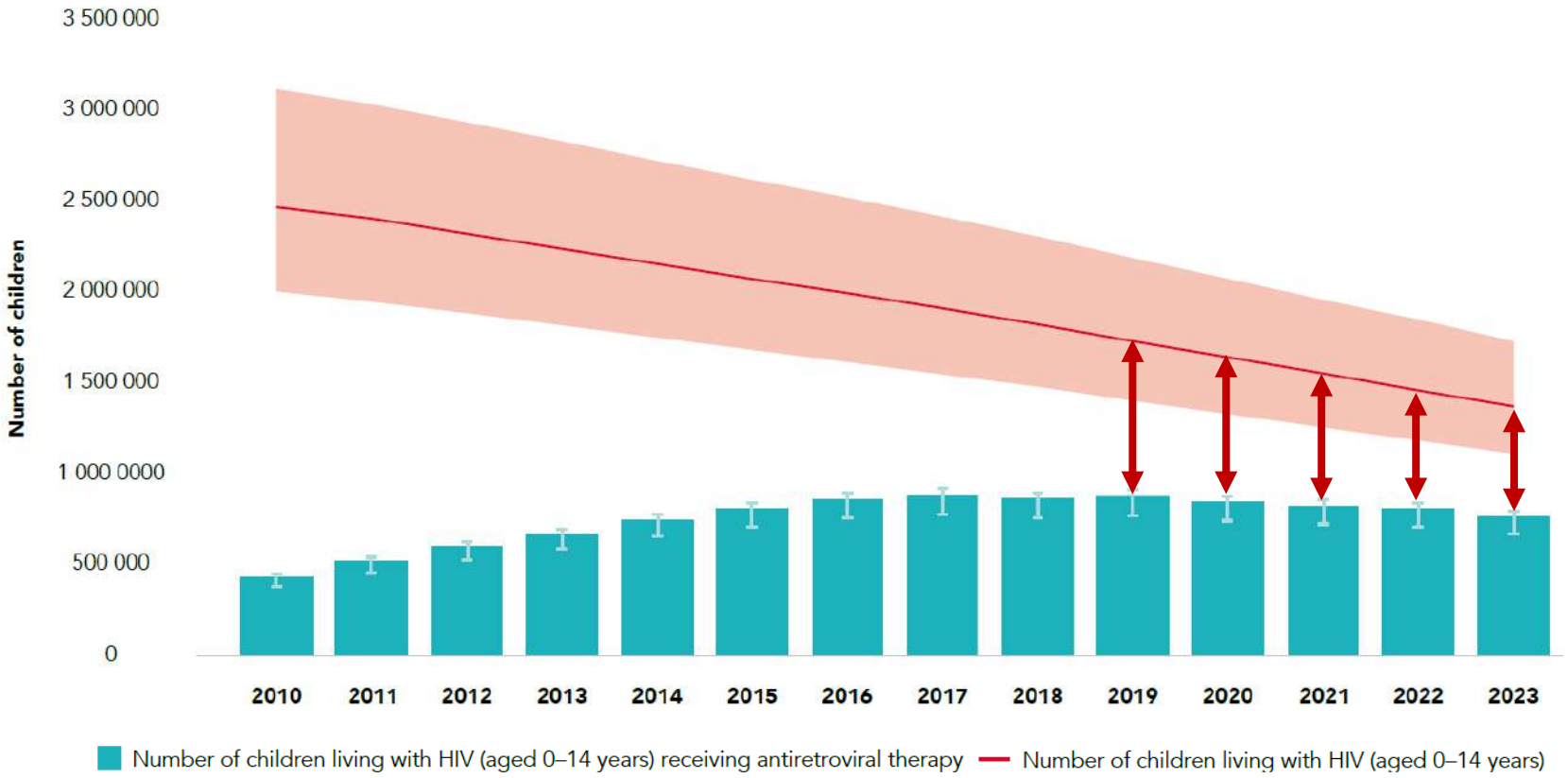
Widening Gap in Treatment Between Children and Adults - ART Use in Children Had Minimal to no Change from 2022



Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

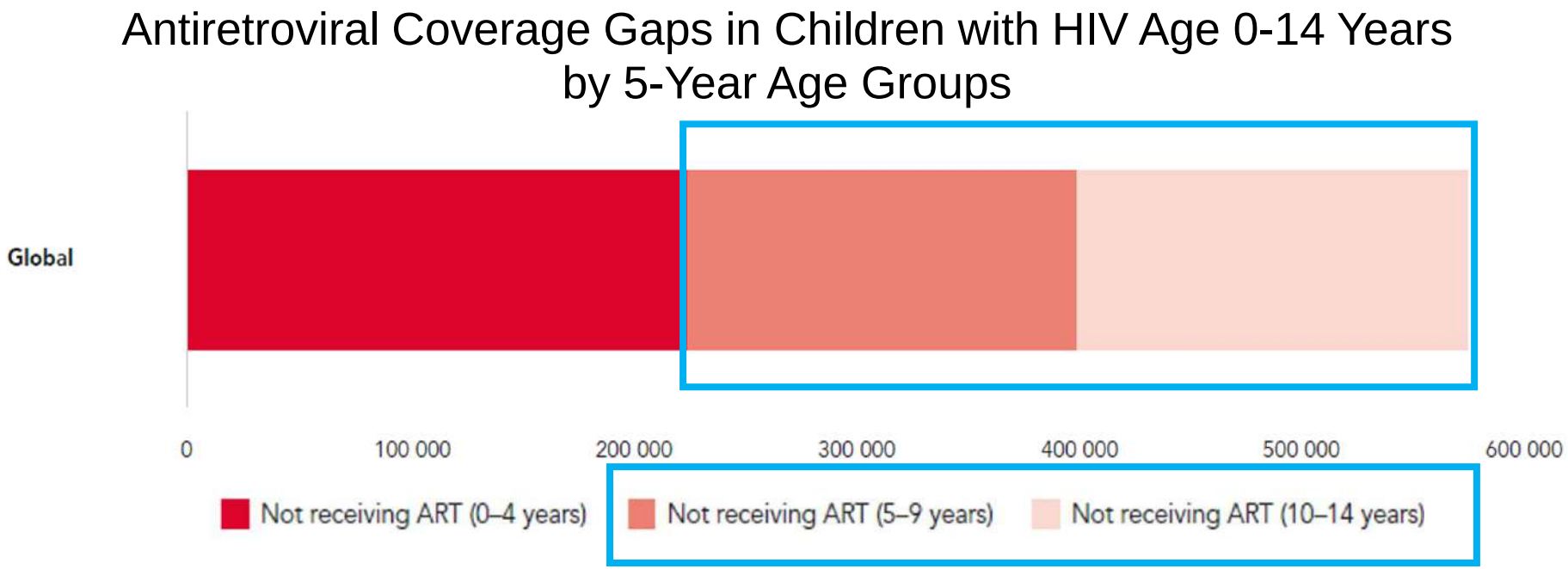
While Improving, Significant Treatment Gap Between Number Children with HIV and Number Children with HIV on ART Remains

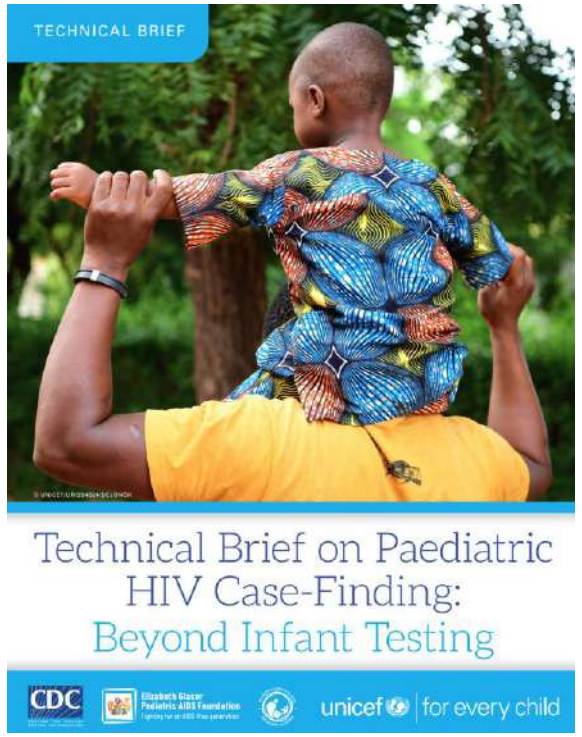


2023 treatment gap ~**590 000** [427,000–918,000] **children who *should* be receiving ART are not**

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

Among Children Living With HIV Not Receiving ART, 60% are Age Over 5 Years





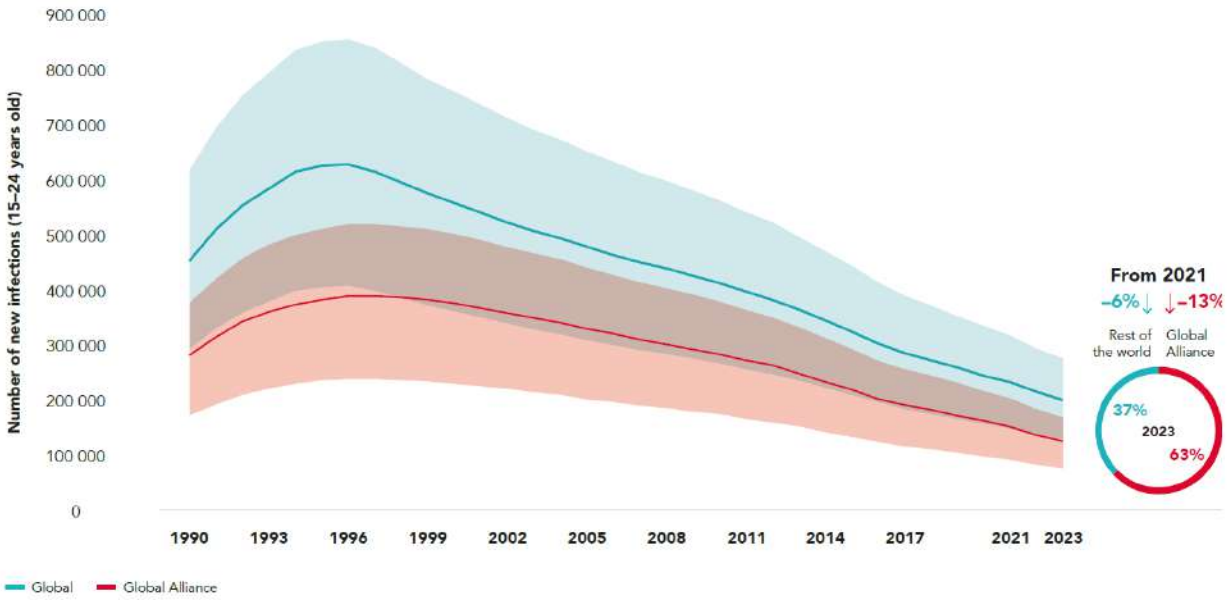
→ Identification of older children 5-14 years with HIV and initiation of treatment remains a priority (see UNICEF Technical Brief on Pediatric HIV-Case Finding)

Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS

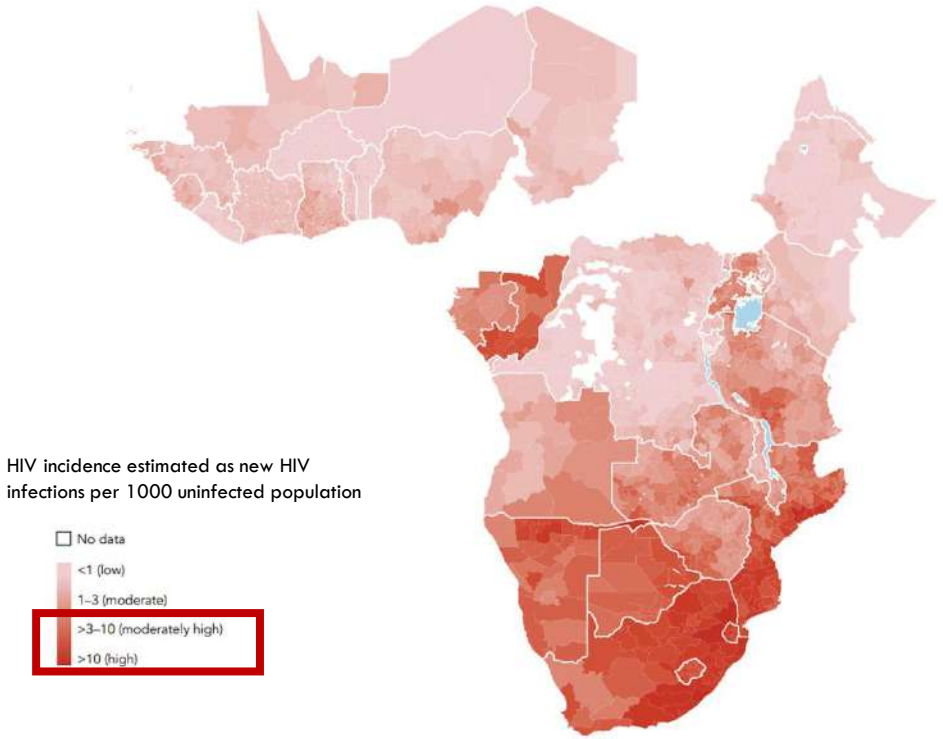
Some Success in Decreasing HIV Incidence in Adolescent Girls and Young Women, But Areas with High Incidence Remain, Particularly Southern Africa

New Infections in Adolescent Girls/Young Women 15-24 Years
Global and Global Alliance Countries



→ In 2023, 210 000 [130 000–280 000] adolescent girls and young women acquired HIV globally

HIV Incidence in Adolescent Girls/Young Women 15-24 Years
Subnational Levels, Sub-Saharan Africa 2024



→ Highest incidence AGYW is in southern Africa (>1/1000 per year)

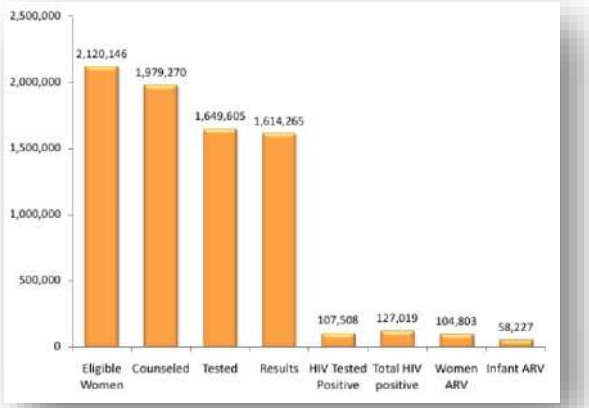
Source: UNAIDS epidemiological estimates 2024: *aidsinfo.unaids.org*

UNAIDS





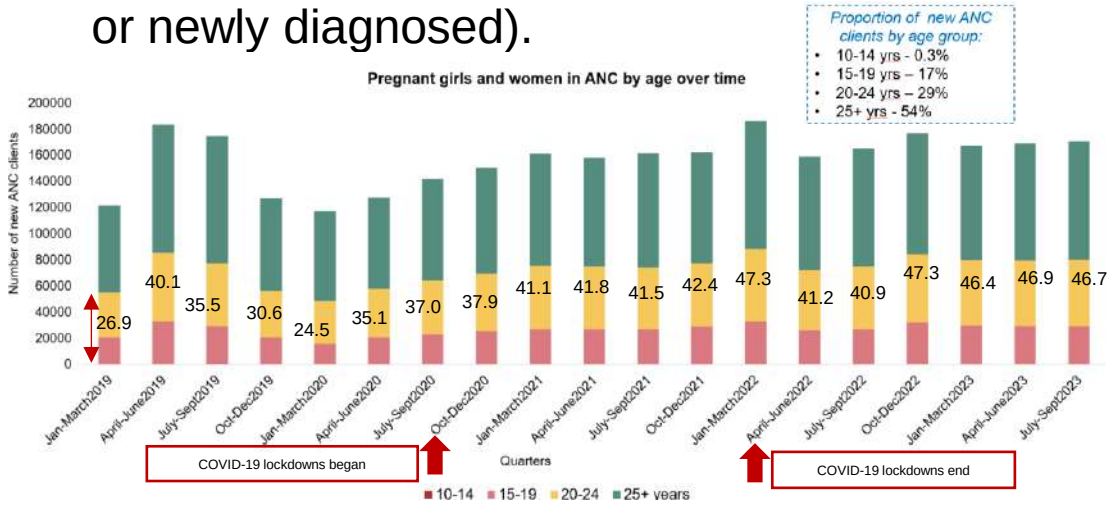
Pregnancy, ARVs and Prevention of Vertical HIV Transmission Cascade



Pregnancy and HIV Status in Pregnant Adolescent Girls and Young Women (AGYW) in Eight EGPAF-Supported Countries

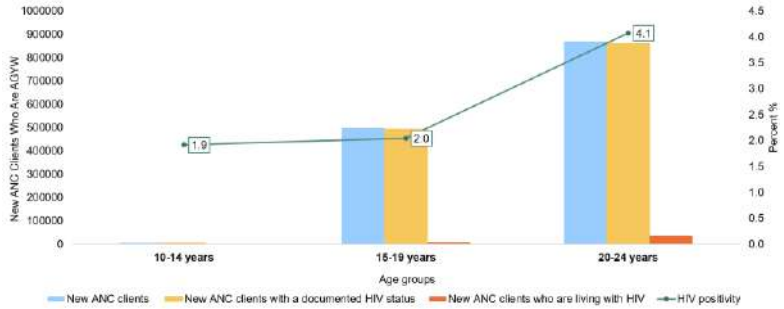
Lenz C et al. Pediatric HIV Workshop 2024, Munich, Germany July 2024, Abs. 11

- Examined trend in ANC attendance and HIV positivity among AGYW in 8 countries using routine PEPFAR data from Jan 2019 to June 2023, evaluating number new ANC pt by age group and documented HIV status (known or newly diagnosed).



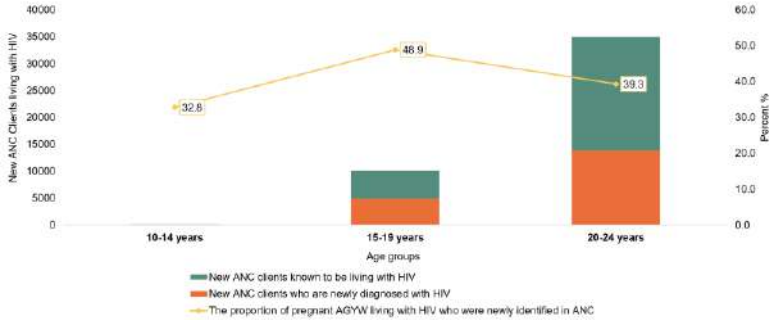
→ AGYW age 10-24 years made up 46% of all ANC pt Jan 2019-June 2023

→ AGYW made up increasing % of ANC attendees from pre- to post-COVID

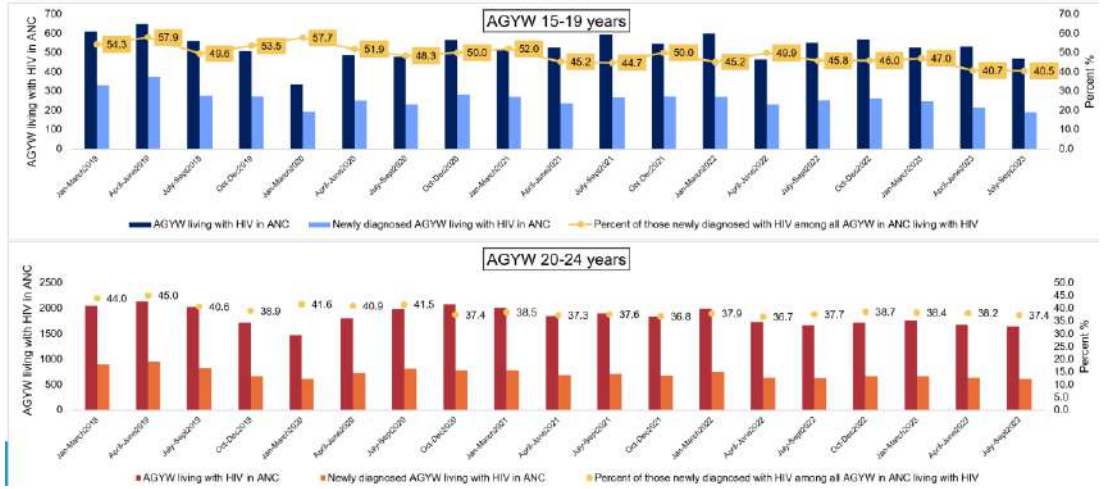


→ % AGYW who are HIV+ increases with age

→ ART coverage in AGYW in 2021-2023 99-100%



→ % AGYW who are newly dx with HIV highest in age **15-19 yr**



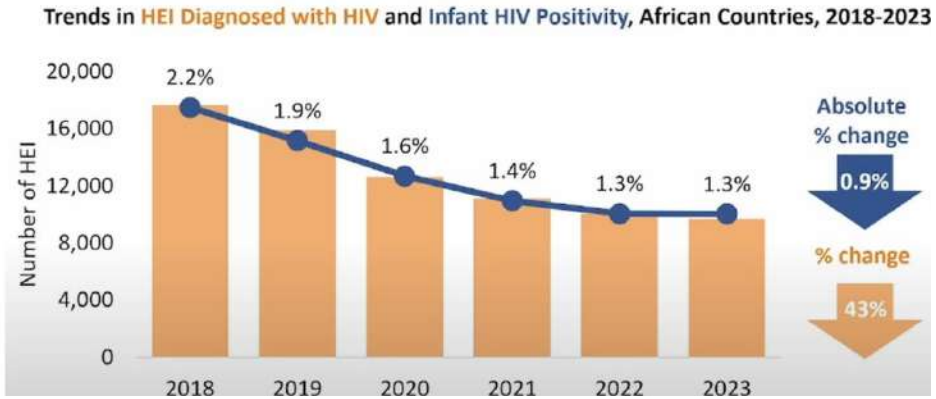
→ Modest decline in <u>newly dx</u> AGYW over time but % remains higher 15-19 then 20-24 yrs

- Underscores importance of integrated FP and HIV services targeting AGYW and integrating long-acting prevention for AGYW without HIV

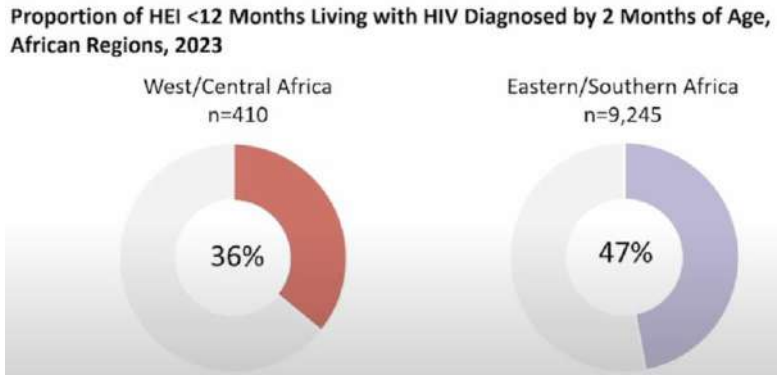
Trends in Infant HIV Positivity & Linkage to ART Among HIV-Exposed Infants Age <12 Mos in 18 PEPFAR Countries

Rabold EM et al. Pediatric HIV Workshop 2024, Munich, Germany July 2024, Abs. 22

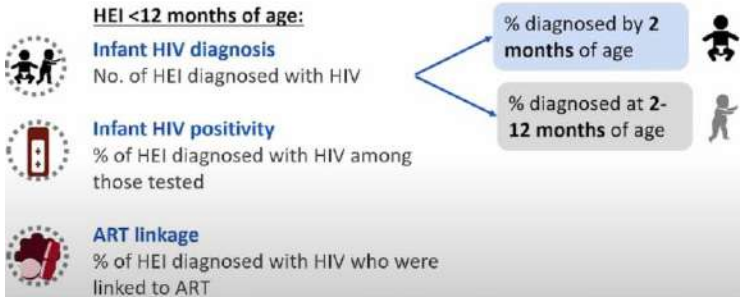
- Used PEFPAR Monitoring/Evaluation/Reporting (MER) indicator in 18 African country programs with complete reporting on MER indicators for HIV-exposed infants age <12 mos Oct 2017-Sept 2023

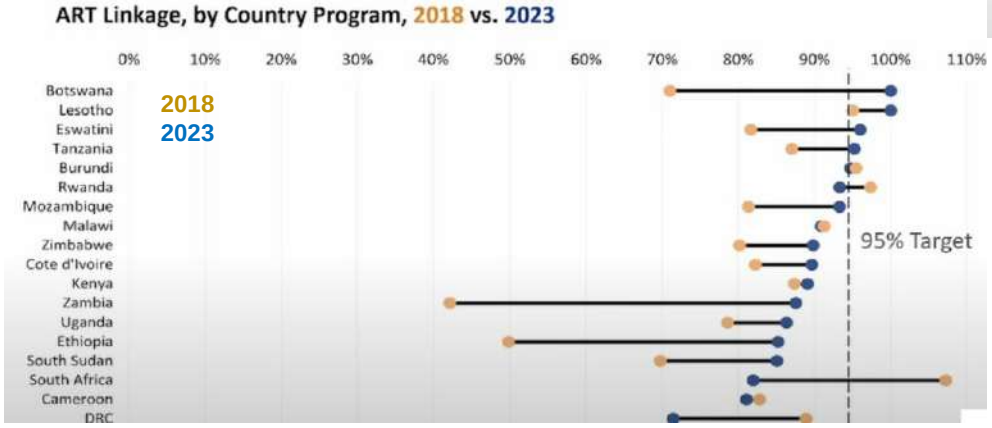


→ Number/% of infants dx with HIV has declined over time (*note: reflects only infants who come to EID services, not necessarily reflection of overall MTCT rate*)



→ Proportion of HIV+ infants dx **by age 2 mos** is lower in West/Central than East/Southern Africa – missed opportunities in EID services





→ Linkage to ART remains <95% in many PEPFAR supported country programs (only 28% (5/18) in 2023) – highlights gap in providing timely treatment to infants with HIV

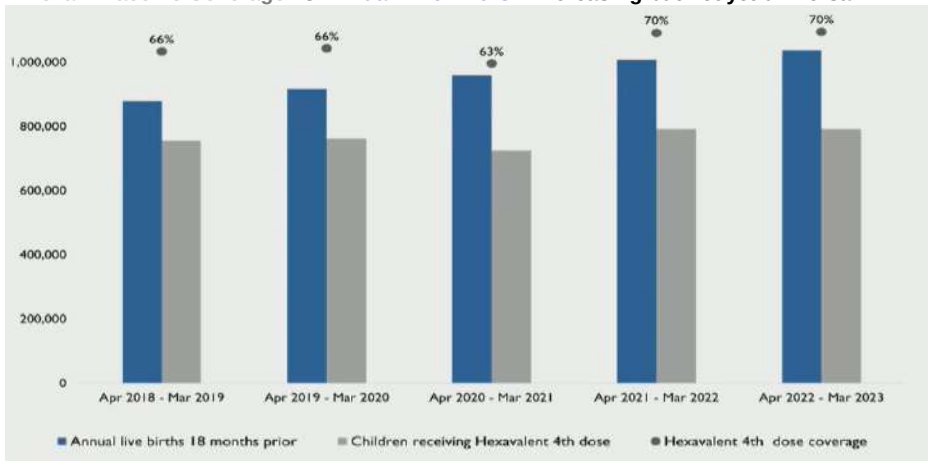
- While number HIV-positive infants has decreased in PEFPAR countries, there remain issues in timeliness of dx and in providing timely treatment to infants with HIV.

Universal HIV Testing of Children at Age 18 Months, South Africa

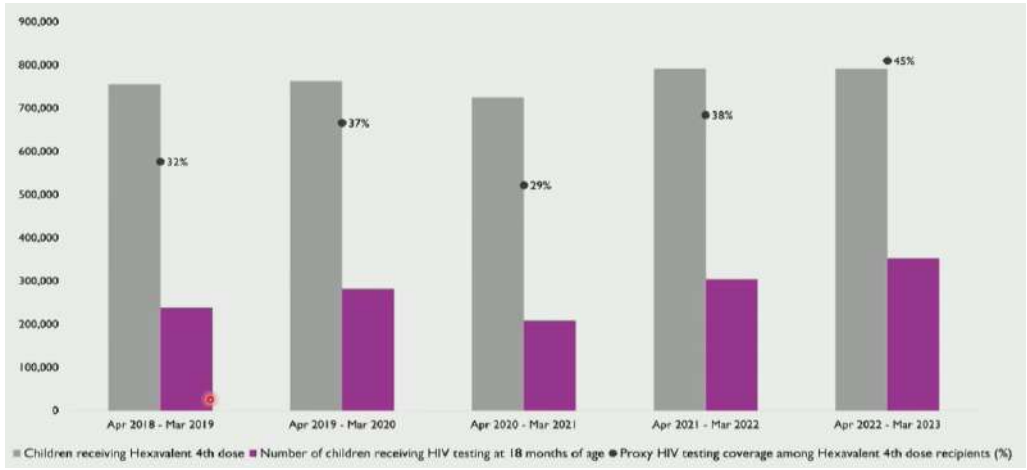
Silere-Maqetseba T et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2106

- In 2019, South Africa adopted a universal HIV testing policy for all children age 18 mos, aligned to EPI program.
- Conducted retrospective review of program data for children age 18 mos from 2018 to 2023 through EMR DHISII, evaluating HIV testing, receipt Hexa-4 vaccine (6-in-1: diptheria, tetanus, pertussis, HBV, Hib, polio), number live births 18 mo prior to review period, census estimates for age 1 year.

Hexa-4 Vaccine Coverage vs Annual Live Births – Increasing but not yet universal



HIV Test Coverage Among Children Receiving Hexa-4 – coverage has increased to 45% in 2023



→ Hexa-4 coverage was 70% compared to estimated population, reasons why not universal needs investigation.

→ Increase in % HIV tested in those receiving Hexa-4 vaccine from 32% in 2018 to 45% in 2023.

→ 48% increase # children tested annually from 238,392 in 2018 to 352,827 in 2023: 1.35 million of the 3.8 million children vaccinated were tested for HIV over the 5-year period.

→ HIV positivity decreased from 0.6% to 0.3% in time period.

- Highlights missed opportunities for universal testing.
- Indicates need to scale-up integrated EPI and HIV testing services at age 18 mos to close the pediatric HIV case finding gap and also find children not presenting for immunization.

Differences in Risk Factors Between High and Low HIV Transmission Settings – Mozambique and Tanzania

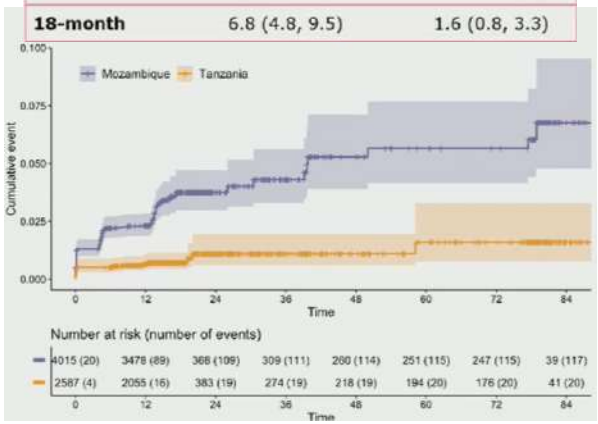
Elsbernd K et al. AIDS 2024, Munich, Germany July 2024, Abs. OAC2202

- Cluster randomized trial of 6505 pregnant HIV+ persons and their 6602 infants at 28 centers
- All infants got postnatal prophylaxis per local guidelines; all FU 3 mos, subset 400 FU 18 mos.
- Infant POC testing birth, 4-6 wk, 12 wk, 9 mo &18 mos; maternal risk factors assessed at delivery and VL measured delivery & 3 mos.

Infant diagnostic testing

Vertical Transmission by Country and Infant Age

	Mozambique	Tanzania
	HIV-positive infants per 100 tested (95% CI)	
Birth	1.3 (1.0, 1.7)	0.5 (0.3, 0.9)
6-week	2.3 (1.9, 2.8)	0.6 (0.4, 1.0)
12-week	3.6 (2.9, 4.5)	0.7 (0.4, 1.1)
18-month	6.8 (4.8, 9.5)	1.6 (0.8, 3.3)



Baseline Characteristics by Country

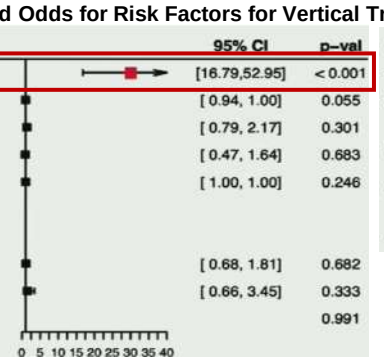
Individual factors	Mozambique (N=3969)	Tanzania (N=2536)	p-value
Age (years) - Mean (SD)	28.8 (5.54)	30.5 (6.26)	<0.0001
Disclosed HIV status - Yes	3684 (92.8%)	2384 (94.0%)	0.0696
ART regimen			<0.0001
TDF + 3TC/FTC + DTG	3265 (82.3%)	1708 (67.4%)	
TDF + 3TC/FTC + EFV	646 (16.3%)	793 (31.3%)	
Other	5 (0.1%)	7 (0.3%)	
None	53 (1.3%)	28 (1.1%)	
Time on ART (weeks) - Median [Min, Max]	22.4 [0, 960]	45.1 [0, 1230]	< 0.0001
Attended antenatal care by 2nd trimester	3532 (89.0%)	2360 (93.1%)	< 0.0001
Mode of delivery			< 0.0001
Caesarian section	1 (0.0%)	348 (13.7%)	
Vaginal	3968 (100.0%)	2188 (86.3%)	
VL at delivery (suppressed <1000c/ml)			< 0.0001
Suppressed	2733 (68.9%)	2309 (91.0%)	
Not suppressed	**1229 (31.0%)**	**205 (8.1%)**	
Not available	*7 (0.2%)*	*22 (0.9%)*	
Maternity staff per 100 HIV-positive deliveries	2.3 (1.0)	9.9 (5.0)	<0.0001

→ Higher transmission rates at all time points in Mozambique than Tanzania

→ Mozambique mothers younger, more DTG ART, shorter ART duration, ↓ ANC, ↓ cesarean delivery, ↓ viral suppression at delivery, and ↓ maternity staffing

Adjusted Odds for Risk Factors for Vertical Transmission

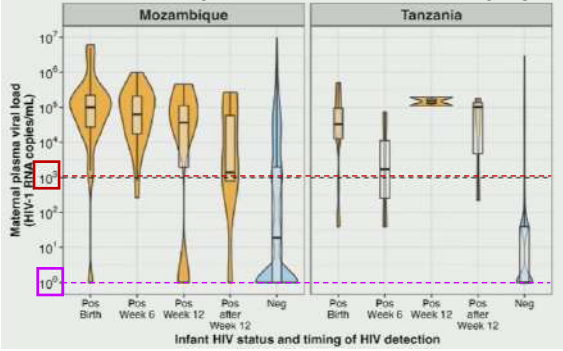
Risk factor	aOR	95% CI	p-val
VL not suppressed at delivery	29.82	[16.79,52.95]	< 0.001
Age (years)	0.97	[0.94, 1.00]	0.055
No ANC attendance by 2nd trimester	1.31	[0.79, 2.17]	0.301
Non–disclosed HIV status	0.88	[0.47, 1.64]	0.683
Time on ART (weeks)	1.00	[1.00, 1.00]	0.246
ART regimen at delivery			
(ref: TDF+ 3TC/FTC + DTG)			
– TDF + 3TC/FTC + EFV	1.11	[0.68, 1.81]	0.682
– None	1.51	[0.66, 3.45]	0.333
– Other	0.00		0.991



Time of infant HIV detection	aOR
Birth	28.39
6–week	31.99
12–week	13.32
18–month	10.58

→ Delivery viral load was only factor associated with MTCT, with association holding into postnatal period.

Maternal Delivery VL and Infant HIV Status by Age



→ Higher mom VL in HIV+ infant all age of dx

→ Only 10.4% HIV+ infants had mother with delivery VL <1000 vs HIV- infants

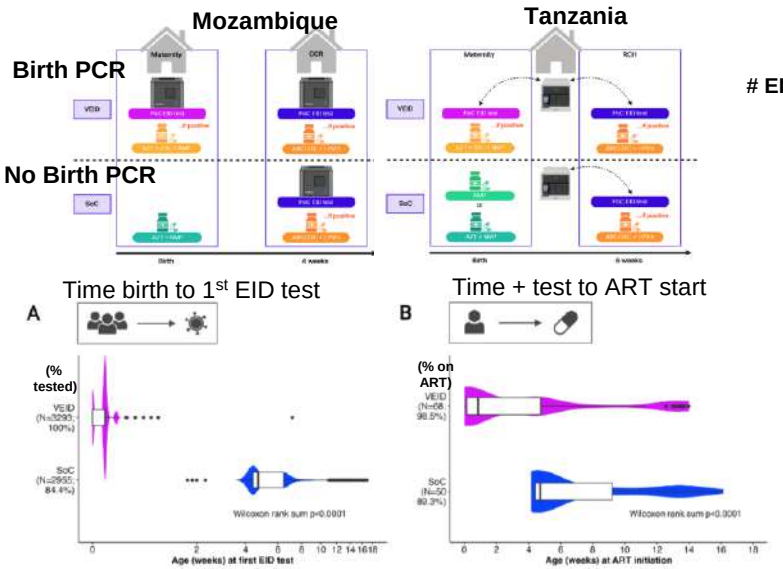
→ Only 4.8% HIV+ infants had mother with delivery VL <50 vs HIV- infants

→Maternal VL primary risk factor for MTCT, ↑ risk ~30-fold – potential utility of delivery POC VL to ID risk?

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

Elsbernd K et al. AIDS 2024, Munich, Germany July 2024, Abs. TuPEE574

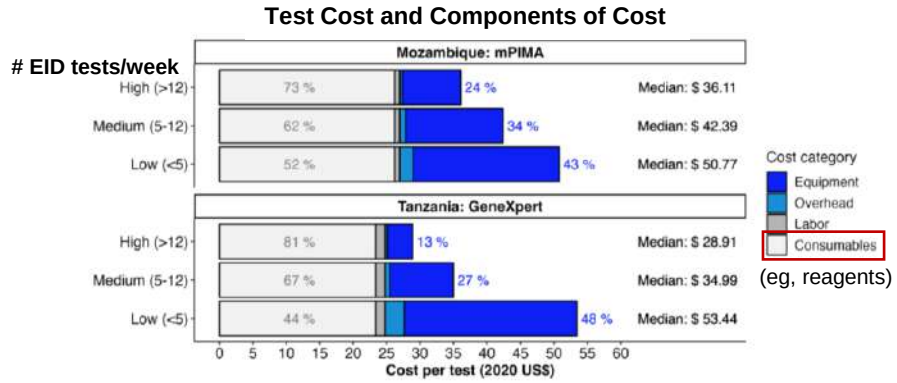
- Estimated health system cost of birth and 4-6 weeks PoC EID at 28 clinics (7 per country per arm) participating in the LIFE randomized trial in Mozambique (Abbott mPIMA) and Tanzania (Cepheid GeneXpert)



→ Birth POC EID increased % infants started on ART and reduced age at ART initiation

	ICER per week of early ART[a]	
Vertical transmission	**Mozambique**	**Tanzania**
VT 0.5x	$2,206 (2,031, 2,375)	$3,856 (3,161, 4,712)
VT 1x	**$1,103 (1,018, 1,201)**	**$1,916 (1,586, 2,325)**
VT 2x	$550 (506, 594)	$955 (775, 1,170)
VT 5x	$220 (201, 238)	$385 (314, 464)

→ Cost-effectiveness (incremental cost-effectiveness ratio, ICER) of birth test compared to SOC no birth test increases as MTCT rate increases



→ Compared to SOC, birth plus 4-6 wk POC-EID cost additional $48.39 Mozambique & $30.96 in Tanzania.

→ Mean extent of birth testing was <32% in both countries.

→ Increased demand/use of EID reduced these cost estimates by 29% in Mozambique and 8% in Tanzania.

→ Cost per test driven by reagent cost (cartridges).

→ Birth POC EID increased # started on ART and decreased age at start.

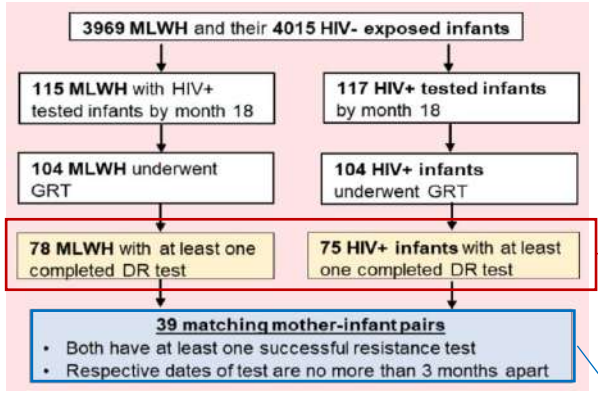
- Universal birth POC-EID is more expensive but results in more frequent and earlier ART initiation.
- Birth POC-EID offers potential for immediate ART for neonates with HIV and to reduce the high risk of mortality.
- Cost-effectiveness of birth POC-EID depends on MTCT rate and extent of utilization of POC-EID testing by program; scale-up may be enhanced by cost-sharing with other programs (VL, TB).

High Prevalence of Transmitted and Acquired Drug Resistance in Newly HIV-Diagnosed Neonates and Infants Mozambique

Taveira N et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEC167

- In LIFE intervention arm (birth PCR + maternal VL test), 3,969 HIV+ women & their 4,015 infants enrolled at delivery; all infants receive 6 wks enhanced postnatal prophylaxis with NVP+AZT, followed by 6 wk NVP; HIV+ infants received NVP ART if <4 wks, then LPV/r ART >4 wk.

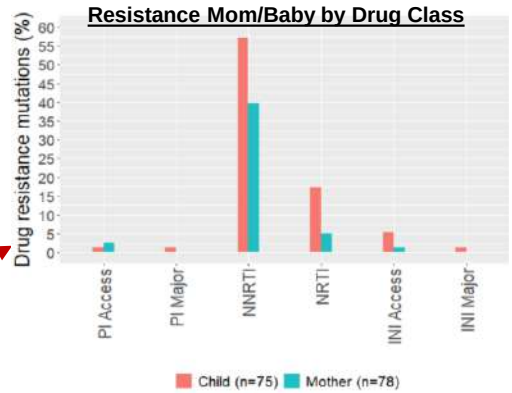
→ By age 18 mos, 117 infants dx with HIV (2.9%).

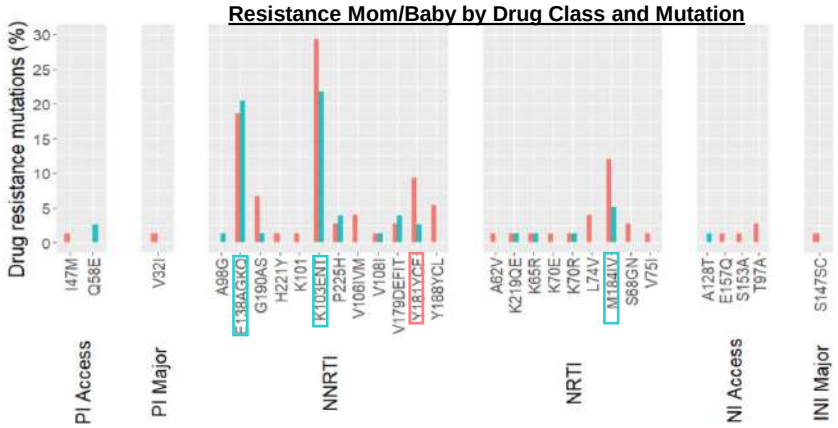


Characteristics Mother/HIV+ Infant at Time DRM Test

A. MOTHER (N=78)	
Mother ART regimen	
TDF + 3TC/FTC + DTG	61 (78.2%)
TDF + 3TC/FTC + EFV	16 (20.5%)
None	1 (1.3%)
Time since HIV diagnosis (weeks)	
Median [Min, Max]	26.6 [0, 1030]
Mother time on ART (weeks)	
Median [Min, Max]	19.9 [-0.14, 676]
Timing of ART initiation	
Before pregnancy	11 (14.1%)
During pregnancy	63 (80.8%)
At delivery	2 (2.6%)
After delivery	2 (2.6%)
Mother age (years)	
Median [Min, Max]	26.7 [19.4, 39.1]
Viral load copies/ml	
Median [Min, Max]	99300 [1270, 10^6]

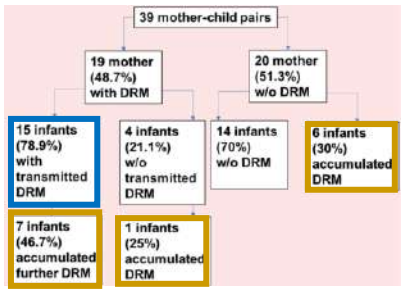
B. Infant (N=75)	
Infant treatment at the time of DRM test	
ePNP (NVP+AZT)	24 (32.0%)
PNP (NVP)	5 (6.7%)
AZT + 3TC + NVP	5 (6.7%)
ABC + 3TC + LPV/r (q)	33 (44.0%)
None	7 (9.3%)
Age at the time of DRM test (age group)	
Birth	5 (6.7%)
W4-8	20 (26.7%)
W12	23 (30.7%)
W12+	27 (36.0%)
Time since HIV diagnosis (weeks)	
Median [Min, Max]	4.29 [0, 80.1]
Age at HIV diagnosis (age group)	
Birth	23 (30.7%)
W4-8	31 (41.3%)
W12	16 (21.3%)
W12+	5 (6.7%)
Viral load copies/ml	
Median [Min, Max]	819000 [821, 10^6]

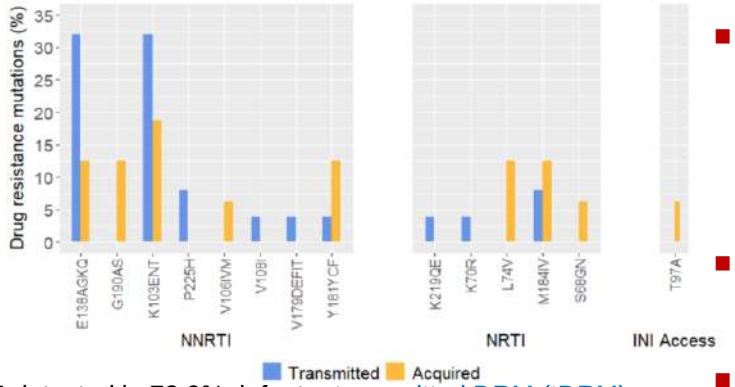




→ Mothers: **Any DRM 43.6**%; NNRTI 39.7% (mostly K103NT, E138AGKQ), NRTI DRM 5.1% (mostly M184V), InSTI 1.3% and PI 2.6%.

→ Infants: **Any DRM 61.3%;** NNRTI 57.3% (mostly K103NT, E138AGKQ, Y181YCF), NRTI 17.3% (mostly M184IV), InSTI 6.6% (1.3% major, 5.3% accessory), PI 1.3%





→ 19 mothers with DRM, same DRM detected in 78.9% infant = transmitted DRM (tDRM).

→ 70% of infants born to mothers without DRM had no DRM, but 30% later acquired DRM.

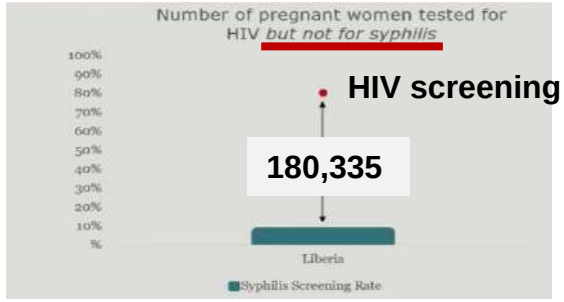
→ Infants with tDRM developed new DRM (7/15) more frequently than those without tDRM (7/24).

- ~50% moms had DRM (mostly NNRTI) despite being on DTG, most transmitted DRM to infant.
- Infant with tDRM more likely to get added DRM on ART
- Alternative to NNRTI-based ART for HIV+ neonates needed.

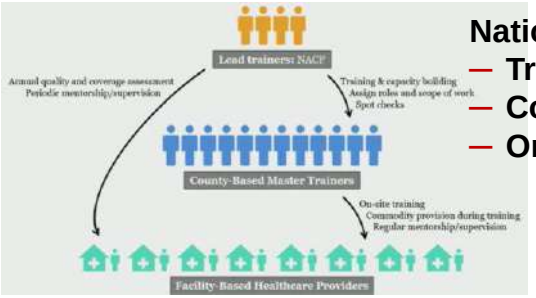
Eliminating Vertical Syphilis Transmission by Introduction Dual HIV/Syphilis Testing Pregnant Women, Liberia

Flomo J et al. AIDS 2024, Munich, Germany July 2024, Abs. OAC2203

- Screening for syphilis in Liberia was low compared to screening for HIV.
- Estimated syphilis in pregnancy in Liberia causes 1,260 fetal deaths, 530 neonatal deaths, 940 cases congenital syphilis and 350 PTD annually.
- Revised national guidelines 2020 to recommended HIV/syphilis dual test as first HIV screening test for pregnant women/ their sexual partners, with roll-out starting Sept 2021; by July 2023, 561 facilities in 15 counties were trained (training of trainers model) and using dual tests.
- October 2023 conducted facility survey for data Jan-Aug 2023 across 67 facilities and interviewed 256 providers.
- Introduction of dual testing increased syphilis screening nearly 10-fold to 75%, almost mirroring HIV screening (80%).
- 97% of 256 providers said they use dual HIV/syphilis screening at first ANC visit.



Syphilis screening rate <8% prior to 2021



National Roll-Out Strategy
- **Train the trainer**
- **County ownership**
- **On-site training**

Estimated Number of Pregnant Women Tested for Syphilis at the 1st ANC Visit; Jan-Aug 2023

Syphilis screening coverage rate	Estimated # pregnant women tested
75%	83,159

Estimated number of syphilis-positive pregnant women treated with BZP; Jan - Aug 2023 from patient chart review

Syphilis treatment coverage rate	# syphilis-positive pregnant women treated with BZP
88%	2,002

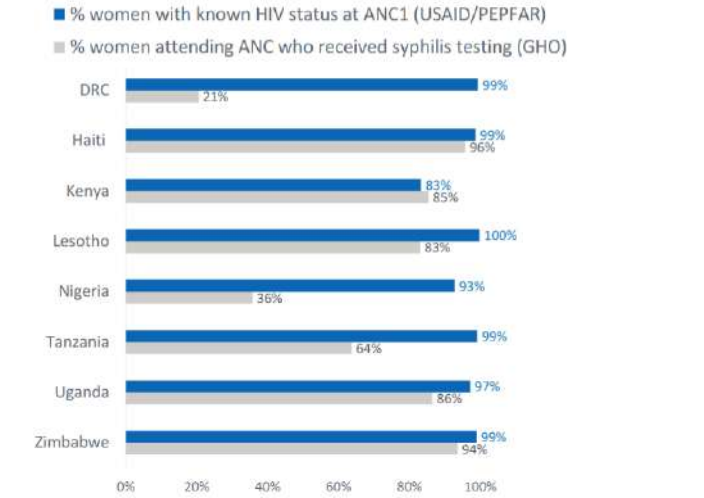
- Since introduction HIV/syphilis dual test in Liberia, 320,000 pregnant women have been screened, >5,400 syphilis positive pregnant women treated, >2,300 adverse birth outcomes averted and >1,300 infant lives saved.
- **Introduction of dual screening is feasible and acceptable on national scale**.

Dual HIV and Syphilis Elimination Efforts in Pregnant Persons in 8 PEPFAR-Supported Countries

Vrazo AC et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEE600

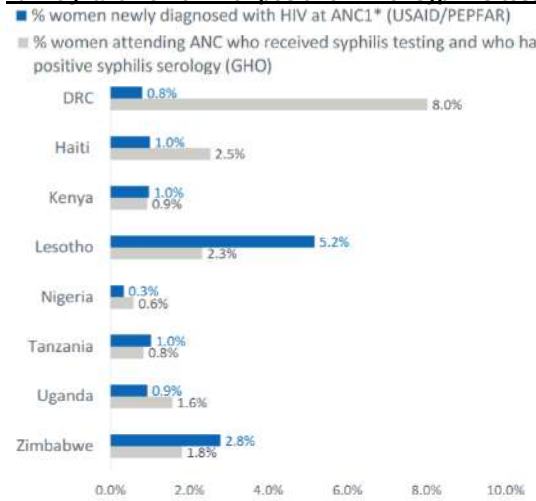
- Reviewed PEPFAR monitoring data from 7 countries in Africa and Haiti for FY 2022
  - Routine data on HIV testing at 1st ANC and ART coverge
  - National estimates syphilis testing coverage, infection and treatment coverage in pregnancy CY 2022
  - Routine data on procurement of syphilis rapid test kits, dual test kids and benzathine penicillin FY 2020-2022

% Pregnant women receiving ANC HIV & syphilis testing by country



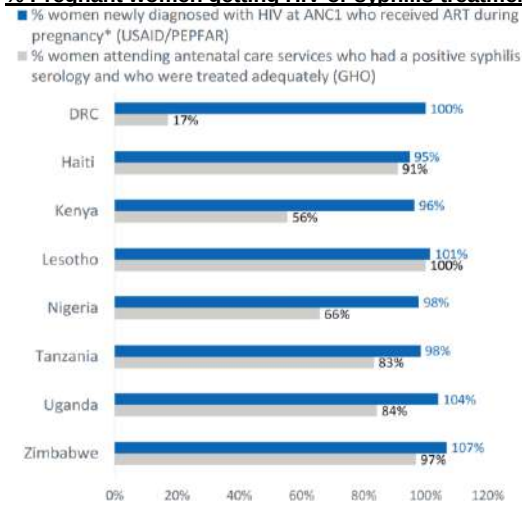
- HIV testing at ANC1 averaged 96% (range 83-100%), while syphilis testing coverage was 67% (range 21-96%)

% Pregnant women with positive HIV or syphilis test by country



- HIV positivity ranged from 0.3% to 5.2%; average syphilis positivity was 2.3% (range 0.6-8.0%)

% Pregnant women getting HIV or syphilis treatment by country



- ART for HIV+ women was high, 95-100%, while mean 72% (range 17-100%) of ANC women with reactive syphilis test received bPenG.

Figure 5. PEPFAR procurements of commodities to support HIV and syphilis testing and treatment, FY20-FY22.

PEPFAR Procurements, FY20-22

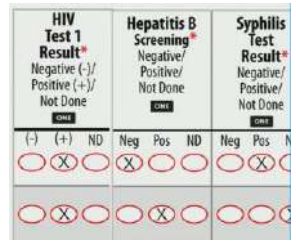
	Dual HIV/syphilis rapid test kits	Syphilis rapid test kits	Benzathine penicillin G
DRC			
Kenya			
Lesotho			
Nigeria	●		●
Tanzania			
Uganda	●	●	●
Zimbabwe	●		
Haiti		●	●

- Despite high rates HIV test/ART coverage in pregnant persons, not yet seen similar success with syphilis testing and treatment coverage; data on availability/accessibility of syphilis treatment and outcomes limited.
- Need to leverage HIV platforms for syphilis service delivery and commodities & improve data collection on treatment/outcomes.

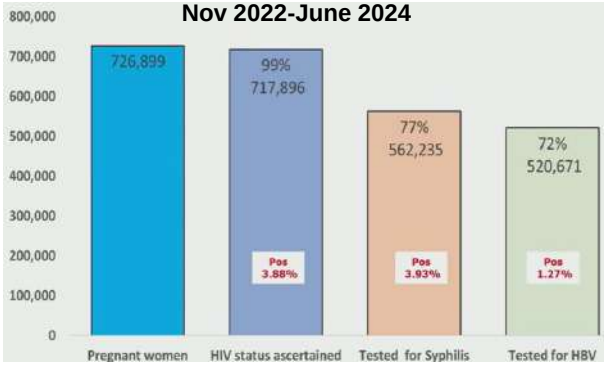
Malawi – National Integrated Testing for HIV, Syphilis, and HBV in Pregnant Women – Monitoring via Routine Data Through AI

Chirwa TC et al. AIDS 2024, Munich, Germany July 2024, Abs. OAC2204

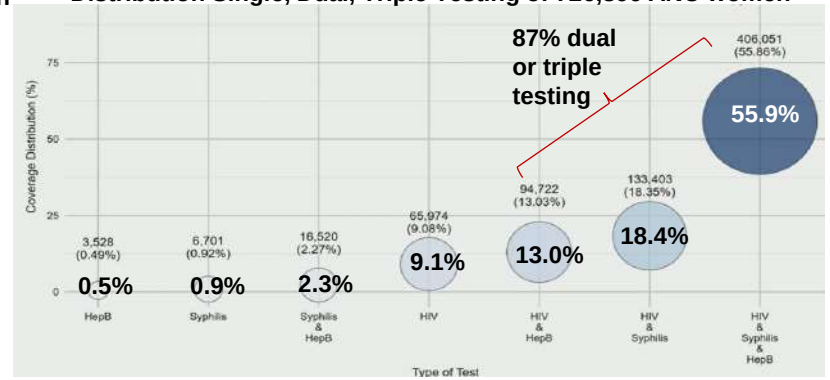
- Evaluated Nov 2022-Jun 2024 integrated HIV-syphilis-HBV testing in pregnant women attending 1st ANC
- Used ScanForm (>80% national completeness); customized data collection tools, with ScanForm app on phone "reads" handwriting >98% accuracy, automatic monthly reports



Testing Rates for HIV, Syphilis, and HBV for ANC Women Nov 2022-June 2024



Distribution Single, Dual, Triple Testing of 726,899 ANC women



HIV Coinfection and Associated OR for Pregnant Women

Disease	HIV Co-Infection Rate (%)	HIV/ART Status	Logistic Regression Results: Odds Ratio (95% CI)	Logistic Regression Results: Adjusted OR (95% CI)
Syphilis	14.92	Negative	1.00	1.00
		New Pos.	**5.18***** [4.84, 5.54]	**1.76***** [1.62, 1.93]
		Prev. ART	**6.77***** [6.50, 7.96]	0.95 [0.58, 1.53]
Hepatitis B	1.74	Negative	1.00	1.00
		New Pos.	**2.05***** [1.76, 2.41]	**1.20*** [1.02, 1.42]
		Prev. ART	**2.84***** [2.49, 3.10]	1.13 [0.35, 3.58]
Syphilis & Hepatitis B	0.38	Negative	1.00	1.00
		New Pos.	**5.87***** [3.84, 8.99]	**1.83**** [1.17, 2.88]
		Prev. ART	**11.46***** [9.11, 14.42]	0.67 [0.09, 4.85]

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

HIV Test and ART Status by Hepatitis B Test Outcomes

HIV Test and ART Status	Hepatitis B test: Negative	Positive	Not Tested	Total
Negative	487,157 70.60	6,068 0.88	196,773 28.52	689,998 100.00
New Positive	6,362 71.72	163 1.84	2,345 26.44	8,870 100.00
Pos. on ART	15,145 79.59	536 2.82	3,347 17.59	19,028 100.00
Not Tested	5,107 56.79	133 1.48	3,753 41.73	8,993 100.00
Total	513,771 70.68	6,900 0.95	206,218 28.37	726,889 100.00

6,900 HBsAg-positive: 6,201 HIV-negative or not tested, enrolled in HBV rx program with TDF/XTC; 699 HIV+ (4.3%) on ART or start ART, >98% on TDF ART

HIV Test and ART Status by Syphilis Test Outcomes

HIV Test and ART Status	Syphilis test: Negative	Positive	Not Tested	Total
Negative	513,940 74.48	17,372 2.52	158,686 23.00	689,998 100.00
New Positive	5,963 67.23	1,045 11.78	1,862 20.99	8,870 100.00
Pos. on ART	13,562 71.27	3,108 16.33	2,358 12.39	19,028 100.00
Not Tested	6,954 77.33	581 6.46	1,458 16.21	8,993 100.00
Total	540,419 74.35	22,106 3.04	164,364 22.61	726,889 100.00

22,100 syphilis positive: RPR or VDRL to confirm; if not available, presumptive treatment; ~1 in 5 (4,153) were also HIV+

HIV/syphilis: 14% coinfection: 1.8-fold ↑ odds if newly dx HIV+

HIV/HBV: 1.7% coinfection: 1.2-fold ↑ odds if newly dx HIV+

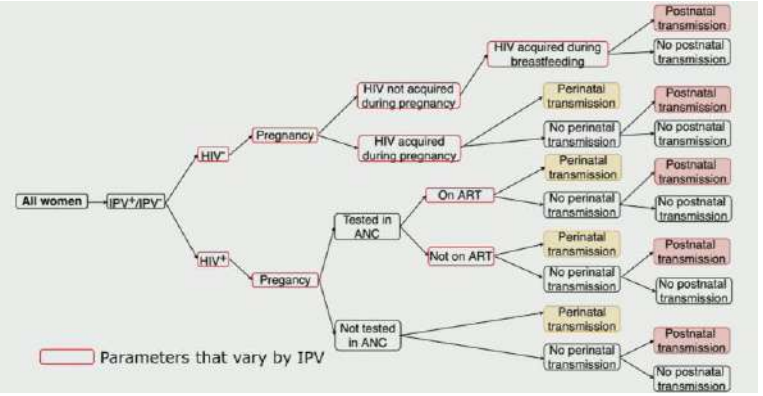
HIV/syphilis/HBV: 0.38% triple infection, 1.8-fold odds if newly dx HIV+

- ScanForm effective for monitoring performance
- 87% had integrated testing coverage with HIV
- High prevalence coinfection HIV/syphilis

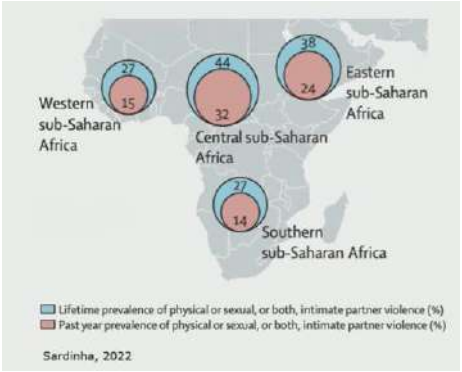
Intimate Partner Violence (IPV) and Vertical HIV Transmission – 46 African Countries: Decision Analytic Modeling

Kuchukhidze S et al. AIDS 2024, Munich, Germany July 2024, Abs. OAC 2205

- Used a decision analytic model to estimate population attributable fraction (PAF) of vertical transmission (MTCT) due to intimate partner violence in 46 African countries between 2014-2022.
- Parameters from:
  - Spectrum projection files for 2023 (HIV incidence, MTCT)
  - Systematic reviews/cohort studies (impact IPV on MTCT)
  - WHO Global Database on Prevalence of Violence Against Women (IPV)



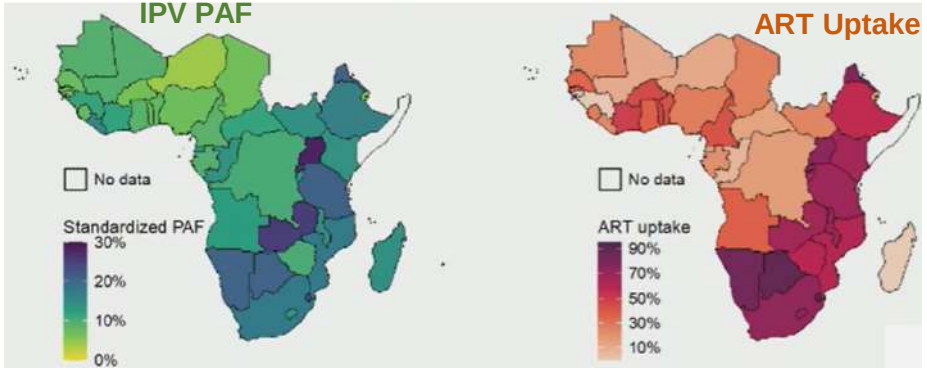
Lifetime and Past Year Prevalence IPV



→ Globally 1:4 women have experienced IPV

→ Lifetime IPV prevalence in Africa varies by region from 27% to 44%

PAF of IPV to MTCT in 2022

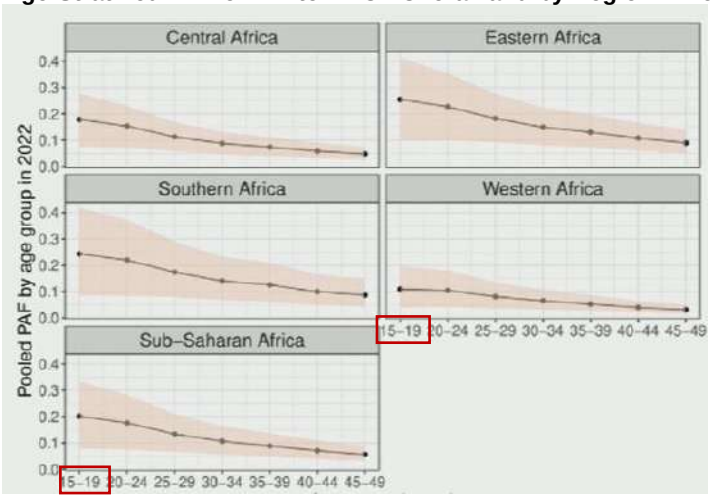


→ Across 46 countries, 14% (95% CI 6-23%) of MTCT is due to IPV, ranging from 4% in Niger vs 28% Uganda

→ Settings with high PAF coincide with settings with high ART uptake:

- In countries with high ART uptake, IPT results in ↓ in ART use and ↑ in MTCT
- In countries with low ART uptake, reducing IPV has smaller impact on MTCT

Age-Stratified PAF of IPV to MTCT Overall and by Region Africa



→ PAF of IPV was highest (20%) among 15-19 year-old pregnant adolescents; lowest among women 45-49 years (6%)

- Over 1 in 8 new pediatric infections could have been averted through elimination of IPV in 2022.
- Adolescent girls and young women are especially vulnerable to both IPV and HIV.

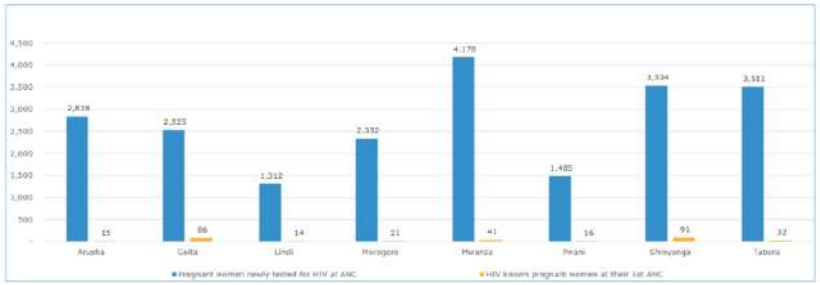
Lack of HIV Re-Testing for Pregnant and Breastfeeding Women from 8 Regions, Tanzania

Makyao N et al. AIDS 2024, Munich, Germany July 2024, Abs. WEPEC252

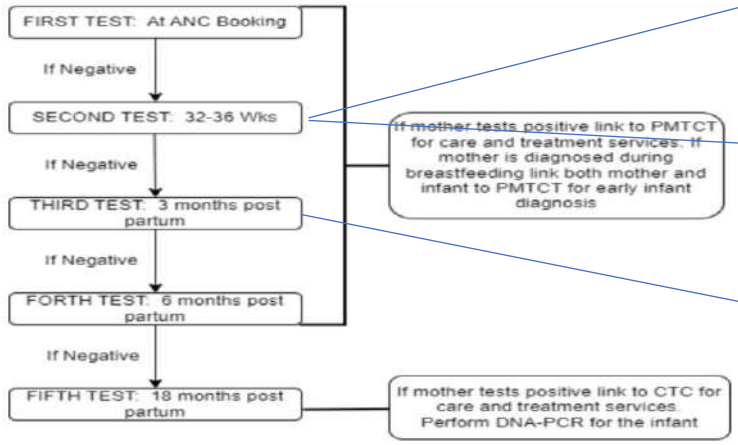
- Chistian Social Services Council (CSSC) and Amref conducted survey to evaluate adherence to re-testing algorithm in pregnancy and BF.
- Identified 2 members regional/council health management paired with HCP and mentor mothers 170 centers, reviewed ANC and MCH registers Jan-Dec 2023.

- From Jan-Dec 2023, 21,715 pregnant women attended 1st ANC visit and tested for HIV; 2% were HIV+
  - 316 (1.4%) known living with HIV
  - 121 (0.6%) newly HIV+, varied by region

Pregnant women newly tested for HIV versus HIV known positive pregnant women per region



HIV Retesting algorism for PBFWs



Results of Review at 170 Clinical Sites:

- A total of 5,544 women attending ANC between the 32-36 week of pregnancy, 77 (1.3%) were known persons living with HIV, and only 2,291 (41.3%) underwent maternal retesting, diagnosed 14 (0.61%).
- During labor and delivery, 5,544 pregnant women were in attendance, and 84 were known women living with HIV. However, only 1,225 (22%) underwent maternal retesting, leading to 17 (1.3%) positive diagnosis.
- During postnatal (1-40 days after delivery), 5,040 women attended clinics, and 43 were known positive. Among them, 2,179 (43.2%) underwent maternal retesting, and 8 (0.36%) women diagnosed.

- While initial HIV testing good, re-testing was poor; even with poor retesting, identified 39 new HIV+ women (ranging from 0.36% to 1.3% of those tested at post 1st ANC timepoints).
- Increased training & mentorship HCW planned; 1 week retraining of all providers done after review.

Lessons Learned from HIV Re-Testing Pregnant and Breastfeeding Women

Chansa J et al. AIDS 2024, Munich, Germany July 2024, Abs. TUPEC257

- 4 hospitals Lusaka, Zambia initiated “One-Stop” Differentiated Services Delivery for Moms & Babies Oct 2022
- Established Person-Centered Clinical Care Teams to provide screening and care for PBFW and children <2 y

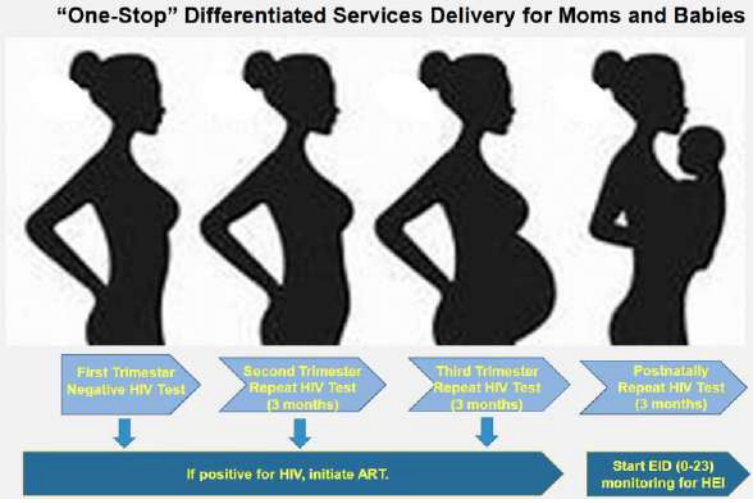


Fig.1 Person-centered clinical care team

→ Women with negative HIV test in ANC tracked and retested at 3 mo intervals

→Of 46,930 One Stop visits, 36,202 (77%) women were retested every 3 mos, including 75% of BF mothers.

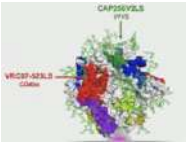
→240/36,202 **(0.4%)** retested were found newly HIV-positive.

→All found HIV-positive started on ART and paired with Mentor Mothers for psychosocial and adherence support.

Policy Recommendations

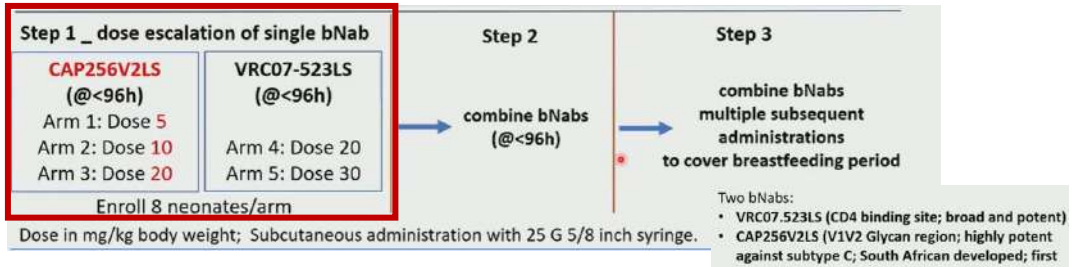
Clinical protocols requiring 1) deliberate quarterly screening for PBFW for retesting eligibility, 2) provision of health education and PrEP at routine follow-up visits, 3) provision of ART for PBFW who seroconvert and 4) EID monitoring for HEI is recommended.

PedMAb1 Trial South Africa– bNAb CAP256V2LS and VRC07-523LS for Prevention of Breastmilk Transmission, Safety Assessment



Scarlatti G et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2605

- Single arm, 3-step, proof of concept phase 1 study to evaluate safety/PK of two subcutaneous bNAbs in breastfeeding HIV-exposed newborns born without HIV and getting SOC ARV prophylaxis; Step 1 results.

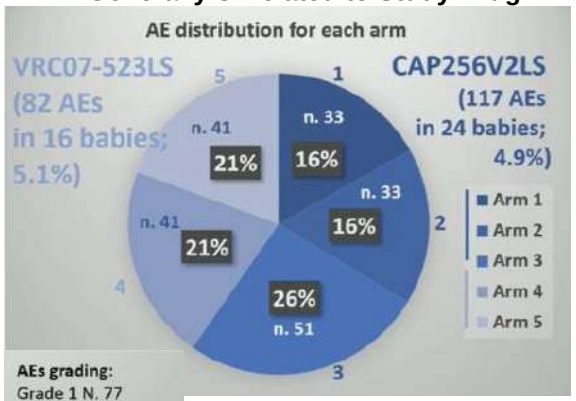


Post-Infusion Reactogenicity Uncommon

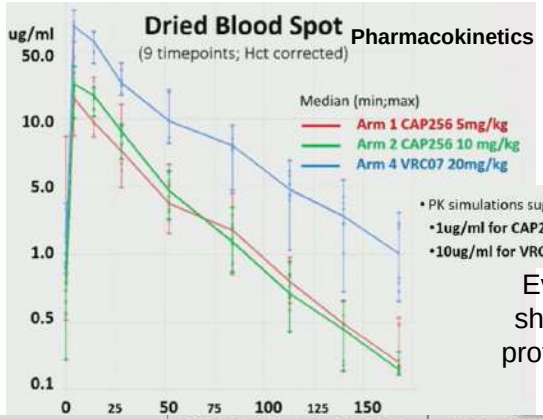
	Arm (8 infants/Arm)	Treatment	4-Hour Post bNAb Administration Assessment: 15-min (n)	30-min (n)	60-min (n)	4-hour Final (n)
CAP256V2LS	Arm 1	5mg/kg	0	0	0	0
	Arm 2	10mg/kg	1	0	0	0
	Arm 3	20mg/kg	0	0	0	0
VRC07-523LS	Arm 4	20mg/kg	4	3	1	0
	Arm 5	30mg/kg	3	3	0	0

- All 15 were Grade 1 and resolved within 60 min

AE Frequent But Were Mild and Generally Unrelated to Study Drug



Only 3 possibly related AE:
- Arm 2, Gr 1 LFT, resolved
- Arm 3, Gr 2 fussy, resolved
- Arm 4, Gr 1-2 LFT, resolved



- PK simulations suggest that the **potential protective target bNAb concentration** of:
  - **1ug/ml for CAP256.V2LS** is reached **~12 to 15 weeks** post-administration
  - **10ug/ml for VRC07-256LS** is reached **~10 to 12 weeks** post-administration.

Every 3 month administration should keep drug levels above protective target between dosing

bNAb - Dose	CAP256V2LS Arm 1: 5mg/kg	CAP256V2LS Arm 2: 10mg/kg	VRC07-523LS Arm 4: 20mg/kg
N. of participants	8	8	8
Cmax (µg/mL)	13.7	18.3	40.0
Tmax (days)	5	4	4.5
AUC0-inf (µg/mL.d)	0	569	1540
CL/F (mL/d)	36	48	39
Half-life (days)	22.3	20.3	32.6

- Infusions were safe; local reactions rare and usually mild
- AEs primarily unrelated to study drugs; possibly-related AEs in 3 infants which resolved
- Peak levels were lower than in adults; higher doses planned
- Step 2 evaluation of combined bNAb administration in progress.

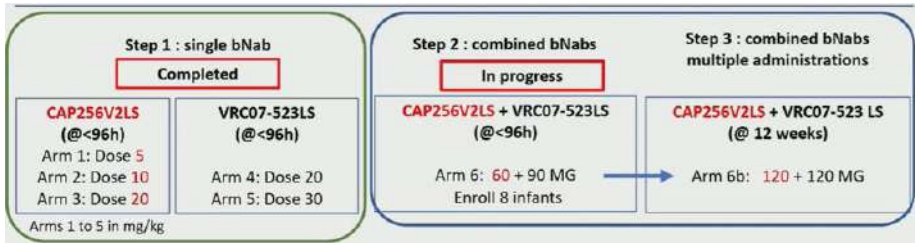
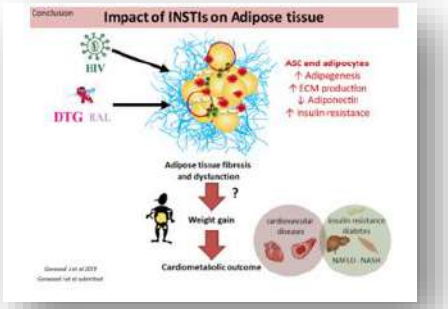


Photo credit: Paul Jeffrey, World Council of Churches

Pediatrics
ART, Viral Suppression, Resistance



Accelerating Treatment Optimization for Children South Africa

Silere-Maqetseba T et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEB LB 15

- Evaluated success of transition of CLHIV to pediatric DTG (pDTG) for young children in South Africa

November 2022
SAHPRA approval of pDTG

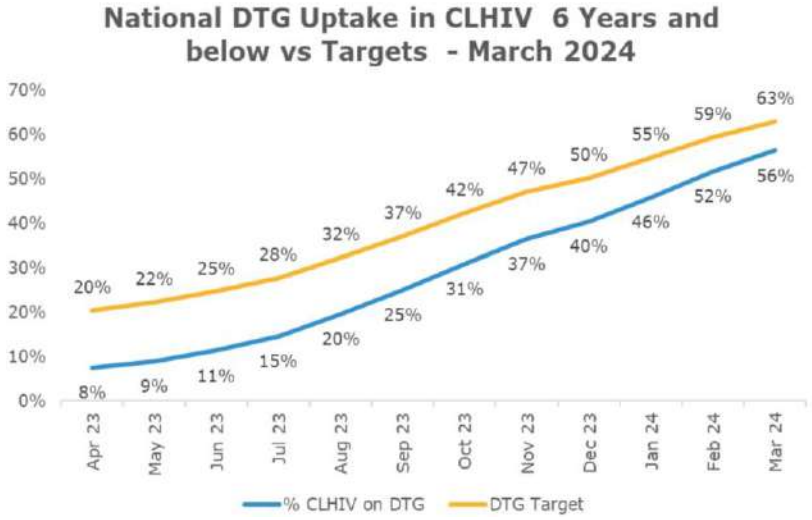
January 2023
South Africa adopted the use of pDTG 10mg as first-line antiretroviral therapy for children living with HIV (CLHIV) who are at least 4 weeks old and weigh 3-20 kg

April 2023
Phase 1 transition: switch/initiate CLHIV to a pDTG-containing regimen prioritizing those newly identified and those not virally suppressed.

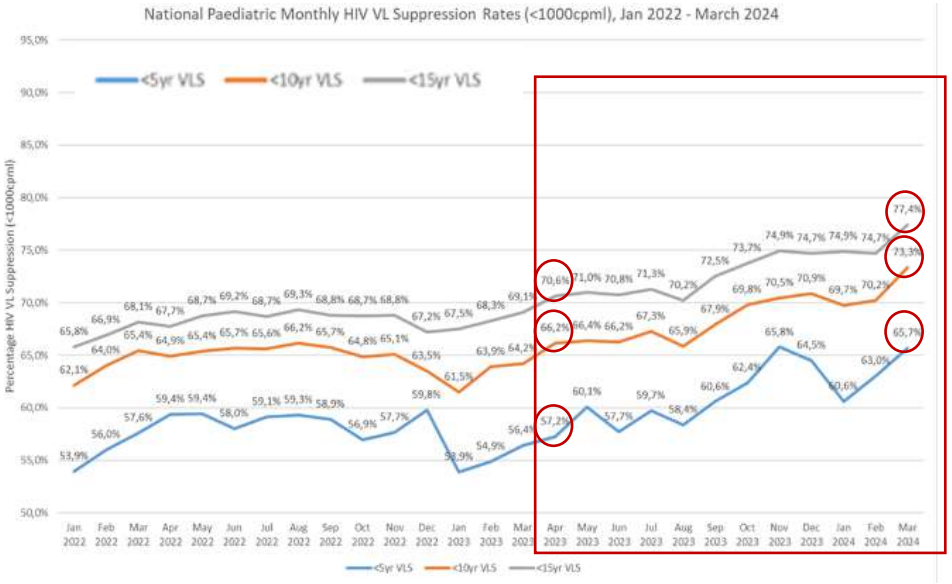
June 2023
National training of master trainers followed by provincial training of Healthcare workers

September 2023
Full transition of all eligible CLHIV in all provinces

June 2024
pDTG included on a supplementary tender



→ Rapid increase in use of pDTG in young children <6 yrs within 11 months of phase 1 transition in April 2023 – from 8% Ap 2023 to 56% Mar 2024



→ VL suppression rates in children ↑ from Ap 2023 to Mar 2024, going from 70.6% to 77.4% (+6.8%) in children <15 yrs overall.

→ Largest increase in suppression in younger children (target group for pDTG)

→ <10 yrs , 66.2% to 73.3% (+7.1%)

→ <5 yrs 57.2% to 65.7% (+8.5%)

- South Africa initiated/transitioned 56% of children <6 yr and 58% of children <10 yr to pDTG regimens in less than a year, with ↑ rates of viral suppression Ap 2023 to Mar 2024 in this age group(absolute increase of 7.1 to 8.5%).

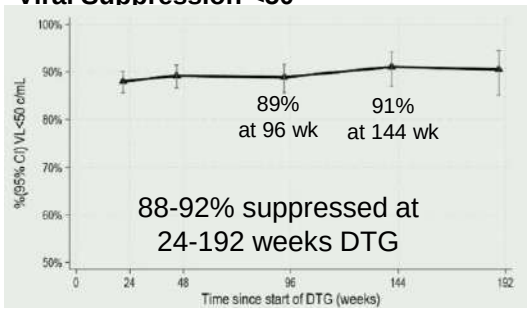
Viral Suppression, Viral Failure and Safety Outcomes in Children and Adolescents on DTG in Europe and Thailand

Scott K et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB3803

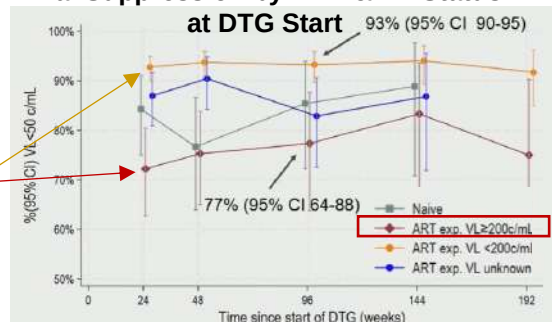
- Collaboration of 15 cohorts in 14 countries, pooling data on children/adolescents
- This analysis: 1,231 youth age <18 years at time of DTG start, data cut-off date May 2023

Characteristic	Total (n=1231)
Female	607 (50%)
Median age yr	14 yr (11-16)
Perinatal HIV	**1020 (95%)**
Ethnicity: Black White Asian Other	520 (42%) 451 (37%) 130 (11%) 105 (9%)
Region: UK/Ireland Ukraine Spain Rest Europe Thailand	382 (31%) 282 (23%) 198 (16%) 269 (22%) 100 (8%)
ART/VL: Naïve Exp, VL ≥200 Exp, VL <200 Exp, unk VL	120 (10%) 163 (13%) 603 (49%) 345 (28%)
Median duration ART yr	**9 yr (5, 12)**
Median CD4	710 (492, 973)
Advanced disease	127 (14%)
Median calendar year	2018 (2017-2020)

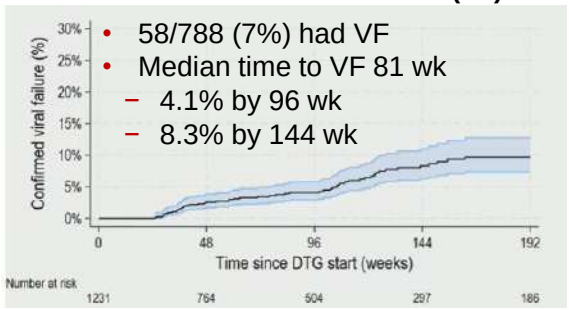
Viral Suppression <50



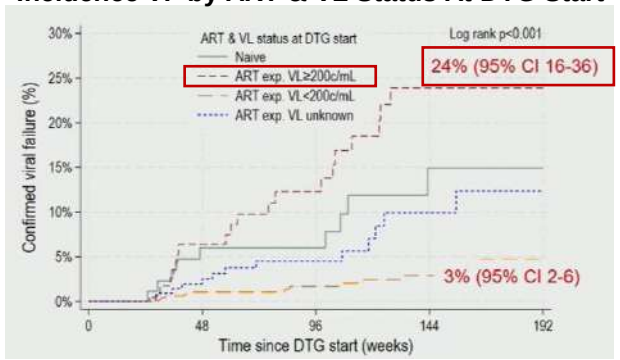
Viral Suppression by ART & VL Status at DTG Start



Cumulative Incidence Viral Failure (VF)



Incidence VF by ART & VL Status At DTG Start



- Adjusting for age, sex and ART/VL status, higher hazard VF associated with female sex, ART-experienced & VL ≥200, hx VF, and UK/Ireland region

Safety

- 26 (2.1%) had 52 AE (5 SAE) potentially related to DTG
- 5 (0.4%) had 25 AE related to elevated lab
- 7 (0.6%) had 8 neuropsych AE
- No deaths
- Cumulative incidence all-cause discontinuation: 5% by 96 wk and 10% by 144 wk

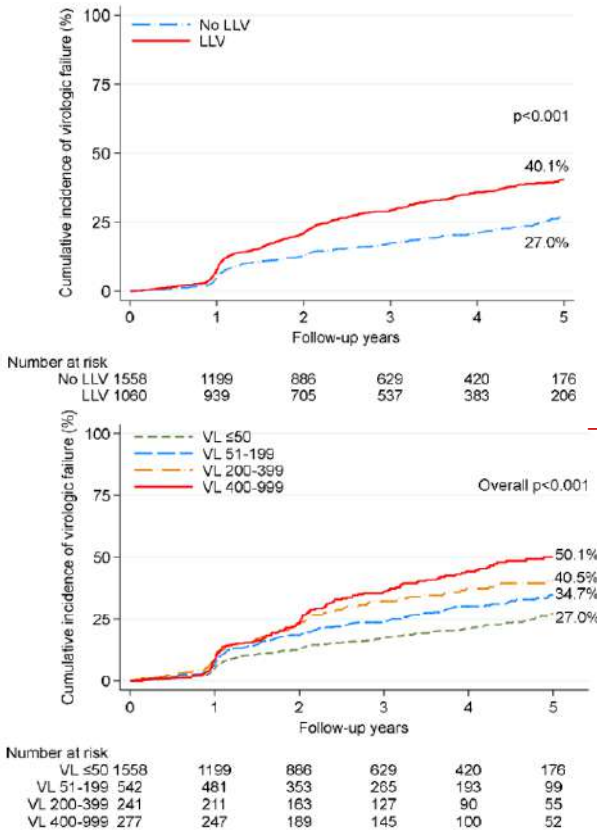
- Most ART-experienced when started DTG
- ~90% were suppressed on DTG
- Low incidence VF except if ART-experienced and viremic when started DTG
- Generally well tolerated low AE/SAE

Low-Level Viremia (LLV; VL 50-999 c/mL) Leads to Increased Risk Viral Failure in Children on ART in Tanzania

McKenzie K et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEB119

- Retrospective chart review Oct 2004-Dec 2022 of 2618 CLHIV 0-19 yrs on ART for ≥6 mos with at least 1 VL <50 plus ≥2 subsequent VL at 2 Baylor Tanzania sites (*note: did not define VF as 1 or 2 elevated VL*)
  - Median age 13.2 yr (IQR 9.7-16.7), 53% female; 81.9% on 1st line DTG-based ART; **low-level viremia was observed in 40.5%**

Viral Failure Defined as >1000 c/mL



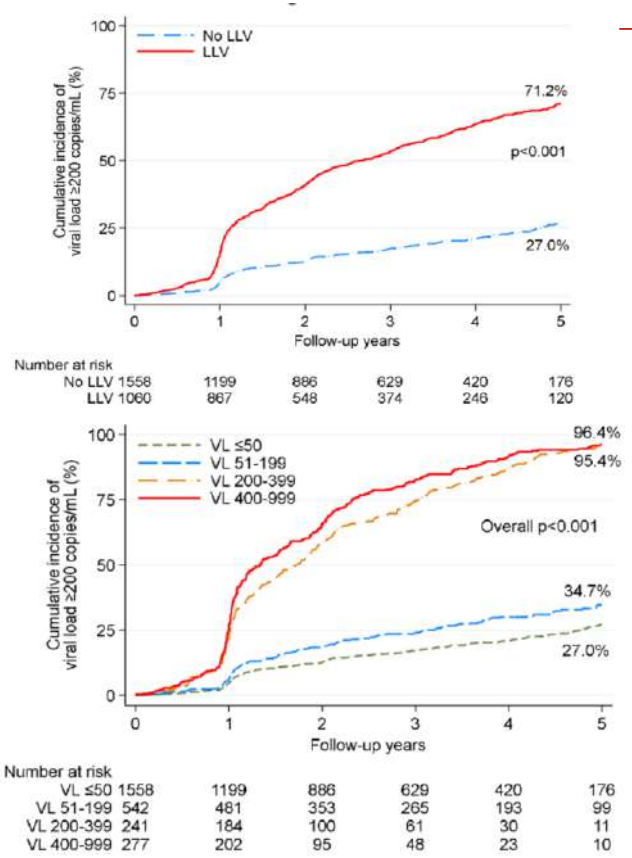
→ History of low-level viremia (51-999 c/mL) ↑ hazard of VF ≥1000 by **1.6-fold**: HR 1.63 (1.4, 1.9)

→ Greater risk VF with higher levels of low-level viremia:

c/mL

- LLV 51-199: HR 1.39 (1.1, 1.7)
- LLV 200-399: HR 1.69 (1.3, 2.2)
- LLV 400-999: HR 2.03 (1.6, 2.5)

Viral Failure Defined as > 200 c/ML



→ History of low-level viremia (51-999) ↑ hazard of VF ≥200 by **3.9-fold**: HR 3.85 (3.3, 4.5))

→ Greater risk VF with higher levels of low-level viremia:

c/mL

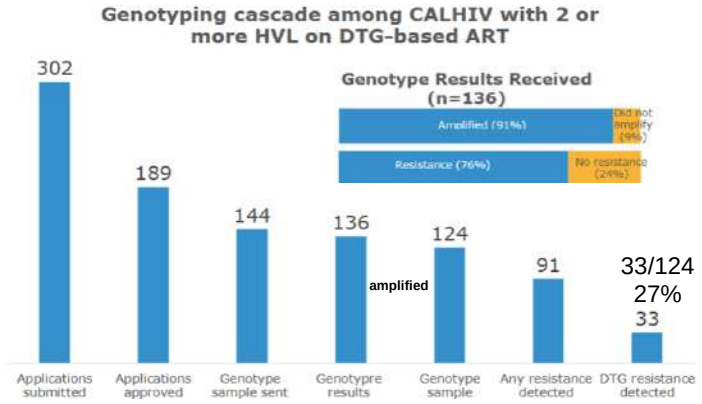
- LLV 51-199: HR 1.41 (1.2, 1.7)
- LLV 200-399: HR 7.99 (6.7, 9.6)
- LLV 400-999: HR 9.37 (7.9, 11.2)

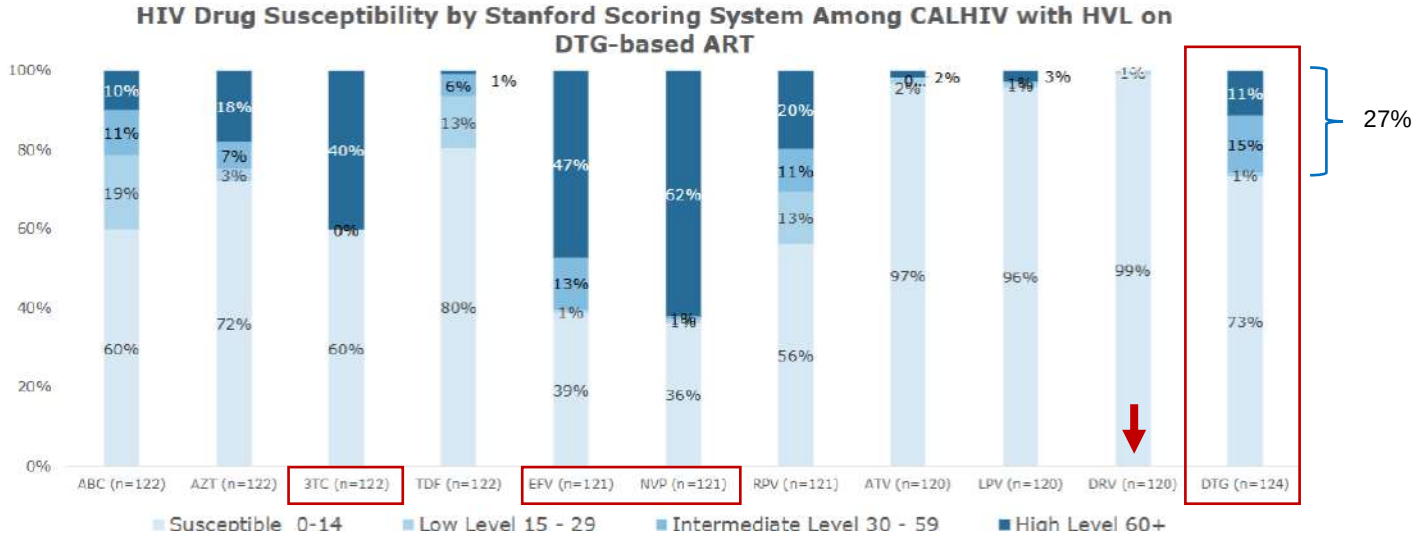
- LLV increases risk of VF on ART, with higher levels LLV corresponding to higher risk

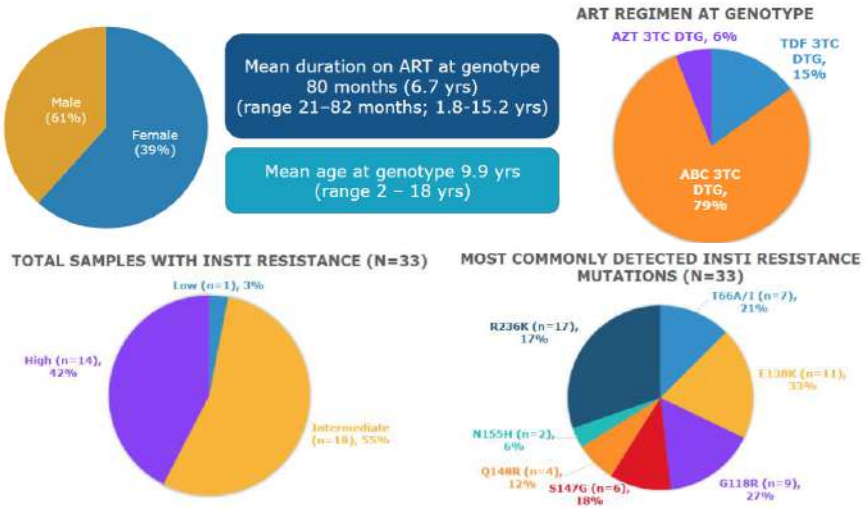
Emerging DTG Drug Resistance (DR) in Children and Adolescents with HIV (CALHIV) in Malawi

Simon K et al. AIDS 2024, Munich, Germany July 2024, Abs. WEPEB133

- To evaluate prevalence DTG DR in children on DTG; reviewed HIVDR testing applications and results between Dec 2019-Nov 2023 on CALHIV on DTG ART





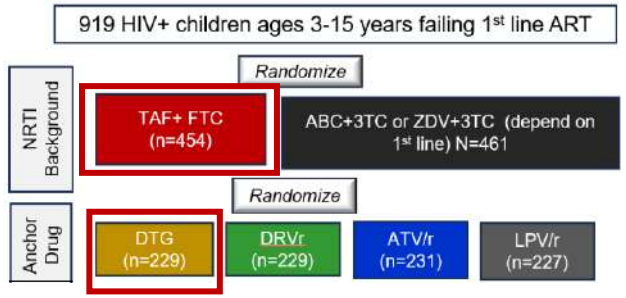


- DTG resistance was confirmed among over one in four (27%) CALHIV with confirmed viral failure on DTG ART.
- Of note, DRV resistance very rare, making it a potential alternative in children with DTG resistance.

Genotypic Resistance to InSTI, PI, and TAF Uncommon in Children with Viral Rebound in CHAPAS-4 Trial of 2nd Line ART in Africa

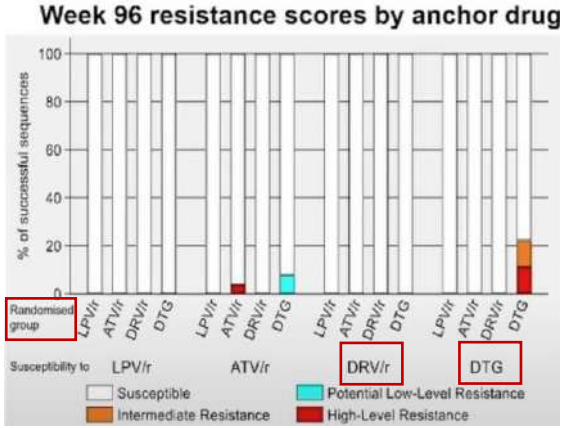
x et al. Pediatric HIV Workshop 2024, Munich, Germany July 2024, Abs. 11

- The CHAPAS-4 trial of 2nd line ART following 1st line ART viral failure on NNRTI ART demonstrated superior virologic efficacy at 96 weeks for DTG compared to LPV/r & ATV/r, and TAF/FTC compared to ABC or AZT/3TC.
- VL tested at screening, wk 48 and 96 real-time; 6, 24 & 72 wk retrospectively; **at wk 96, samples with VL >400 were tested for resistance;** VL was >400 for 124/908 **(13.7%).**



Anchor Drug Resistance

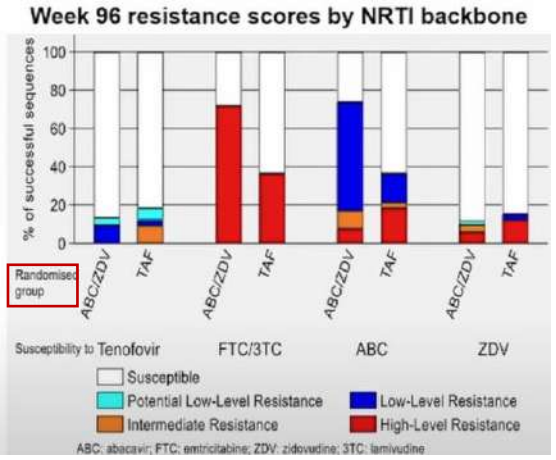
Anchor Drug	DTG	DRV/r	ATV/r	LPV/r
VL > 400 c/ml	18/226 (8.0%)	27/230 (11.7%)	36/229 (15.7%)	43/223 (19.3%)
Gene Sequencing available for: Protease: 86/124 (69.4%), Integrase: 79/124 (63.7%)				
≥1 major protease mutation (**p=0.66**)	0/13 (0%)	0/18 (0%)	1/26 (4%)	0/29 (0%)
≥1 major integrase mutation (**p=0.01**)	2/9 (22%)	0/17 (0%)	0/24 (0%)	0/29 (0%)



→ In children with VL >400, resistance was uncommon to randomized anchor drug, with no resistance to DRV, and 1 high level and 1 intermediate DTG resistance

NRTI Resistance

NRTI Backbone	TAF + FTC	SOC (ABC/ZVD + 3TC)
VL > 400 c/ml	48/454 (11%)	76/454 (17%)
Reverse transcriptase gene sequencing available for 86/124 (69.4%)		
≥1 major NRTI mutation (p<.01)	13/33 (39%)	40/53 (75%)
Intermediate/high level resistance		
FTC/3TC (p=0.002)	12/33 (36%)	38/53 (72%)
Tenofovir (p=0.053)	3/33 (9%)	0/53 (0%)

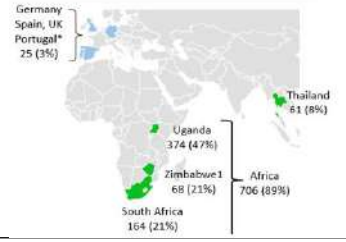


→ Intermediate level TFV resistance observed only in the TAF arm but was uncommon & no K65R mutations detected. 3TC resistance more common ABC or AZT vs TAF (72% vs 36%)

- Genotypic resistance to PI or DTG in children failing 2nd line ART was uncommon.
- Resistance to 3TC was more common in those randomized to ABC/3TC or AZT/3TC; tenofovir resistance in TAF arm was also uncommon.

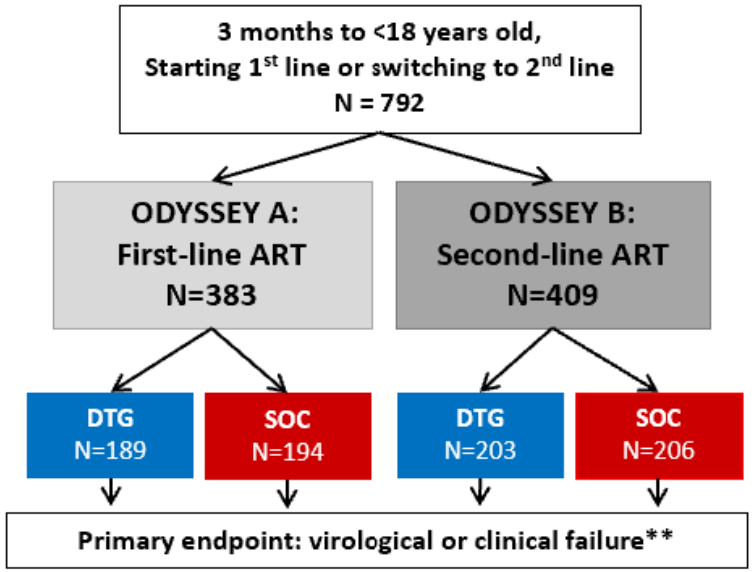
Weight Gain with DTG vs SOC ART in Children in Odyssey Trial - 192 Week Follow-Up

Turkova A et al. Ped Workshop and AIDS 2024, Munich, Germany July 2024, Abs.



- Extended FU of 683 pt (97% of 707 approached) in Odyssey, median FU 5.5 yr
- 99% of children in SOC arms were switched to DTG by end FU

Odyssey Study Design



- DTG superior viral response compared to SOC at 192 weeks

Mujuru H et al. CROI March 2024, Denver, CO Abs 186

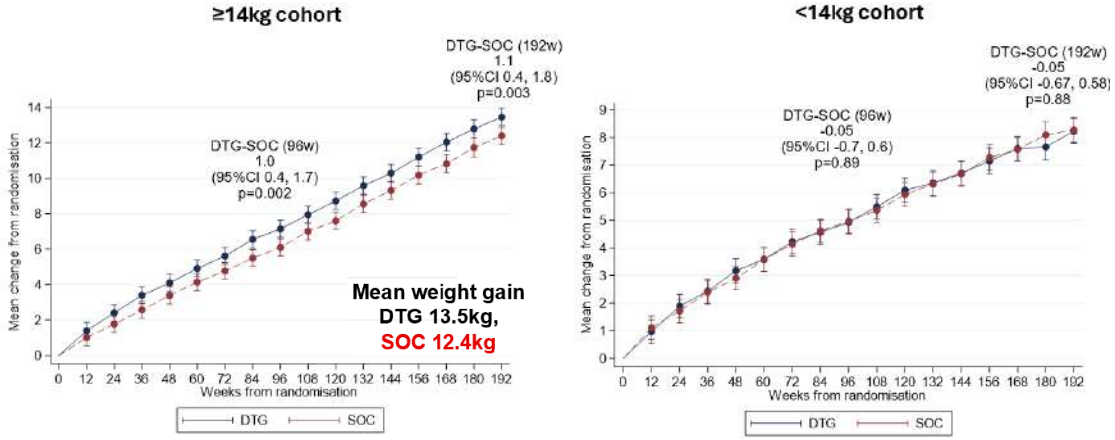
Baseline Characteristic– Stratified by Weight at Entry

	≥14 kg (N=707)	<14 kg (N=85)
Median age	12.2 yr; 96% ≥6 yr	1.4 yr; 89% >3 yr
First-line	44%	85%
Second-line	56%	15%
Baseline ART		
NRTI	65% ABC/TDF	89% ABC/3TC
3rd agent (SOC)	92% EFV 1st-line	74% LPV/r
	72% LPV/r 2nd-line	

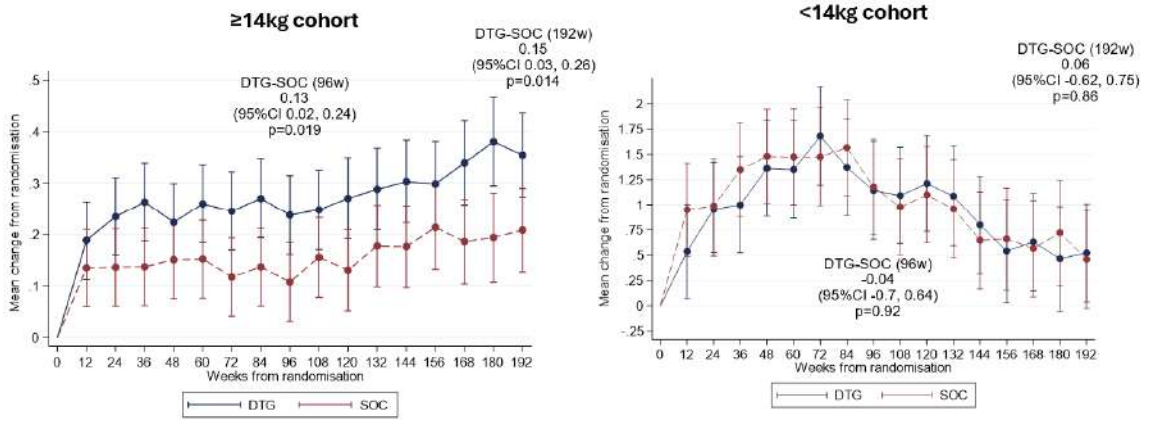
Weight Gain with DTG vs SOC ART in Children in Odyssey Trial - 192 Week Follow-Up

Turkova A et al. Ped Workshop and AIDS 2024, Munich, Germany July 2024, Abs.

Weight change, baseline – 192 week, stratified by weight group

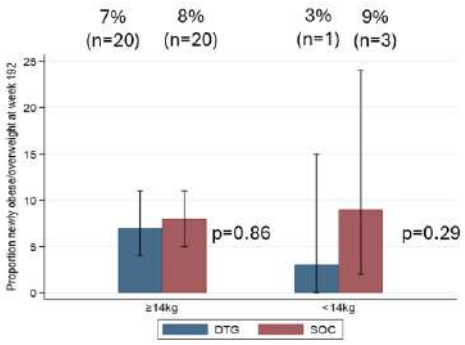


BMI change baseline – 192 week, stratified by weight group

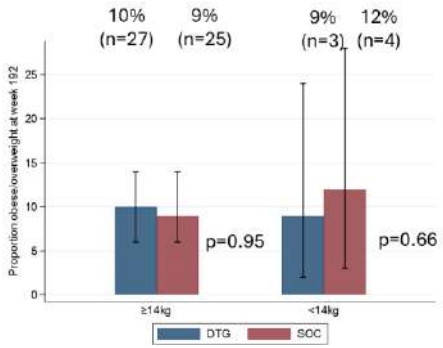


- Weight and BMI ↑ greater in DTG than SOC children in ≥14 kg cohort but similar in <14 kg cohort

Newly overweight/obese



Prevalence of overweight/obese



- Few children newly overweight/obese in either arm; observed prevalence not higher than general population

→Children in **≥14kg cohort** gain more weight with DTG vs SOC; small differences in weight/BMI between arms

→Children in **<14kg cohort** gain weight at similar rate in both arms

→Few children newly overweight or obese in either arm

→**Overall, over 192-week follow-up, DTG-based ART was not associated with excessive weight gain in babies, children and adolescents**

Effectiveness and Safety of TAF ART in Children and Youth with HIV in EPPICC

Chapell E et al. AIDS 2024, Munich, Germany July 2024, Abs. WEPEB124

- Described uptake, effectiveness & safety of TAF in youth age <18 yr at HIV dx and <25 yrs at TAF start
- Among 2,979 youth in FU since 2016 in countries with access to TAF, 580 (19%) ever used TAF (3 aged <6 yr at TAF start off label excluded), for median 1.6 yr (IQR 0.7-2.8).

Effectiveness outcomes: (i) Viral suppression (viral load (VL) <50c/ml) at 48/96 (±12) weeks among those still on TAF; (ii) viral failure defined as: failure to suppress <50c/ml within 48w, or ≥2 consecutive VL≥400c/ml, or 1 VL≥400c/ml followed by change in anchor drug.

Characteristics Youth on TAF

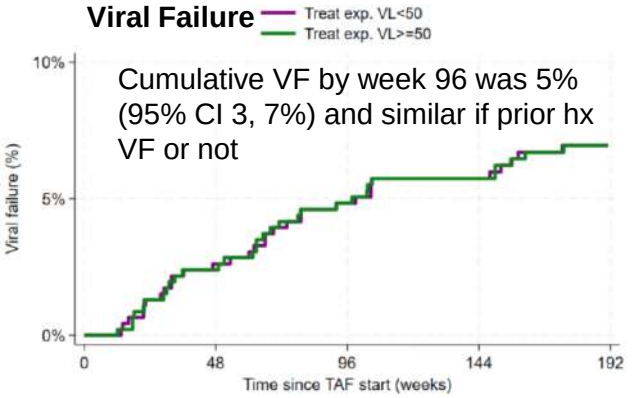
	n (%) or median [IQR]
Age at ART initiation, years	3.1 [0.6, 8.8]
Age at TAF start, years	15.8 [12.7,18.5]
Calendar year	2018 [2017, 2019]
ART experienced	553 (96%)
of whom, VL<50c/ml	305 (55%)
VL≥50c/ml	145 (26%)
VL unknown	103 (18%)
Previous treatment failure	212 (37%)
Previous TDF use	309 (54%)
Anchor drug: INSTI	335 (58%)
PI	157 (27%)
NNRTI	47 (8%)
Other/mixed	38 (7%)

Viral Suppression at 48 and 96 Weeks

	48 weeks	96 weeks
Overall	261/310, 84% (80, 88%)	168/196, 86% (80, 90%)
ART exp., <50c/mL	157/178, 88% (83, 93%)	117/129, 91% (84, 95%)
ART exp., ≥50c/mL	47/67, 70% (58, 81%)	21/35, 60% (42, 76%)
ART exp., VL unknown	46/51, 90% (79, 97%)	22/23, 96% (78, 100%)

Those suppressed at TAF start did best

Viral Failure

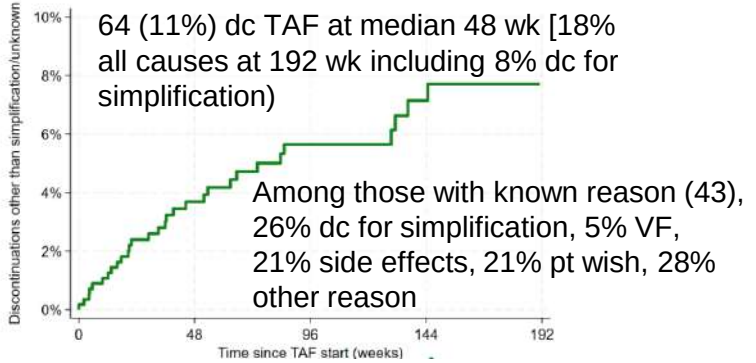


- **Clinical AE:** 16 (3%) has AE possibly TAF-related; 3 (1%) had 4 SAE; 1 (renal stones) led to dc TAF; no deaths
- **Laboratory AE:** Lab data on 366 (63%); 20 (5%) had 23 Gr ≥3 AE (2.3/100 p/y), 73% had 897 Gr ≥1 AE (83/100 p/y)

Rate 100 p/y Gr ≥1 Lab AE

- total cholesterol 20 (95% CI 16,24)
- HDL 17 (14,21)
- LDL 13 (10,16)
- triglycerides 12 (10,16)
- ≤10 for other markers (APT, ALT, AST, creatinine, phosphate, calcium, Hb, glucose)

Figure 2: Time to discontinuation for reasons other than simplification/optimisation and unknown reason



- ~1/5 cohort received TAF which appeared safe and effective.
- Viral suppression rates were high, VF low, few severe AE, & rates of dc for reasons other than simplification/ optimization were low.

Preliminary Safety, Efficacy, Acceptability of Bictegravir/FTC/TAF in Children/Infants From Age 1 Month Weighing 6-<14 Kg

Buckley J et al. Pediatric HIV Workshop 2024, Munich, Germany July 2024, Abs. 6

- B/F/TAF is approved for children age >2 yr weighing >14 kg as full strength (50/200/25mg) if wt >25 kg or low-dose (30/120/15mg) if wt 14-<25 kg.
- New formulation tablet for oral suspension (3/75/15/1.88mg), berry flavor, suspend in water; evaluated in infants age >1 mo and wt 6-<14 kg:
  - Wt 10-<14 kg, received two tabs BID (n=14)
  - Wt 6-<10 kg, received 1 tab BID (n=15)

	Cohort 4; Group 2 (10 to < 14 kg); n = 14[a]	Cohort 4; Group 3 (6 to < 10 kg); n = 15[a]
Age, months, median (range)[b]	30.2 (21.0-56.7)	8.9 (2.8-19.7)
Weight, kg, median (range)	11.3 (10.0-13.8)	8.0 (6.0-9.6)
Female at birth, n (%)	8 (57)	11 (73)
Black race, n (%)	14 (100)	13 (87)[c]
HIV-1 RNA c/mL, median (range)	48 (19-304)	19 (19-67,000)
HIV-1 RNA ≥ 50 c/mL, n (%)	6 (46)[d]	6 (40)
CD4 count, cells/µL, median (IQR)	1573 (1126-1987)	2303 (1563-2686)
CD4 count, %, median (IQR)	33.6 (31.6-35.7)	36.3 (28.8-40.4)
Vertical transmission, n (%)	14 (100)	14 (93)[e]

- Median (IQR) exposure to B/F/TAF was:
  - Group 2: 54.5 (29.7-61.7) weeks
  - Group 3: 32.7 (13.6-48.4) weeks

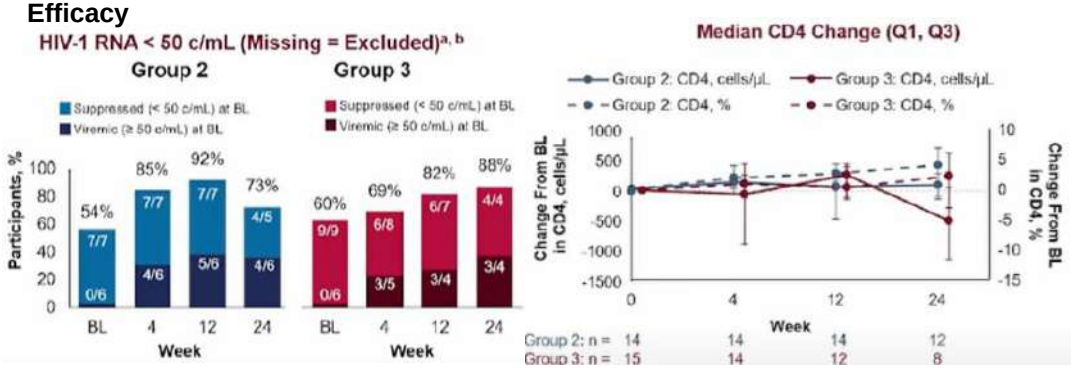
Adverse Events

Participants, n (%)	Cohort 4; Group 2 (10 to < 14 kg); n = 14	Cohort 4; Group 3 (6 to < 10 kg); n = 15
Any TEAE	6 (43)[a]	14 (93)[a]
TEAE related to study drug	0 (0)	1 (7)[b]
Grade 3-4 TEAE	1 (7)[c]	1 (7)[d]
Serious TEAE	0 (0)	1 (7)[d]
TEAE leading to study drug discontinuation	0 (0)	0 (0)
Grade 3-4 laboratory abnormalities	2 (14)	4 (27)

→ 1 pt in Grp 3 had Gr 1 puritis considered related to study drug

→ The only Gr 3-4 lab AE was increased amylase (all 6 had Gr 2-3 amylase before B/F/TAF and increase transient and asx)

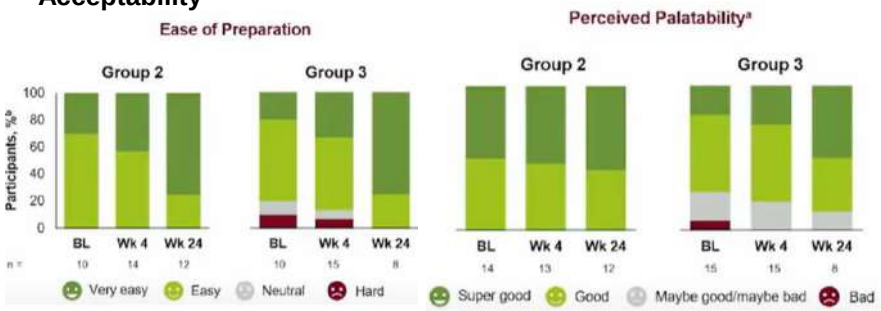
Efficacy



→ % suppressed increased from baseline both groups

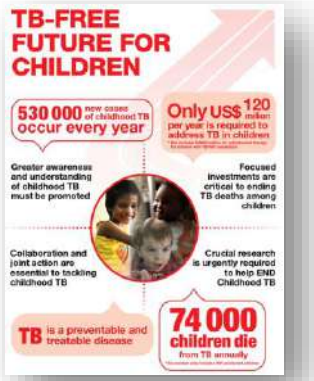
→ Overall, absolute CD4 stable and CD4% increased from baseline

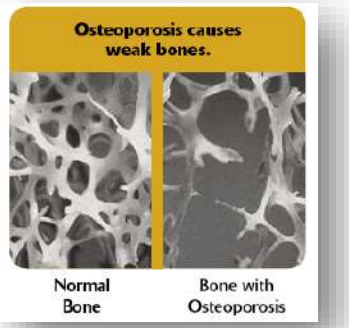
Acceptability



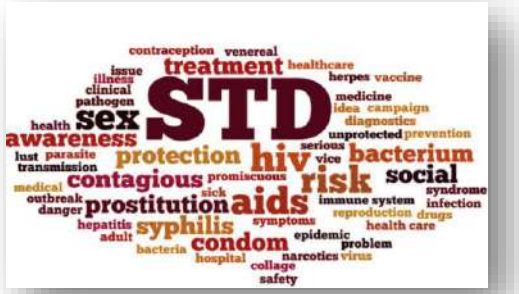
→ Most caregivers report easy to prepare and palatable to infant

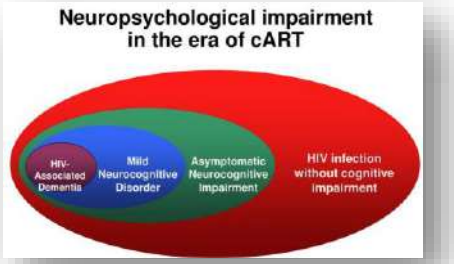
- B/F/TAF tab for suspension for young infants showed favorable safety and efficacy and highly acceptable to caregiver to prepare and to infant to take.

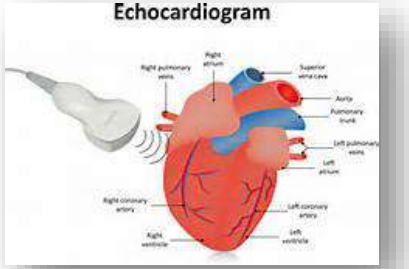




Children, Adolescents and HIV: Coinfections/Comorbidities



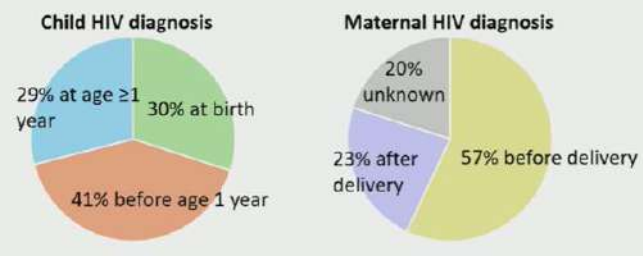




High Incidence of Tuberculosis in Young Children with HIV, Western Cape South Africa

Anderson K et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB1703

- Evaluated routine EMR data from 2,219 children with HIV born May 2018-Oct 2022 to evaluate factors associated with TB diagnosis: *"TB before ART"* = TB dx before/within 3 mo ART start; *"TB after ART"* = TB dx >3 mos after ART start



→ 90% (n=1190) start ART, median age 5 mos
→ Median time HIV dx to ART, 13 d (IQR 6-32)
→ Median FU from birth, 38 mos (IQR 24-50); from ART start, 26 mos (IQR 14-40)
→ 24% no clinic visits for >12 mos @ study closure

→ **626/2219 (28%) dx with TB**; 25% dx culture confirmed

→ Maternal TB during pregnancy/PP (80% linked data)
  - 12% of children with vs 7% of those without TB diagnosis

→ Overall, 5% CLHIV died; 1/3 not started ART, **36% deaths in children dx with TB**

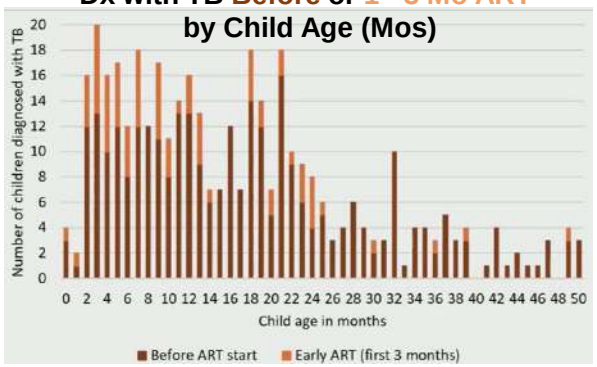
'TB before ART'	**7%** (n=26/390)
'TB after ART'	**5%** (n=14/258)
No TB after ART	**2%** (n=26/1644*)

Risk Factors for TB, Stratified by Timing TB Dx

		(A) TB BEFORE ART SHR (95% CI) (n=2200)	(B) TB AFTER ART SHR (95% CI) (n=1908)
Maternal TB	None	Ref	Ref
	Yes	1.29 (0.82-2.02)	1.57 (0.99-2.50)
	Unknown	0.92 (0.72-1.19)	0.66 (0.44-0.97)
Age (days) at HIV diagnosis (A) or at ART start (B)	≤7	Ref	Ref
	8-98	2.63 (1.54-4.46)	0.79 (0.56-1.11)
	99-365	6.32 (3.91-10.22)	0.83 (0.58-1.19)
	366-731	9.06 (5.64-14.56)	0.98 (0.64-1.50)
	>731	10.16 (6.14-16.81)	1.08 (0.60-1.94)
Immunodeficiency category, time-updated	None/mild	Ref	Ref
	Advanced	1.75 (1.22-2.51)	2.18 (1.43-3.31)
	Severe	2.16 (1.60-2.92)	3.98 (2.84-5.57)
	Unknown	0.75 (0.52-1.07)	0.49 (0.32-0.75)
Viral load, time-updated (copies/ml)	<100		Ref
	100-499		1.38 (0.59-3.25)
	500-999		2.75 (1.05-7.18)
	1,000-999,999		2.92 (1.67-5.10)
	≥1,000,000		5.39 (2.92-9.96)
	Unknown		1.52 (0.89-2.59)

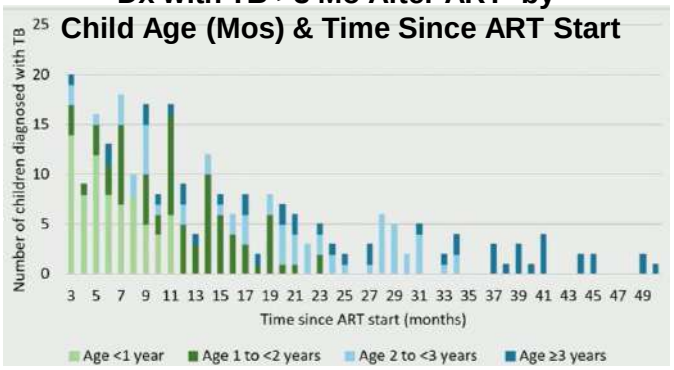
Models adjusted for sex, year of birth and previous child TB, with death & loss to follow-up as competing events

Dx with TB Before or 1st 3 Mo ART by Child Age (Mos)

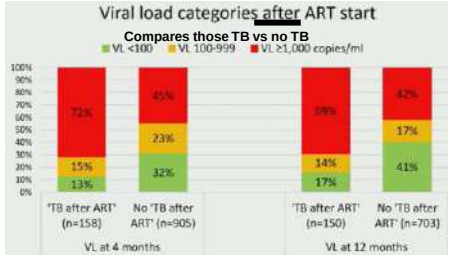


→ **Median age HIV dx 13 mos** (IQR 6-22)
→ **Median time btn HIV & TB dx 5 d** (IQR 0-31)
- CLHIV with TB before ART: HIV dx older age, with short time btn HIV dx and TB

Dx with TB >3 Mo After ART by Child Age (Mos) & Time Since ART Start



→ **Median age HIV dx 2 mos** (IQR 0-8)
→ **Median time btn HIV & TB dx 12 mo** (IQR 7-21)
- CLHIV with TB after ART: HIV dx younger age, started ART earlier and longer time on ART before dx



→ Most with TB dx after ART start non-suppressed at 4 and 12 mos after ART started compared to those on ART without TB

- 2 risk grps for TB in CLHIV:
  - Older children dx with concurrent HIV/TB, associated with immunodeficiency at time HIV dx.
  - Younger children despite early ART, develop TB associated with immuno-deficiency and elevated VL.
- Rec: Strengthen child HIV testing & early ART start, support VL suppression, strengthen IPT

TB and HIV Co-Infection in Children with TB in Tertiary Hospital in Lusaka, Zambia: 15 Year Retrospective Review TB Notifications

Simwanaz s et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEB069

- Retrospective review of all children 0-15 years listed as TB diagnosis in TB register 2007-2021.

Demographics of Child TB Notifications 2007-2021

Characteristic	Overall, N = 6,075[1]	HIV positive, N = 2,808[1]	HIV negative, N = 3,020[1]	unknown, N = 247[1]	p-value[2]
Age in years	3.0 (1.0, 8.0)	3.0 (1.0, 9.0)	3.0 (1.0, 8.0)	5.0 (2.0, 10.0)	<0.001
Age group					<0.001
Infant	1,085 (18%)	578 (21%)	488 (16%)	19 (7.7%)	
1 to 4 years	2,480 (41%)	1,036 (37%)	1,352 (45%)	92 (37%)	
5 to 15 years	2,510 (41%)	1,194 (43%)	1,180 (39%)	136 (55%)	
Sex					0.2
Female	2,903 (48%)	1,373 (49%)	1,422 (47%)	108 (44%)	
Male	3,172 (52%)	1,435 (51%)	1,598 (53%)	139 (56%)	
Residence					<0.001
High cost	339 (5.6%)	182 (6.5%)	138 (4.6%)	19 (7.7%)	
Low cost	4,043 (67%)	1,885 (67%)	2,014 (67%)	144 (58%)	
Medium cost	668 (11%)	364 (13%)	273 (9.0%)	31 (13%)	
unknown	1,025 (17%)	377 (13%)	595 (20%)	53 (21%)	
TB type					<0.001
EPTB	1,425 (23%)	344 (12%)	970 (32%)	111 (45%)	
PTB	4,650 (77%)	2,464 (88%)	2,050 (68%)	136 (55%)	
Smear results					<0.001
positive	336 (5.5%)	165 (5.9%)	163 (5.4%)	8 (3.2%)	
negative	1,517 (25%)	736 (26%)	744 (25%)	37 (15%)	
not available	4,222 (69%)	1,907 (68%)	2,113 (70%)	202 (82%)	

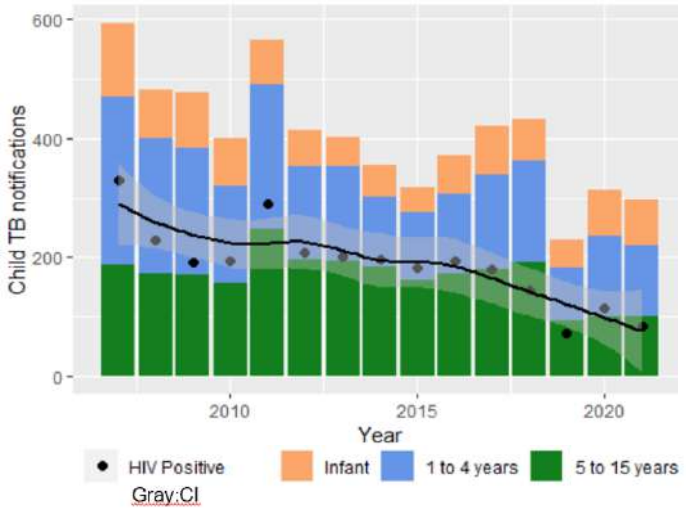
→ 6075 children with TB; median age 3 yr (IQR 1-8)

→ 77% pulmonary TB

→ 5.5% smear + (69% not available)

→ Overall HIV prevalence 46.2% (2,808/6,075)

Yearly Child TB Diagnoses Stratified by Age Group and HIV, 2007-2021



→ Cases TB in children ↓ btn 2007-2021 all ages

→ Predicted overall HIV prevalence 55%% (<1 yr, 70%; 1-4 yr, 50%; 5-15 yr, 52%

→ Yearly trend in HIV prevalence by age 2007-2021

→ <1 yr: -2.5% (-3.6, -1.4)

→ 1-4 yr: -1.3% (-2.4, -0.24)

→ 5-15 yr: -0.71 (-1.8, 0.33)

Baseline Child HIV/TB Notification Frequency and Trend 2007-2021

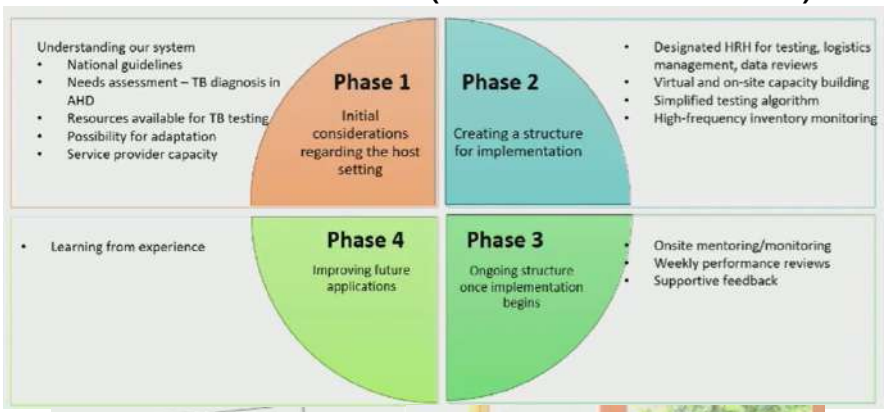
Variable	Metric	Baseline (95% CI)	p-value (Baseline)	Yearly trend (95% CI)	P-value (Trend)
Age					
All ages (0-15)	Total notifications	525 (457, 594)	<0.001*	-17 (-26, -8.8)	<0.001*
	Frequency of HIV-positive TB notifications	277 (236, 317)	<0.001*	-13 (-18, -7.9)	<0.001*
	Percentage of HIV-positive TB notifications	55 (47, 63)	<0.001*	-1.3 (-2.3, -0.37)	0.011*
< 1 year	Frequency of HIV-positive TB notifications	61 (49, 73)	<0.001*	-3.2 (-4.7, -1.7)	<0.001*
	Percentage of HIV-positive TB notifications	70 (61, 79)	<0.001*	-2.5 (-3.6, -1.4)	<0.001*
1 – 4 years	Frequency of HIV-positive TB notifications	112 (94, 129)	<0.001*	-6.1 (-8.2, -4.0)	<0.001*
	Percentage of HIV-positive TB notifications	50 (41, 59)	<0.001*	-1.3 (-2.4, -0.24)	0.020*
5 – 15 years	Frequency of HIV-positive TB notifications	104 (78, 130)	<0.001*	-3.5 (-6.7, -0.37)	0.031*
	Percentage of HIV-positive TB notifications	52 (43, 60)	<0.001*	-0.71 (-1.8, 0.33)	0.2
TB site					
Extrapulmonary	Percentage of TB notifications	26(19, 33)	<0.001*	-0.32 (-1.2, 0.51)	0.4
Bacteriological confirmation					
Bacteriologically positive	Percentage of TB notifications	3.7 (-0.06, 7.4)	0.053	0.49 (0.03, 0.94)	0.038*

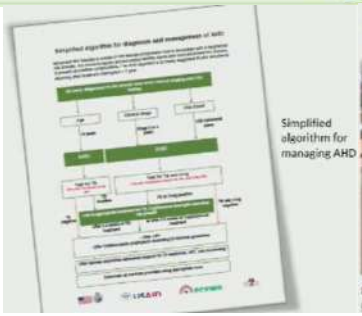
- Prevalence TB/HIV coinfection high, but there was ↓coinfection over time.
- Infants highest TB/HIV coinfection baseline but fastest ↓ in coinfection rates.
- Suggest TB/HIV elimination activities effective in reducing burden of TB and HIV, especially in the youngest children.

Improving Uptake of TB Testing Using Urine Lipoarabinomannan (LAM) in Children with Advanced HIV Disease (AHD), Southern Nigeria

Onwah O et al. AIDS 2024, Munich, Germany July 2024, Abs. OAE2004

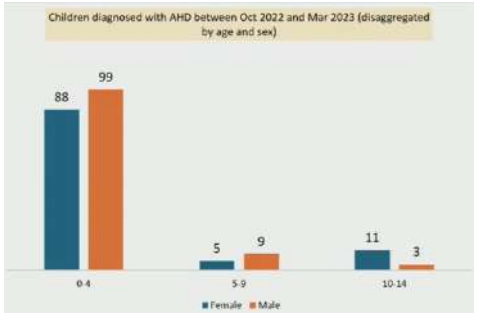
- Meyer Quality Implementation Framework used to improve TB testing in children – assessed outcomes of this approach for increasing uptake of urine LAM in 215 ART-naïve children <15 yr dx with advanced HIV disease Oct-Dec 2022 (Period 1 "before") vs Jan-Mar 2023 (Period 2 "after") in 153 clinics southern Nigeria




Simplified algorithm for managing AHD

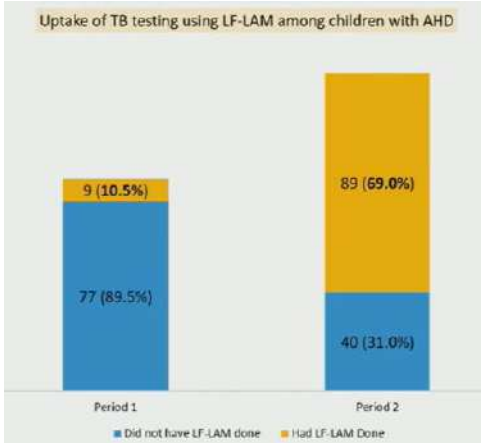

Capacity building for service providers in Cross River State, Nigeria

→ Developed simplified algorithm for using urine LAM TB test
→ Optimized the inventory system for LAM
→ Conducted weekly data reviews

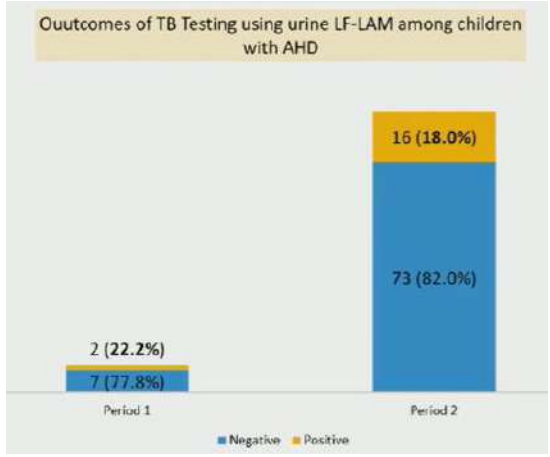


→ 215 children with AHD; 40% dx AHD Period 1 and 60% Period 2
→ Median age 2 yr

→45.6% tested for TB with LAM
→18% tested positive



→ Uptake LAM significantly higher in Period 2: 69% Period 2 vs 10.5% Period 1, p<0.01



→ LAM positivity rate similar in both Periods: 18% Period 2 vs 22.2% Period 1, p=0.75

- QI approach increased uptake of TB testing with LAM in children dx with advanced HIV disease and increased the number of children with positive test dx with TB

Xpert-Ultra MTB/RIF Assay in Stool and Urine for Diagnosis of TB in Children with HIV – MSF Experience

Moreto Planas L et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEB052

- MSF cross sectional study in Guinea-Bissau and South Sudan Nov 2019-June 2023 of 93 children 6 mo-15 yrs with presumptive TB; had respiratory ("gold standard" for dx), stool and urine samples analyzed with Xpert Ultra.
- 75% had severe acute malnutrition, 77% were on ART at baseline, 34% CD4 <200 at baseline.
- Confirmed TB = Xpert Ultra positive on ≥ 1 sample (N=10, 11%); unconfirmed TB = clinical diagnosis via algorithm (N=61, 66%); unlikely TB = alternative diagnosis and good response to other treatment (N=22, 24%).

Baseline Characteristics Children with Presumptive TB

Characteristic	Overall, N 93	Confirmed N 10	Unconfirmed, N 61	Total TB, N 71	TB Unlikely 22	N	p-value
Study site							0.024
Bissau	57 (61%)	9 (90%)	30 (49%)	39 (55%)	18 (82%)		
Malakal	36 (39%)	1 (10%)	31 (51%)	32 (45%)	4 (18%)		
Age < 5years	53 (57%)	1 (10%)	40 (65%)	41 (58%)	12 (55%)		0.9
Median age (IQR)	40 (18, 120)	126 (99, 141)	25 (15, 84)	36 (16, 120)	48 (22, 116)		0.4
Females	49 (53%)	7 (70%)	30 (49%)	37 (52%)	12 (55%)		0.8
Past TB history	9 (9.7%)	1 (10%)	7 (11%)	8 (11%)	1 (4.5%)		0.7
TB contact	37 (40%)	7 (70%)	24 (39%)	31 (44%)	6 (27%)		0.2
SAM	20 (25%)	7 (70%)	48 (79%)	55 (77%)	15 (68%)		0.2
CD4 < 200 cells/mm3	26 (34%)	4 (44%)	15 (29%)	19 (32%)	7 (41%)		0.5
Missing CD4 data	16	1	10	11	5		
On ART	72 (77%)	7 (70%)	45 (74%)	52 (73%)	20 (91%)		0.14
Pulmonary signs							
Cough	80 (86%)	9 (90%)	53 (87%)	62 (87%)	18 (82%)		0.5
Tachypnoea	5 (5.4%)	1 (10%)	4 (6.6%)	5 (7.0%)	0 (0%)		0.3
Hypoxemia	20 (22%)	4 (40%)	15 (25%)	19 (27%)	1 (4.5%)		**0.035**
Fever	62 (67%)	6 (60%)	41 (67%)	47 (66%)	15 (68%)		0.9
Extra-pulmonary signs							
Gibbous	4 (4.3%)	2 (20%)	2 (3.3%)	4 (5.6%)	0 (0%)		0.6
Lymph nodes	7 (7.5%)	1 (10%)	3 (4.9%)	4 (5.6%)	3 (14%)		0.3
Subacute Meningitis	1 (1.1%)	0 (0%)	1 (1.6%)	1 (1.4%)	0 (0%)		>0.9
Abdomen distended	6 (6.5%)	1 (10%)	3 (4.9%)	4 (5.6%)	2 (9.1%)		0.6
> 2weeks of diarrhoea	15 (16%)	0 (0%)	12 (20%)	12 (17%)	3 (14%)		>0.9
Painless enlarged Joints	3 (3.2%)	0 (0%)	3 (4.9%)	3 (4.2%)	0 (0%)		>0.9
Pleural effusion	1 (1.1%)	0 (0%)	1 (1.6%)	1 (1.4%)	0 (0%)		>0.9

→ 86 samples for stool and 91 for urine; No added diagnostic yield in pt negative on respiratory secretions

Diagnostic Accuracy of Stool/Urine Ultra Compared to + Ultra Respiratory Sample in Children with HIV

	N	TP	FP	FN	TN	Sensitivity % (95% CI)	Specificity % (95% CI)	PPV % (95% CI)	NPV % (95% CI)
Xpert-Ultra on stool, estimate (95%CI)	86	7	0	1	78	87.5% (53,98)	100% (95,100)	100% (65,100)	98.7% (93,100)
Xpert-Ultra on urine estimate (95%CI)	91	3	0	7	81	30% (11,60)	100% (96,100)	100% (44,100)	92.1 (85,96)

N: number, TP: true positive; FP: false positive; FN: false negative; TN: true negative; PPV: positive predictive value; NPV: negative predictive value.

- Xpert-Ultra on stools showed high sensitivity and specificity in children with HIV compared to gold standard.
- Test performance (sensitivity) Xpert-Ultra in urine was low (but number confirmed cases low as well).
- Further evaluation of Xpert-Ultra on stool as earlier screening test and use of urine test is warranted.

Xpert-Ultra MTB/RIF Assay in Stool and Urine for Diagnosis of TB in Children with HIV – MSF Experience

Moreto Planas L et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEB052

- MSF cross sectional study in Guinea-Bissau and South Sudan Nov 2019-June 2023 of 93 children 6 mo-15 yrs with presumptive TB; had respiratory ("gold standard" for dx), stool and urine samples analyzed with Xpert Ultra.
- 75% had severe acute malnutrition, 77% were on ART at baseline, 34% CD4 <200 at baseline.
- Confirmed TB = Xpert Ultra positive on ≥ 1 sample; unconfirmed TB = clinical diagnosis via algorithm; unlikely TB = alternative diagnosis and good response to other treatment.

	Number
Overall	93
Total TB	71
Confirmed	10 (11%)
Unconfirmed (clinical dx)	61 (66%)
TB unlikely	22 (24%)

→ 86 samples for stool and 91 for urine; no added diagnostic yield in pt negative on respiratory secretions

Diagnostic Accuracy of Stool/Urine Ultra Compared to + Ultra Respiratory Sample in Children with HIV

	N	TP	FP	FN	TN	Sensitivity % (95% CI)	Specificity % (95% CI)	PPV % (95% CI)	NPV % (95% CI)
Xpert-Ultra on stool, estimate (95%CI)	86	7	0	1	78	87.5% (53,98)	100% (95,100)	100% (65,100)	98.7% (93,100)
Xpert-Ultra on urine estimate (95%CI)	91	3	0	7	81	30% (11,60)	100% (96,100)	100% (44,100)	92.1 (85,96)

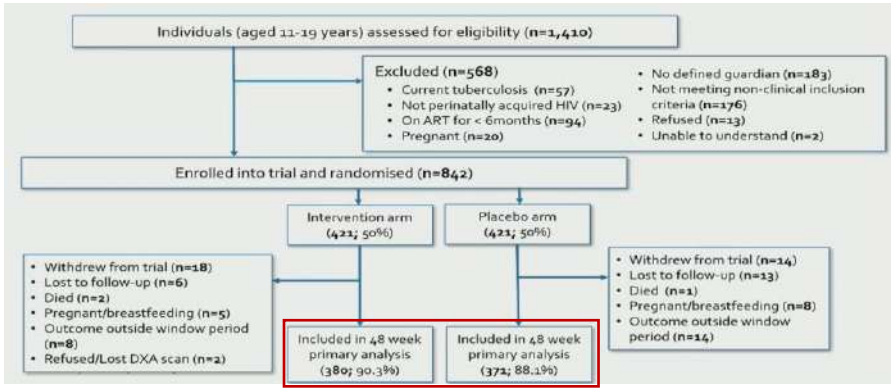
N: number, TP: true positive; FP: false positive; FN: false negative; TN: true negative; PPV: positive predictive value; NPV: negative predictive value.

- Xpert-Ultra on stools showed high sensitivity and specificity in children with HIV compared to gold standard.
- Test performance (sensitivity) Xpert-Ultra in urine was low (but number confirmed cases low as well).
- Further evaluation of Xpert-Ultra on stool as earlier screening test and use of urine test is warranted.

Randomized Trial of High-Dose Vitamin D and Low-Dose Calcium Supplement to Improve Bone Mineral Density in Perinatal Adolescents in Southern Africa

Ferrand R et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2102

- Enrolled 842 perinatal HIV children age 11-19 yrs on ART >6 mos in Zambia and Zimbabwe, randomized to once weekly high-dose vit D_3 (20,000 IU) & daily 500 mg calcium carbonate x 48 weeks.



Baseline Characteristic Balanced Btn Arms

Characteristics	Vit D/calcium (50%)	Placebo (50%)
Female sex, n (%)	225 (53.4%)	223 (53.0%)
Median (IQR) age, years	15 (13-17)	15 (13-17)
Median (IQR) duration on ART, years	9.7 (6.2,12.3)	9.9 (6.4, 12.2)
*Viral load <60 copies/ml, n (%)	277 (65.8%)	262 (62.2%)
Median (IQR) CD4 count, cells/mm³	567 (436-718)	568 (417-741)
*ART regimen, n (%) DTG	335 (80.0%)	340 (80.8%)
NNRTI	39 (9.3%)	31 (7.4%)
PI/Other	45 (10.7%)	50 (11.8%)
Taking tenofovir disproxil fumarate (TDF), n (%)	350 (83.1%)	338 (80.3%)
Median (IQR) daily dietary calcium intake, mg	100.3 (54.6, 140.4)	100.3 (54.6, 146.9)
Physical activity, median (IQR) MET mins/wk	1497 (693-2775)	1293 (666-2510)
25(OH)D < 75nmol/L , n (%)	331 (78.6%)	308 (73.2%)
Mean (SD) TBLH-BMD z-score	-1.64 (1.20)	-1.63 (1.19)
Mean (SD) LS-BMAD z-score	-0.78 (1.13)	-0.79 (1.16)
Height-for-age Z-score <-2	121 (28.7%)	127 (30.2%)
Tanner Stage IV-V, n(%)	244 (58.0%)	226 (53.7%)

→ 75% had vit D deficiency at baseline; 29% stunted with height for age z-score <-2

48 Week Vitamin Levels & Deficiency By Study Arm

	Vit D/calcium (n=392)	Placebo (n=392)
Mean (SD) 25(OH)D at 48 weeks, nmol/L	80.5 (23.4)	66.7 (14.7)
25(OH)D <75nmol/L at 48 weeks,	189 (48.2%)	283 (72.2%)
Mean (SD) change in 25(OH)D from baseline to 48 weeks, nmol/L	15.9 (21.6)	-1.1 (12.4)

→ Significant increase in vitamin D levels and decrease in % with deficiency in intervention arm

Effect of Intervention on BMD at 48 weeks

	Outcome	N	Vit D/calcium mean (SD)	Placebo mean (SD)	Adjusted Mean Difference (95% CI)	P-value
Primary	TBLH-BMD Z-score	751	-1.53 (1.18)	-1.56 (1.12)	0.03 (-0.02, 0.08)	0.11
Secondary	LS-BMAD Z-score	746	-0.64 (1.19)	-0.71 (1.16)	0.04 (-0.02, 0.11)	0.10

→ No difference total or lumbar spine BMD with intervention
→ No diff subgroups by sex, age-group, country, pubertal stage

Effect of Intervention on BMD Stratified by Baseline Vit D Deficiency

Baseline 25 (OH)D level	N	Vit D/calcium mean (SD)	Placebo mean (SD)	Adjusted Mean Difference (95% CI)	P-value	Interaction P-value
TBLH-BMD Z score						
<75nmol/L	562	-1.53 (1.22)	-1.61 (1.13)	0.04 (0.00. 0.08)	0.027	0.078
≥75 nmol/l	189	-1.52 (1.03)	-1.45 (1.12)	-0.05 (-0.16, 0.07)	0.44	
LS-BMAD Z score						
<75nmol/L	558	-0.64 (1.19)	-0.71 (1.13)	0.04 (0.02,0.11)	0.016	0.013
≥75 nmol/l	188	-0.51 (1.08)	-0.70 (1.24)	-0.10 (-0.23.0.03)	0.13	

→ Significant difference in total and lumbar BMD in children with vit D deficiency at baseline but not in those without deficiency

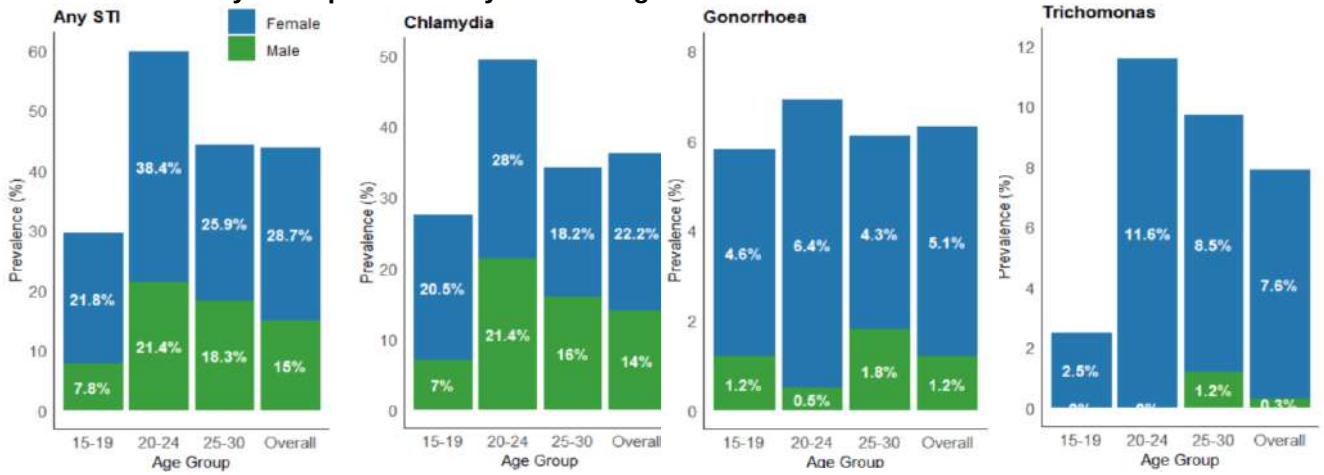
- No *overall* effect of vit D supplement intervention on BMD.
- However significant ↑ in BMD seen in pt with vit D insufficiency (75% of pt).
- Safe, well-tolerated, cheap intervention promote bone accrual during adolescence, possible ↓ stunting?

High Prevalence of Curable STI in Young Adults in Rural South Africa

Busang J et al. AIDS 2024, Munich, Germany July 2024, Abs. WEPEC235

- Baseline data May-Dec 2022 from 2,090 young persons age 15-30 yr randomly selected from a health and demographic surveillance area; 1,345 consented to self-sample urine & vaginal swabs tested for chlamydia, GC, trichomoniasis & DBS for HIV; median age 22 yr, 55.4% female.

Prevalence Any and Specific STI by Sex and Age



→ Overall STI prevalence **22.6%**; **males15%, females 28.7%.**

→ Chlamydia most common STI (prevalence 22.2% ♀, 14% male ♂) > trichomonas (7.8% ♀, 0.3% ♂) > gonorrhea (5.1% ♀, 1.2% ♂)

→ Age group 20-24 yr most frequent for STI

Table 1. Factors associated with any curable STI diagnosis

Factor	Adjusted for sociodemographic and other* selected factors	
	Men (n=576)	Women (n=689)
	OR (95% CI)	OR (95% CI)
Age group	**P=0.095**	**P=0.002**
15-19	1	1
20-24	**2.59 (1.09, 6.19)**	**2.00 (1.15, 3.48)**
25-30	1.98 (0.82, 4.76)	1.00 (0.57, 1.75)
Highest level of education	P=0.636	P=0.582
Primary or some secondary	1	1
Completed secondary or tertiary	1.13 (0.69, 1.85)	1.14 (0.72, 1.80)
Employment status	P=0.992	P=0.334
Not employed	1	1
Employed	1.01 (0.51, 2.00)	0.55 (0.25, 1.22)
Food insecurity	P=0.819	P=0.178
Yes	0.94 (0.69, 1.85)	0.80 (0.57, 1.11)
Substance use (smoking/alcohol use)	P=0.122	P=0.108
Yes	1.52 (0.90, 2.55)	1.35 (0.94, 1.96)
Condom less sex (last month)	P=0.443	**P=0.009**
Yes	1.25 (0.71, 2.22)	**1.77 (1.15, 2.73)**
Confirmed (DBS) HIV status	P=0.737	**P=0.005**
Positive	0.87 (0.39, 1.94)	**1.67 (1.17, 2.40)**
HIV viral load≥400 copies/ml	P=0.765†	P=0.062†
Yes	0.84 (0.27, 2.65)	1.69 (0.97, 2.94)
Ever been circumcised	P=0.153	NA
No	1.48 (0.86, 2.55)	NA
Currently using contraception	NA	**P=0.020**
Yes	NA	**1.47 (1.06, 2.03)**

*substance use, confirmed HIV status, circumcision (in men), and contraception use (in women)
†Obtained from a separate model adjusted for sociodemographic and other selected factors excluding HIV status

→ In males, age 20-24 yr associated with higher odds any STI

→ In females, age 20-24 yr, condomless sex last 1 mo, living with HIV, contraception use associated with higher odds any STI

- Prevalence curable STI and HIV remains high in young adults in S Africa, especially females.
- SRH services including STI self-sampling provides opportunity to deliver HIV prevention and dx/rx STI.

Increased Biomarkers of Cardiovascular Disease (CVD) in Perinatal Young Adults (YA-PHIV) with Viral Non-Suppression or Metabolic Syndrome

Aurpibul L et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2104

- 347 young adults with perinatal HIV (YA-PHIV) aged 18-25 yrs initiated on ART at 5 sites in Thailand Nov 2020-Jul 2021 had blood collection at entry, with biomarker testing for sCD163, IL-18 and hs-CRP.

Definitions of non-communicable disease (NCD) risks	
Dyslipidemia	-Low-density lipoprotein (LDL) ≥140 mg/dL or -Triglycerides (TG) ≥150 mg/dL or -Cholesterol ≥240 mg/dL or -High-density lipoprotein (HDL) ≤40 mg/dL in males, and ≤50 mg/dL in females
Obesity:	Body mass index (BMI) ≥30.0
Hypertension	Blood pressure (BP) ≥140/90 mmHg

Definition of metabolic syndrome:
National Cholesterol Education Program-Adult Treatment Panel III criteria
Presence of any 3 out of 5 of the following:

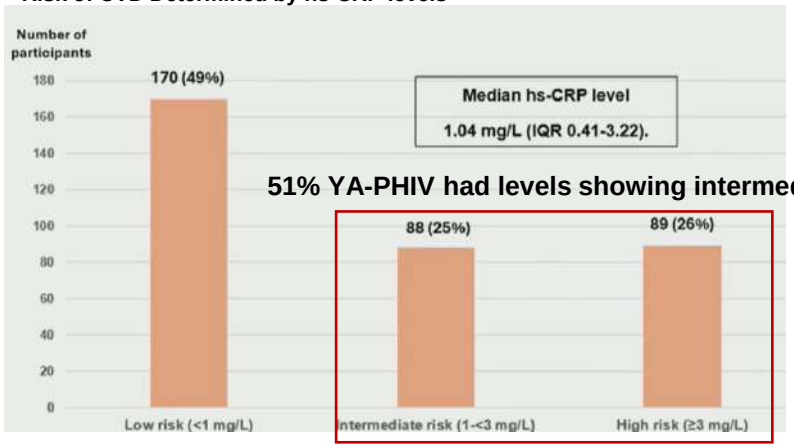
1. Central obesity: waist circumference ≥102 cm for males, and ≥88 cm for females,
2. TG ≥150 mg/dL,
3. HDL <40 mg/dL for males, and <50 mg/dL for females
4. Blood pressure ≥130/85 mmHg
5. Fasting blood sugar (FBS) ≥100 mg/dL

Table 1 demographic characteristics of study participants

Characteristics of study participants (n=347)	Number (%) or median (interquartile range)
Female sex	187 (54%)
Age (years)	21.8 (20.1-23.5)
Current body mass index (kg/m²)	20.06 (18.21-23.15)
Duration of antiretroviral treatment (years)	16.7 (13.4-18.4)
Age < 5 years at treatment initiation	157 (45%)
Current CD4 lymphocyte count (cells/mm³)	564 (356-753)
Number with current CD4 ≤200 cells/mm³	49 (14%)
Number with current HIV viral load > 1,000 copies/mL	66 (19%)
Number with ≥ 1 NCD risks	238 (69%)
Number with metabolic syndrome	27 (7.8%)

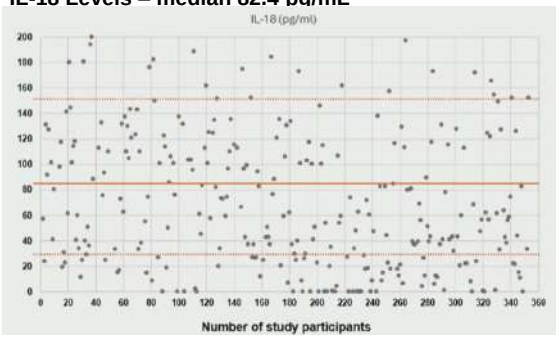
NCD risk: non-communicable disease risks included dyslipidemia, obesity, and hypertension

Risk of CVD Determined by hs-CRP levels



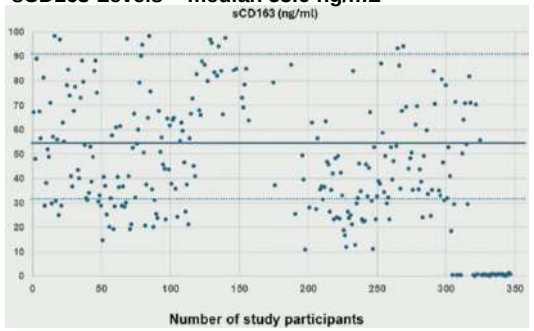
→ YA-PHIV with **VL non-suppression** had significantly higher hsCRP than those with suppression (2.0 vs 0.8, p=0.001) and those with metabolic syndrome had higher hs-CRP than those without (2.7 vs 1.0, p=0.008)

IL-18 Levels – median 82.4 pg/mL



→ Sig higher IL-18 in males (111.2 vs 62.9), **CD4 <500 (111.2 vs 62.9)** or **viral non-suppression (129.1 vs 74.0),** no diff by metabolic syndrome

sCD163 Levels – median 53.6 ng/mL



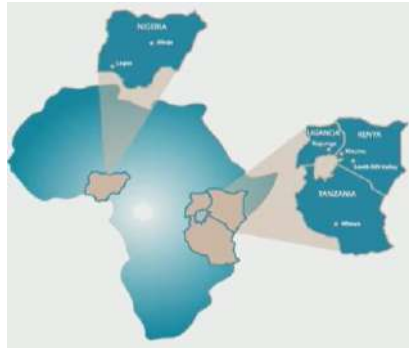
→ Sig higher sCD163 with **CD4 <500 (64.2 vs 45.9)** or **viral non-suppression (71.8 vs 46.4)**, non sig trend by metabolic syndrome (61.5 vs 52.5, p=0.07)

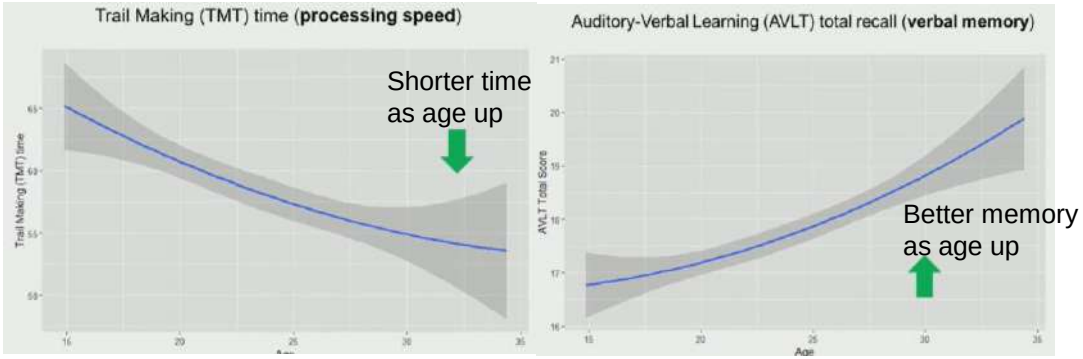
- As YA-PHIV age, CVD risk is likely to rise.
- Increased levels of hs-CRP, IL-18 & sCD163, markers of CVD in adults, with viral non-suppression and low CD4 count, emphasizes importance of ART & maintaining viral suppression & minimizing modifiable metabolic risk factors by changes in lifestyle.

Neurocognitive Trajectories in Young People from 4 African Countries: Associations with HIV and Food Insecurity

Frndak S et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2103

- AFRICOS started 2019 enroll pt age 15-18 yr with (PLWH) & without HIV (PLWoH) from 12 clinics in Kenya, Nigeria, Tanzania & Uganda; 47.5% of all age 18-39 yr (46% PLWH) reported food insecurity at enrollment.
- Neurocognitive testing annually: Trail Making Time (TMT)=processing speed; Auditory-Verbal Learning Total Recall (AVLT)= verbal memory.
- Data from 933 pt age ≤26 yr at enrollment (698 PLWH on ART ≥6 mo; 235 PLWoH).



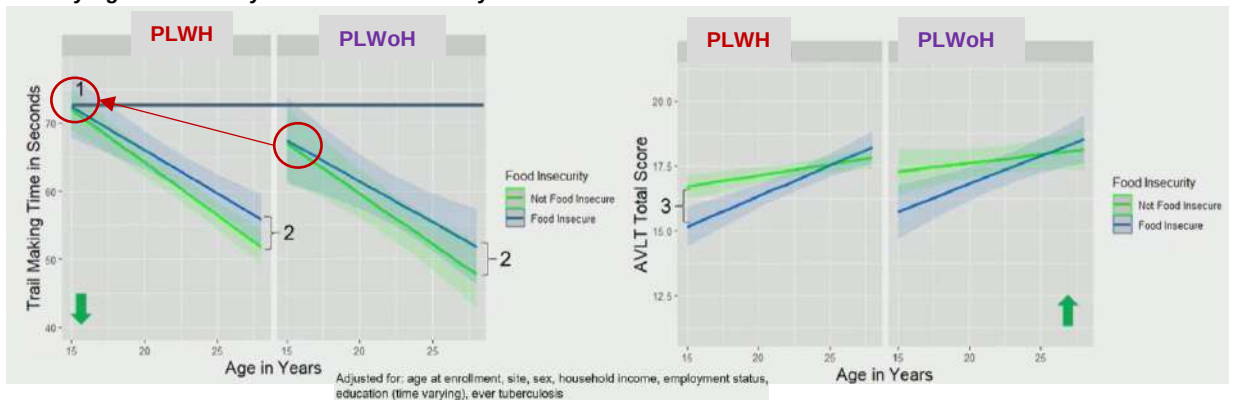


→ Overall young people performed better on both neurocognitive tests over time reflecting practice effects and neurodevelopment

- Processing speed (TMT): PLHIV & those with food insecurity performed more poorly as aged
- Verbal memory: those with food insecurity performed more poorly at younger (<15 yr) but not older (>20 yr) age
- Concern on added burden of food insecurity in PLWH & PLWoH

TMT by Age Stratified by HIV & Food Insecurity

AVLT by Age Stratified by HIV & Food Insecurity



→ PLWH were 4.5 seconds *slower* than PLWoH regardless of age

→ Those reporting food insecurity were 2.7 seconds *slower* than those without

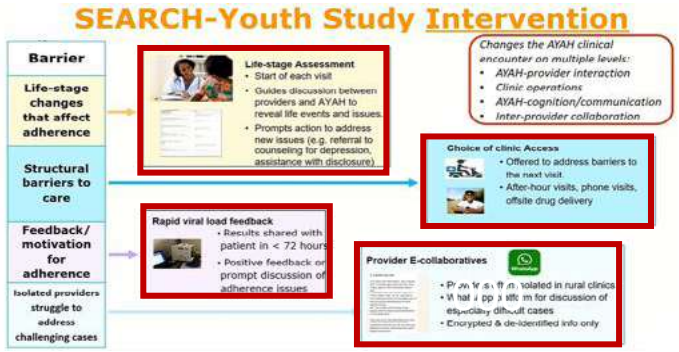
→ No difference AVLT score PLWH and PLWoH or with or without food insecurity

→ **Significant interaction** food insecurity and age (p<0.001), with those with food insecurity lower AVLT score at younger but not older age than those without

Biomarker Confirmed Alcohol Use in Adolescents/Young Adults with HIV is Associated with Non-Suppression, Uganda, Kenya – SEARCH Youth Study

Mwangwa F et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2105

- SEARCH Youth study evaluated a multi-level life staged intervention (figure) in HIV youth age 15-24 yr in 14 sites in rural Kenya/Uganda; **improved viral suppression by 10%.**
- As part of study did a cross-sectional survey in 718 youth in intervention arm conducted during year 3 (Oct 2021-Ap 2022)



Measures

Alcohol use
- *Self-report*: Ever and the Alcohol Use Disorders Identification Test – Consumption (AUDIT-C) over the past 3 months
- *Biomarker*: Phosphatidylethanol (PEth), a blood-based biomarker of total prior month alcohol consumption[1]

Outcome
- Viral non-suppression (>400 copies/mL)

Exposure
- **Unhealthy Alcohol Use (combined measure)**
  AUDIT-C positive (≥3 for women, ≥4 for men) *or* PEth ≥50 ng/mL

Demographics
- Median age: 24 years (IQR: 21-26)
- Sex: 80% female
- Country: 57% from Uganda

Viral load
- **Viral suppression (<400 copies/mL): 95%**

Alcohol consumption
- Ever (self-report): 50%
- **Unhealthy Alcohol Use**
  - **Combination of AUDIT-C *or* PEth: 25%**
  - AUDIT-C positive: 16%
  - PEth ≥50 ng/mL: 20%

Participants with Unhealthy Alcohol Use had higher odds of viral non-suppression

Adjusted odds ratio=2.8 (95% CI: 1.2-6.6)

Model adjusted for gender, age, and country

	Unhealthy Alcohol Use*	
	No, n (row %)	Yes, n (row %)
All	538 (75%)	177 (25%)
Male	92 (64%)	51 (36%)
Female	446 (78%)	126 (22%)
Age 15-20 years	98 (94%)	6 (6%)
Age 21-24 years	245 (76%)	79 (24%)
Age 25-29 years	139 (68%)	60 (32%)
Uganda	251 (62%)	155 (38%)
Kenya	287 (93%)	22 (7%)
Viral non-suppression (≥400 copies/mL)	24/525 (5%)	13/166 (8%)

*Combined measure: AUDIT-C positive (≥3 for women, ≥4 for men) *or* PEth≥50 ng/mL

→ 1 in 4 youth had unhealthy alcohol use

→ More common male than females

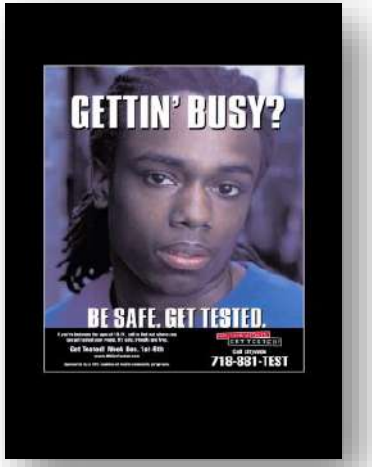
→ More common older age

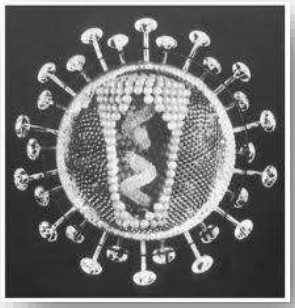
→ More common Uganda

→ More common to have viral non-suppression

- One in four youth had unhealthy alcohol use.
- Higher prevalence in males, older age and Uganda.
- Unhealthy alcohol use was significantly associated with viral non-suppression <u>in youth receiving the effective SEARCH intervention</u>.
- Need to address alcohol use in young persons with HIVto be able to achieved universal viral suppression.

Adolescents and HIV





Population Estimates of Adolescents with HIV 15-19 Yr and Proprortion Undiagnosed in 5 African Countries Using PHIAs

Teasdale CA el. AIDS 2024, Munich, Germany July 2024, Abs. EPC059

- Population HIV Impact Assessment (PHIA) nationally representative household surveys, persons >15 years received HIV rapid testing and self-reported HIV status and provided blood for detection ARV and VL testing.
- Using PHIA data from Cameroon (2017-18), Ethiopia (2017-18), Kenya (2018-19), Nambia (2017) and Rwanda (2018-19), estimated country-specific estimates of ALHIV and % who were diagnosed and undiagnosed.

Table 1. PHIA population estimates of ALHIV 15-19 years 2017-19

	Total ALHIV		Diagnosed ALHIV		Undiagnosed ALHIV	
	Estimate	95% PB*	Estimate	95% PB	Estimate	95% PB
Cameroon (2017-18)	18,779	10,657 - 26,901	4,091	45 - 8,137	14,688	7,477 - 21,899
15-17 years	12,051	4,282 - 19,821	2,791	0 - 6,499	9,261	2,353 - 16,168
18-19 years	6,728	3,182 - 10,273	1,300	0 - 2,994	5,427	2,234 - 8,621
Ethiopia (2017-18)	18,803	10,495 - 27,110	13,822	6,839 - 20,805	4,981	659 - 9,302
15-17 years	13,117	5,857 - 20,376	9,547	3,416 - 15,678	3,569	0 - 7,365
18-19 years	5,686	1,967 - 9,405	4,275	1,182 - 7,368	1,411	0 - 3,461
Kenya (2018-19)	41,877	25,985 - 57,769	35,074	20,385 - 49,764	6,802	895 - 12,710
15-17 years	32,062	17,680 - 46,445	27,539	14,430 - 40,648	4,523	0 - 9,790
18-19 years	9,814	3,718 - 15,910	7,535	2,052 - 13,019	2,279	0 - 4,948
Namibia (2017)	9,029	7,208 - 10,849	7,430	5,790 - 9,070	1,599	734 - 2,463
15-17 years	5,380	3,936 - 6,824	4,655	3,332 - 5,979	724	185 - 1,264
18-19 years	3,649	2,334 - 4,964	2,775	1,655 - 3,895	874	186 - 1,563
Rwanda (2018-19)	7,458	4,736 - 10,180	5,365	3,179 - 7,551	2,093	541 - 3,645
15-17 years	4,504	2,338 - 6,669	3,343	1,674 - 5,012	1,161	0 - 2,438
18-19 years	2,955	1,392 - 4,518	2,023	734 - 3,311	932	46 - 1,818
All countries	95,945	75,989 - 115,902	65,783	48,801 - 82,765	30,162	19,735 - 40,590
15-17 years	67,114	49,039 - 85,188	47,875	32,784 - 62,966	19,239	9,658 - 28,819
18-19 years	28,831	20,602 - 37,061	17,908	11,168 - 24,647	10,924	6,150 - 15,697

*95% Probability Band (PB)

Figure 1. PHIA estimates of proportions of diagnosed and undiagnosed ALHIV 15-19 years 2017-2019

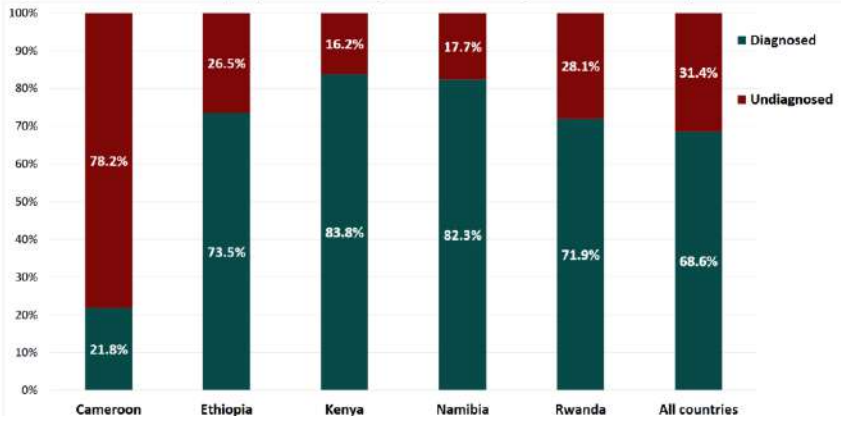
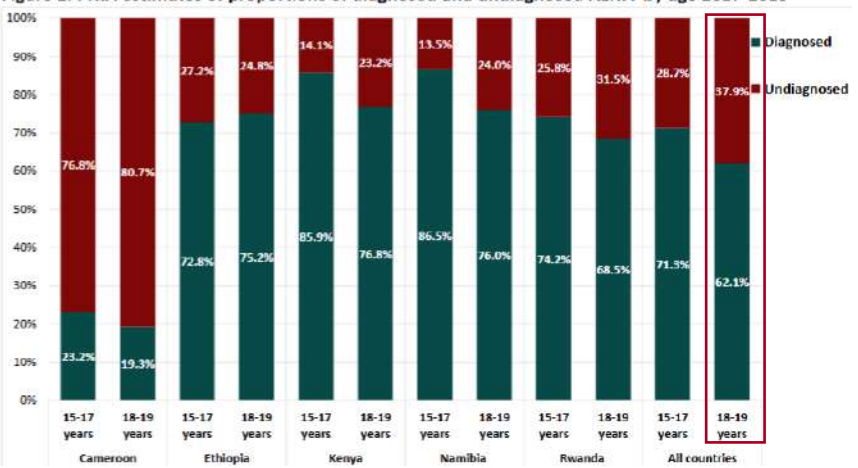


Figure 2. PHIA estimates of proportions of diagnosed and undiagnosed ALHIV by age 2017-2019



→ There was an estimated 95,945 ALHIV across the 5 countries

→ Across all 5 countries, 30,162 (31.4%) were estimated to be undiagnosed

→ Cameroon highest proportion undiagnosed (78%) , Kenya/Namibia lowest (16-17%)

→ Overall, higher % of ALHIV age 18-19 years were undiagnosed (37.9%) compared to ALHIV age 15-17 years (28.7%) across the 5 countries; similar all countries except Ethiopia.

- Across 5 countries, >30,000 ALHIV 15-19 yrs were undiagnosed and thus not on ART in 2017-2019, with differences across countries in numbers undiagnosed.
- Underscores need to address gaps in diagnosis and treatment for ALHIV.

Facilitating Adolescent Access to HIV Interventions through Age of Access (AoA) Policy Reform

HIV Policy Lab

Kavanagh M et al. AIDS 2024, Munich, Germany July 2024, Abs. OAF4104

- Collected national law and policy documents globally for HIV testing/treatment.

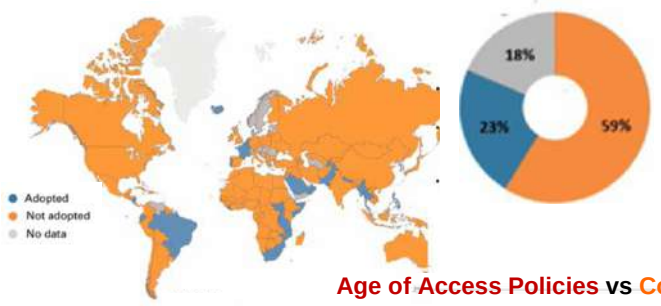
Can adolescents access HIV testing and treatment without parental consent under national policy?

Adopted: National law/policy does **not** require adolescents (≥12 years) to obtain parental/guardian consent in order to access HIV testing and/or treatment

Not adopted: National law/policy **requires** adolescents to obtain parental/guardian consent in order to access HIV testing and/or treatment

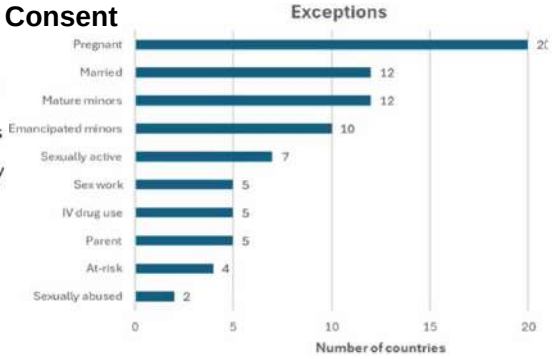
Exceptions: policies are adopted if they include a blanket exception for adolescents at risk (e.g., sexually active adolescent) which does not rely on provider's judgment.

Adoption of AOA Policy

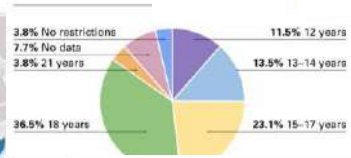


Exemption from Parental Consent

- AoA ranges from 12 years to 21 years
- Some countries include **exceptions to parental consent requirements**
- Some exceptions are better than others
- What is not good:
  - Definition of 'emancipated minor' / 'mature minor' varies widely
  - At least 8 countries leave AOA exceptions to HCWs' discretion

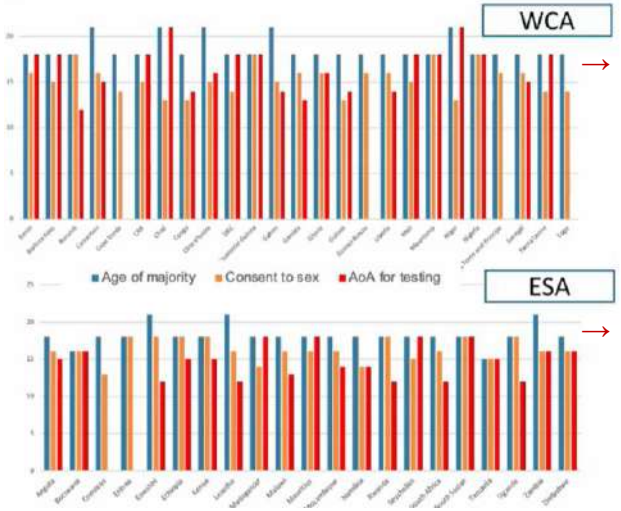


Age of Access Policies Africa



Age for HTS	Countries
12	Burundi, Eswatini, Lesotho, Rwanda, South Africa, Uganda
13	Gambia, Malawi
14	Congo, Gabon, Guinea, Liberia, Namibia
15	Angola, Cameroon, Ethiopia, Kenya, Senegal, Tanzania
16	Botswana, Côte d'Ivoire, Ghana, Libya, Zambia, Zimbabwe
18	Algeria, Benin, Burkina Faso, Central African Republic, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Madagascar, Mali, Mauritania, Mauritius, Morocco, Nigeria, Seychelles, Sierra Leone, South Sudan, Sudan, Tunisia
21	Niger, Chad
No data	Cape Verde, Eritrea, Guinea-Bissau, Sao Tome and Principe
No age restrictions	Comoros, Somalia

Age of Access Policies vs Consent to Sex vs Age of Majority



→ In 16 countries adolescents can legally consent to sex *before they can access HIV testing* without parental consent

→ 24 countries have delinked AoA for HIV testing from age of majority

PrEP Policy

Age of access for HIV testing, treatment and PrEP

Countries	Age of access for HIV testing	Age of access for HIV treatment	Age of access for PrEP
Algeria	18	18	no data
Angola	15	no data	no data
Benin	18	18	no data
Botswana	16	16	18
Burkina Faso	18	no restrictions	18
Burundi	12	12	12
Cameroon	15	16	18
Cape Verde	no data	no data	no data
Central African Republic	18	18	no data
Chad	21	18	no restrictions
Comoros	no restrictions	no restrictions	no restrictions
Congo	14	15	no data
Côte d'Ivoire	16	no restrictions	no restrictions
Democratic Republic of the Congo	18	no data	no data
Djibouti	18	no data	no data
Egypt	18	no restrictions	no restrictions
Equatorial Guinea	18	18	no data
Eritrea	no data	no data	no data

→ Most countries without clear policy on PrEP

→ Several that do have policy set PrEP access older than HIV testing

- Globally only 23% countries adopted optimal AoA policies; in 16 countries adolescents can legally consent to sex before can access HIV testing without parent consent.
- 24 countries have delinked AoA for testing from age majority/maturity.
- Urgent reform needed to ensure adolescent access to HIV test, ART, and PrEP.

Reaching Adolescents and Young People (AYP) with Use of HIV Self-Test (HIVST) as Alternative Approach to Case Finding in Nigeria

Nwangeneh C et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEC250

- Compared Aug 2022-Sept 2023 case-finding and linkage rates between HIVST and conventional rapid test kits (RTK) in AYP (10-24 yr) in 153 clinics southern Nigeria.
- HIV-ST were distributed by adolescent peer supports directly to peers; positive results confirmed RTK.

→ 23,441 HIV-ST kits distributed to AYP, with 86 (0.4%) HIV+ (69 ♀, 17 ♂)
  - Confirmatory test + concordance 97.7% (84/86)

→ 274,107 AYP tested with RTKs, with 2,452 (0.9%) HIV+ (2,409♀, 403 ♂)

Comparison Case-Finding and Linkage to Care for HIVST and RTK Overall and by Sex

	Number of AYP reached for HIV testing		Number of AYP tested positive		Case-finding rate (%)		Number linked to treatment		Linkage rate (%)	
	HIVST	RTK	HIVST	RTK	HIVST	RTK	HIVST	RTK	HIVST	RTK
Female	12,232	174,611	69	2,049	0.60%	1.20%	67	2,023	97.10%	98.70%
Male	11,209	99,496	17	403	0.20%	0.40%	17	399	100.00%	99.00%
Total	23,441	274,107	86	2,452	0.40%	0.90%	84	2,422	97.70%	98.80%

Figure 1. Case-finding and linkage rates for HIVST

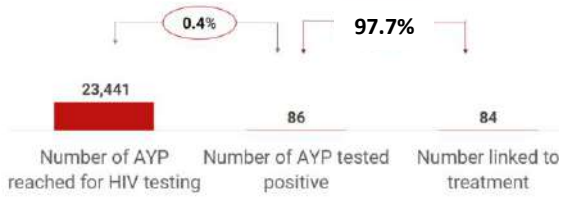
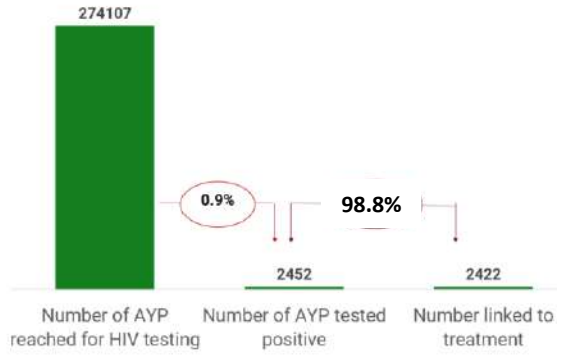


Figure 2. Case-finding and linkage rates for HIV RTKs



→ Slightly lower case-finding with HIVST, similar rates of linkage to care

- HIVST seems to be a reasonable alternative viable approach to improve reach to AYA.

Incentives to Increase Linkage to Confirmatory Testing After HIV Self-Testing in Community Pharmacies by AGYW Tanzania

Saronga HP t al. AIDS 2024, Munich, Germany July 2024, Abs. THPEC258

- Randomized trial conducted in 8 pharmacies and 6 health facilities (FU) Dec 2022-May 2023 in 360 AGYW in Tanzania

Pharmacy-provided PrEP program

Control Arm

Participants in the control arm received: 1) education on HIV, HIVST and PrEP from trained pharmacists or peer educators at community pharmacies; 2) one HIVST kit; and 3) encouragement to access further care after HIVST as per national guidelines at one of 6 partner health facilities.

Intervention Arm

Participants in the intervention arm received the same education, HIVST kit, and referral and also were offered the opportunity to earn a non-monetary incentive upon linking to confirmatory HIV testing at partner health facilities.

→ Mean age AGYW enrolled 20.5 yr (range 15-24 yr)

→ 240/360 (66.7%) presented for confirmatory test after receiving the HIV self-test

→ HIV positivity rate among the 240 presenting for confirmatory testing was 1.3%

→ All dx with HIV were started on ART

→ Overall, 18.1% of AGYW who were HIV-negative were started on PrEP; differed by site.

	Received Incentive		Total
Confirmatory testing	No	Yes	
No	78 (44.3%)	42 (22.8%)	120
Yes	98 (55.7%)	142 77.2%)	240
Total	176	184	360

→ AGYW who received non-financial incentive were significantly more likely to return for confirmatory testing (77.2% vs 55.7%) (p<0.001)

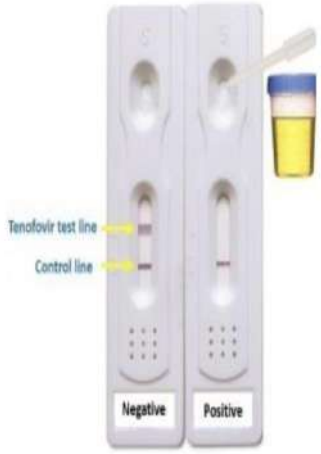
Health Facility	HIV+	On PrEP
Makongoro HC	2/61= 3.3%	9/59=11.9%
Nyakato Dispensary	0/34	1/34= 2.9%
Buhongwa HC	0/45	6/45= 13.3%
Nyamagana Hospital	0/35	5/35= 14.3%
Buzuruga HC	1/45= 2.2%	2/44= 4.5%
Kirumba Dispensary	0/20	20/20= 100%

- Community pharmacies are a promising location to engage AGYW with HIV prevention and care
- Incentives significantly increased linkage to confirmatory testing after self-testing, which enabled HIV+ to access ART and HIV- to access PrEP

Point-of-Care Urine Tenofovir Assays Highly Acceptable and High Prediction Viral Suppression Adolescents and Youth with HIV

Gacheru J et al. AIDS 2024, Munich, Germany July 2024, Abs. EPB040

- 155 young adults 18-24 yrs (median age 22 yr, 53% ♀) with HIV and participating in Kenya study on effectiveness of HPV vaccine enrolled in substudy with 12 mo FU.
- Adherence counseling at each visit; last visit survey of self-reported adherence to ART and acceptability of POC-TDF test; in subset POC test run and relationship with suppression evaluated.



Qualitative Survey Data

→ 153 (98.7%) said POC-TDF test acceptable

→ 142 (91.6%) said didn't think POC test would impact relationship with provider

→ 149 (96.1%) thought the test would improve adherence

→ 140 (90.3%) wanted test performed at subsequent visits

Subset with VL

Urine POC test result	Virally unsuppressed (n=23)	Virally suppressed (n=35)	All (n=58)
Positive	4 (17.4%)	33 (94.3%)	37 (63.8%)
Negative	19 (82.6%)	2 (5.7%)	21 (36.2%)

→ Test done for 58 pt, 48 (82.7%) of whom had viral failure at enrollment.

→ Among the 58 tested, 35 (60.3%) were suppressed at last visit, of whom 33 (94.3%) tested POC-TDF positive; 23 were not suppressed, and only 4 (17.4%) tested positive.

→ 47 (81%) self-reported ART use in past 3 days – but only 35/47 (60.3%) who reported taking ART had a positive POC-TDF test.

Sensitivity, Specificity, PPV, NPV POC-TDF for Viral Suppression	
Sensitivity	89.2% (95% CI 74.6-97.0)
Specificity	90.5% (95% CI 69.6-98.8)
Positive predictive value	94.3% (95% CI 80.8-99.3)
Negative predictive value	82.6% (95% CI 61.2-95.0)

- POC-TDF highly acceptable to youth with HIV.
- Test had high predictive value for assessing viral suppression and provides opportunity for objective real-time adherence evaluation to support counseling.

Prevalence and Consequences of Low-Level Viremia (LLV) in Adolescents with HIV (ALHIV), South Africa

Leon Z et al. AIDS 2024, Munich, Germany July 2024, Abs. EPB221

- Analyzed VL data from longitudinal cohort of 1,107 ALHIV age 10-19 at baseline in 2014-2015; using routine VL data btn 2015-2022, calculated prevalence of LLV at 1st VL test for 737 ALHIV with results.

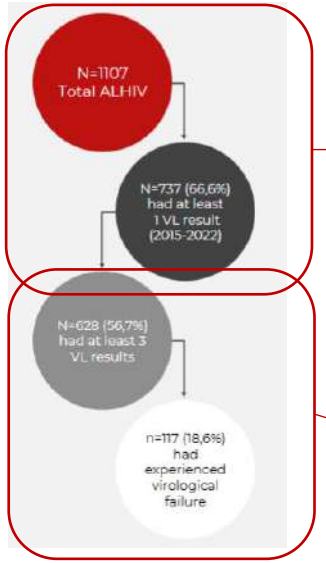
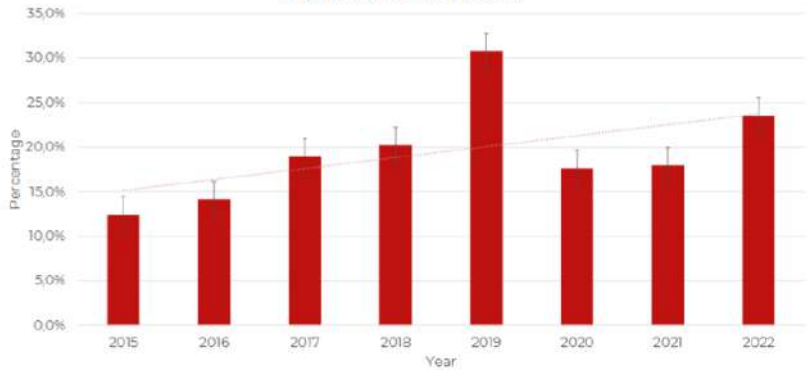


Fig1. LLV prevalence by year



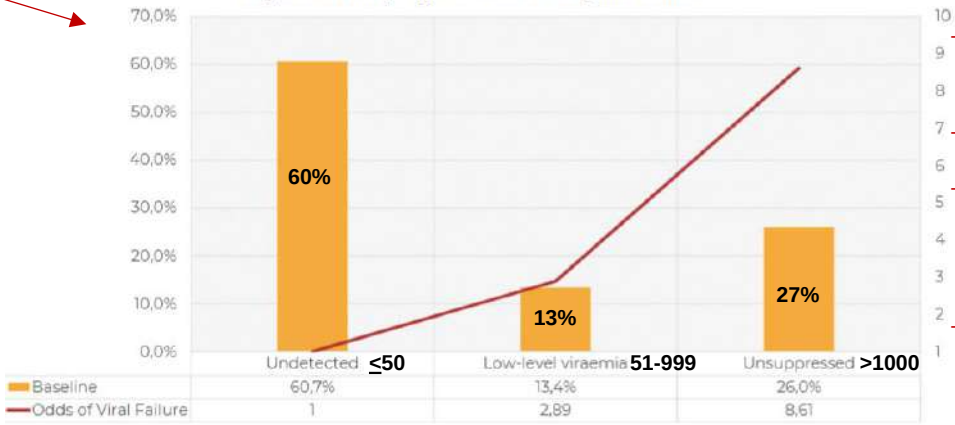
→ Prevalence of LLV increased from 12.4% in 2015 to 23.5% in 2022 at 1st test (baseline)

Socio-demographic factors were associated with LLV at first test

Factors	OR	CI (95%)
Age	1.09	1.03, 1.25
Sex	0.95	0.60, 1.51
Mode of HIV acquisition	0.96	0.52, 1.79

→ Older age was associated with having LLV at 1st test, but not sex or mode HIV acquisition

Fig2. Odds for progression to virological failure



- Almost 1 in 4 ALHIV in 2022 (DTG era) had 1 LLV at cohort entry.
- In addition to not being suppressed at 1st VL, **LLV predicted subsequent risk of VF** in ALHIV.

→ Among 628 ALHIV who had at least 3 consecutive VL during the period, 13.4% had LLV at 1st VL test.

→ 18.6% of these ALHIV progressed to confirmed VF.

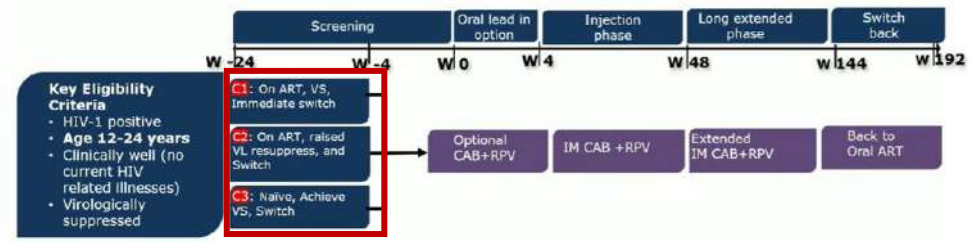
→ The 13% with LLV at 1st VL were **2.89 (95% CI 1.6-6.2)-times more likely** to have VF compared to those with undetectable 1st VL.

→ The 27% with unsuppressed 1st VL were **8.6-times** more likely to fail as those undetectable at 1st VL.

Experience/Acceptability of Long-Acting Injectable (LAI) CAB/RPV Treatment in Adolescents in South Africa – AFINAty Study

Atujuna M et al. AIDS 2024, Munich, Germany July 2024, Abs. OAD3705

- Study to assess effectiveness, acceptability, feasibility of community injectable CAB/RPV in youth 12-24 yr – reporting on **qualitative data** from 1st series of interviews



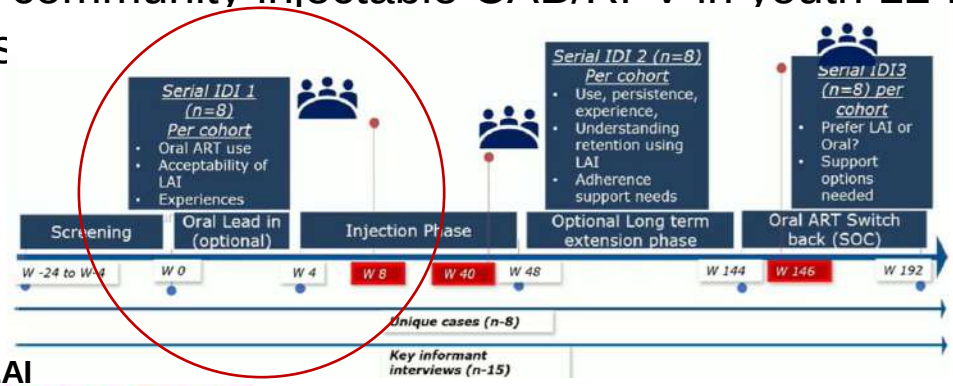


Table 1. Main study sample characteristics

	Overall N=134	Cohort 1 n=59	Cohort 2 n=35	Cohort 3 n=40
Mean Age (±SD) in years	19(16-22)	19(15-22)	19 (16-22)	20(18-22)
Female sex at birth	85(63)	38(64)	15(43)	32(80)
VL (IQR) at product switch	19(19-19)	19(19-19)	19(19-19)	19(19-19)
Length of time on ARVs (IQR)	14(6-17)	12(4-16)	17(9-18)	ART Naïve
Mode of transmission (perinatal)	73(55)	42(72)	30(88)	1(3)

Table 2. Qualitative study sample characteristics

	Overall N=24	Cohort 1 (n=8)	Cohort 2 (n=8)	Cohort 3 (n=8)
Mean Age in years	20(13-24)	20(13-24)	19 (15-24)	20(17-23)
Female sex at birth	15(63)	4(50)	4(50)	7(88)
Mean VL at product switch	20 (19-49)	19(19-20)	22(19-49)	19(19-19)
Length of time on ARVs (Mean)	10 (1-18)	8(1-16)	13(2-18)	ART Naïve
Mode of transmission (perinatal)	13 (54)	6(75)	7(88)	0

Note. Values are N (%) unless otherwise specified.

Qualitative study population characteristics similar to main study

Overall Acceptability of LAI

	Overall N=24	Cohort 1 n=8	Cohort 2 n=8	Cohort 3 n=8
Preference for LAI	23	8	8	7
Pills okay but LAI better	1	0	0	1

→ All youth have accepted 2-year extension phase for post-trial access to LAI

Other Perspectives on LAI

→ Adolescent experiences and approach to LAI varied depending on stage in treatment cascade

Cohort 1: Adherent to ART:
- "Living life fully, as though HIV-negative"
- "Injection simplifies life"

Cohort 2: Adherence challenges
- LAI discrete, no unplanned HIV disclosure
- LAI removes burden on self and others

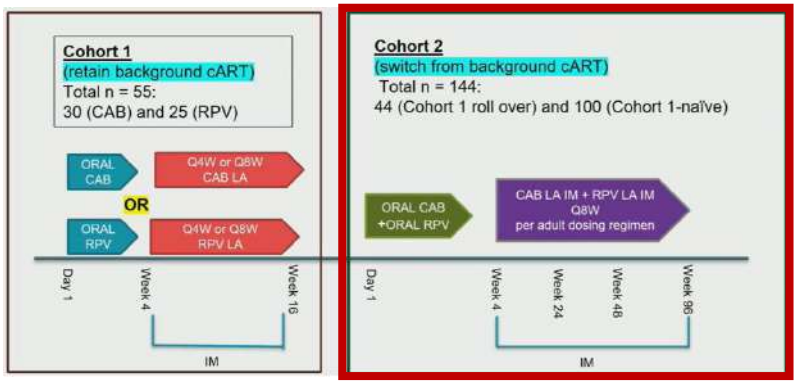
Cohort 3: ART naive
- Removes burden remembering pills

- Adolescents adherent to long-term oral ART felt LAI enabled them to live more freely, like individuals without HIV
- Adolescents with poor adherence due to disclosure challenges appreciated LAI discretion and reduce fear unplanned disclosure
- Recently diagnosed adolescents, LAI provided the space to navigate HIV and related challenges
- For most, switching back to oral ART will be difficult and they hope it will be available for all

Long-Acting CAB/RPV Every 8-Week in Suppressed Adolescents: IMPAACT 2017/MOCHA Study Week 48 Outcomes

Gaur A et al. AIDS 2024, Munich, Germany July 2024, Abs. OAB2606LB

- Data from Phase 2 of safety/PK study of LA CAB/RPV in 144 adolescents 12-<18 years with viral suppression from 18 sites US, Botswana, South Africa, Uganda, Thailand

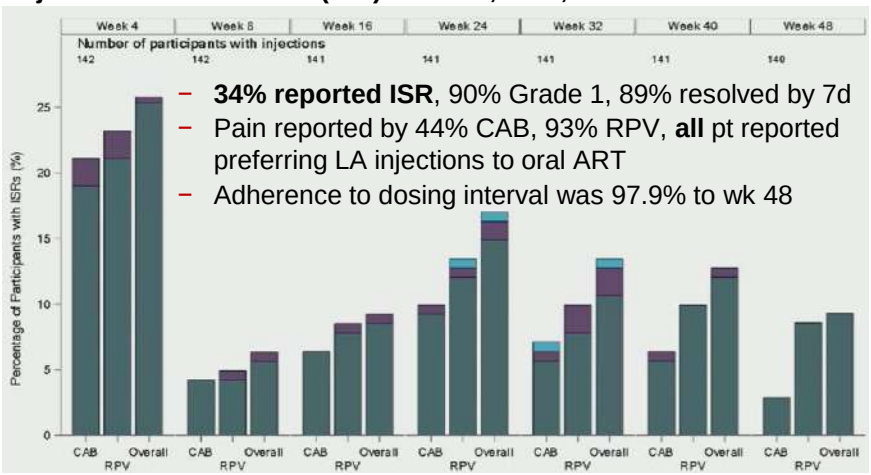


Variable	Value
Age (median [min, max])*	15 years (12, 17)
Female	51%
Black or African American	74%
Acquired HIV vertically/perinatally	92%
Body Mass Index (median [min, max])	19.5 kg/m^2 (16, 34)
Weight (median [min, max])	48 kgs (35, 101)

Viral Response

- All 140 pt in Cohort 2 were suppressed (VL <50); per FDA snapshot, 97.2% were viral success.
- No confirmed viral failures.

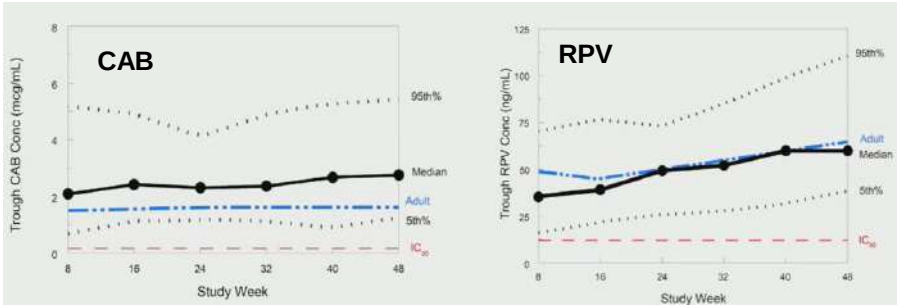
Injection Site Reactions (ISR) for CAB, RPV, Overall



- **34% reported ISR**, 90% Grade 1, 89% resolved by 7d
- Pain reported by 44% CAB, 93% RPV, **all** pt reported preferring LA injections to oral ART
- Adherence to dosing interval was 97.9% to wk 48

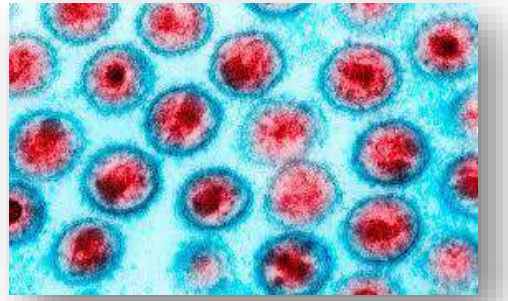
- 37% had drug-related AE, 99% ≤Gr 2, no drug-related SAE; only 1 pt d/c injections

Pharmacokinetics



- Trough levels CAB (2.77 ug/mL) and RPV (67.9 ng/mL) in adolescents were similar to Adults, and all were well above protein adjusted IC_{90}

- Virally suppressed adolescents switched to LA-CAB/RPV q 2 mos had:
  - No unexpected safety events
  - Trough levels similar to adults
  - Maintained viral suppression
  - Despite injection pain, all indicated preference for injections over oral ART
  - Continuing through wk 96



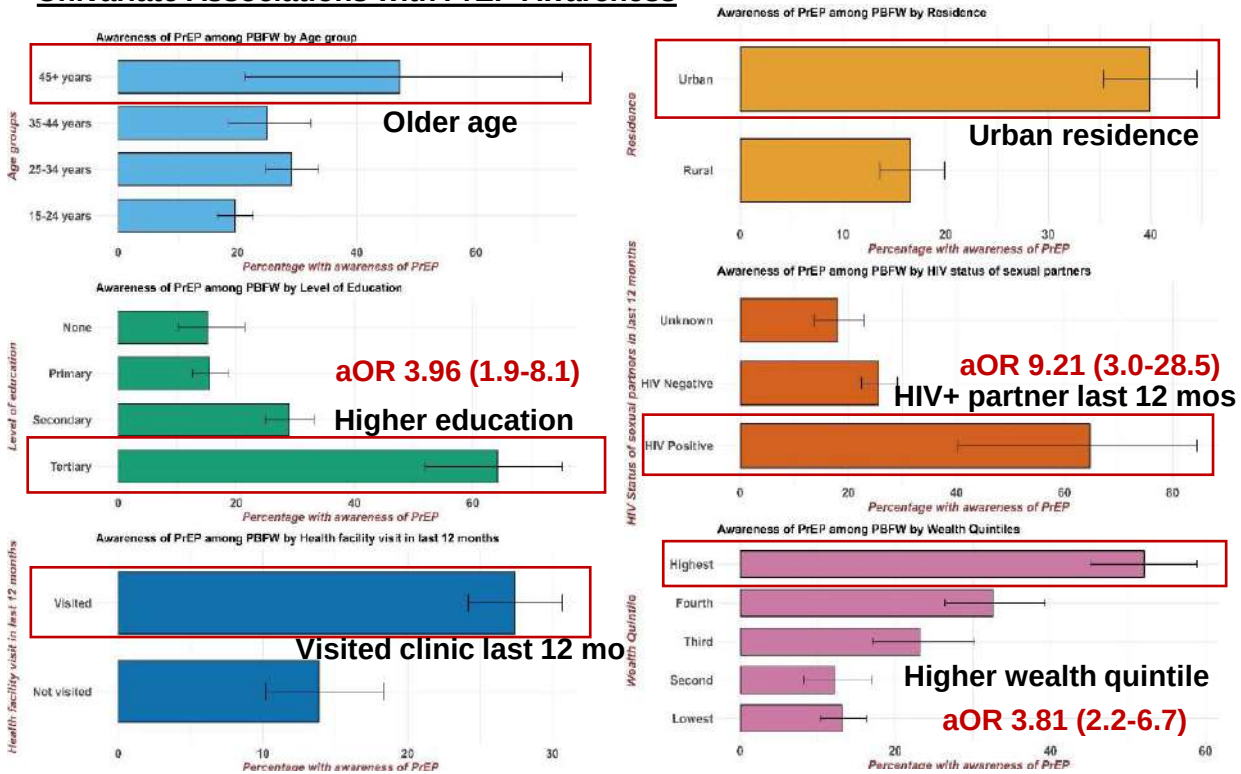
PrEP: Oral, Vaginal Ring, and Long-Acting CAB, Including Safety Data on Use in Pregnancy

Awareness and Acceptability of PrEP in HIV-Negative Pregnant and Breastfeeding Women (PBFW) Zambia – Analysis of ZAMPHIA 2021

Sichembe W et al. AIDS 2024, Munich, Germany July 2024, Abs. THPEC184

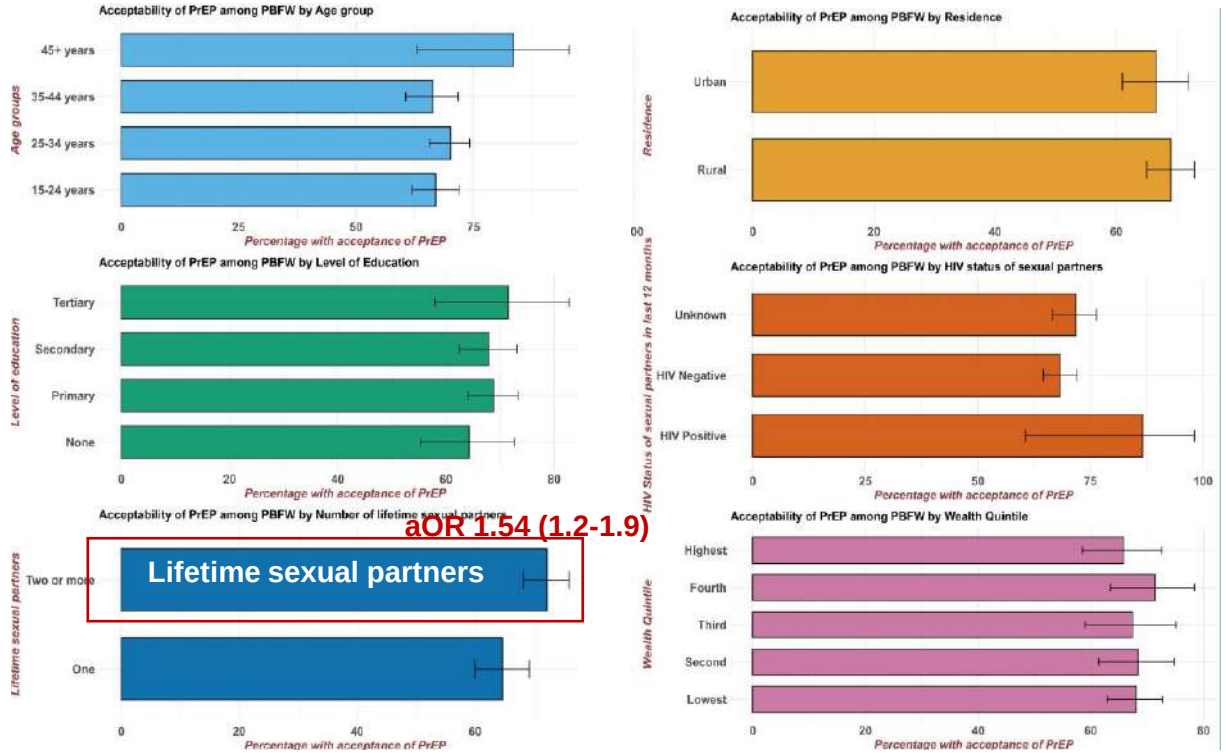
- Analyzed PrEP awareness and acceptability in women testing HIV-negative in ZAMPHIA household survey; interviewed 2,132 HIV-negative PBFW interviewed in 2021 ZAMPHIA, median age 26.3%.
- **PrEP awareness was low, 24.3%**

Univariate Associations with PrEP Awareness



- **PrEP acceptability was high, 68.2%**

Univariate Associations with PrEP Acceptability



- Efforts to improve awareness of PrEP are needed; should address the identified disparities in awareness gaps in rural areas, younger PBFW, and socioeconomically disadvantaged. Universal rather than risk-based approach would further improve awareness and acceptability.

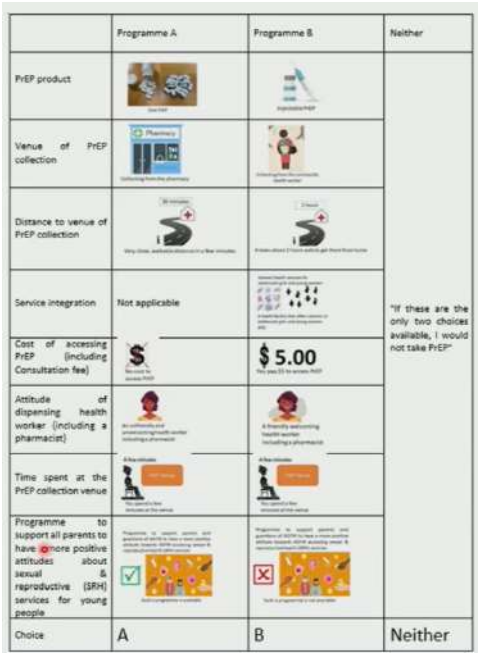
Preferences for PrEP Services in Sexually Active AGYW – Discrete Choice Experiment (DCE) Zimbabwe

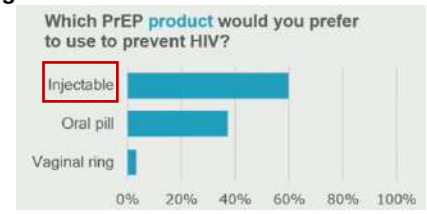
Sibanda E et al. AIDS 2024, Munich, Germany July 2024, Abs. OAE1205

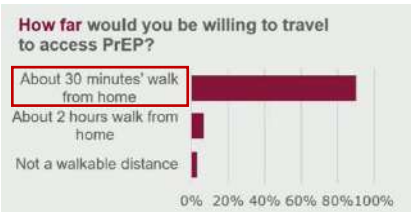
- 900 AGYW aged 16-24 years, sex with man in past 12 mos
- DCE questionnaire paper based, interviewer administered
- Presented with 2 program choices with option to select neither (no PrEP)
- Each pt given 9 choice sets from 1 of 4 randomly assigned ?aires

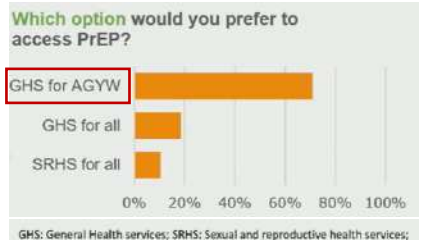
Attribute	Level
PrEP Product	Oral, vaginal ring, injectable
Venue for PrEP	Local clinic, CHW, pharmacy
Distance to venue	30 min walk, 2 hr travel, far not walkable
Service integration	AGYW services only, general services, SRH services
PrEP Cost	No cost, $2, $5
Attitude health worker	Friendly, welcoming; unfriendly unwelcoming
Time spent venue	Few minutes, 4 hours, 8 hours
Support program for parents	Available, not available

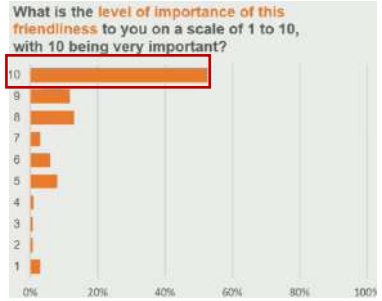
Which option would you prefer as PrEP program?

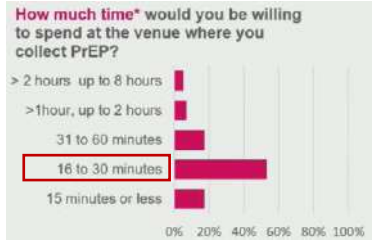


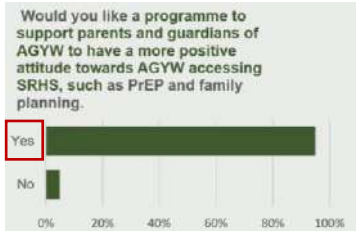


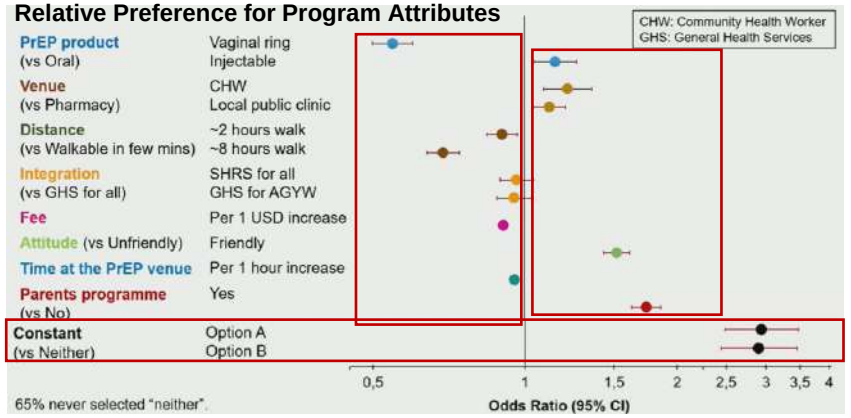












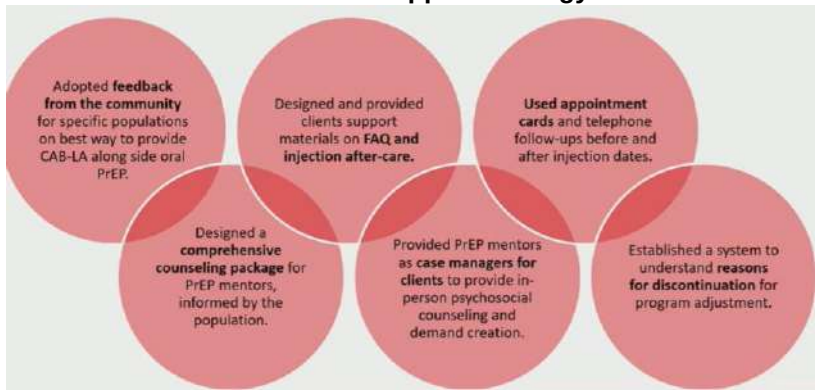
- PrEP programs can be optimized to reach sexually active AGYW if PrEP is:
  - Accompanied by activities to build parent support for adolescent SRH services
  - Provided by friendly community health workers/clinic
    - At low cost for user
    - At venues within walking distances
    - Short waiting times
    - Choice of injectable PrEP

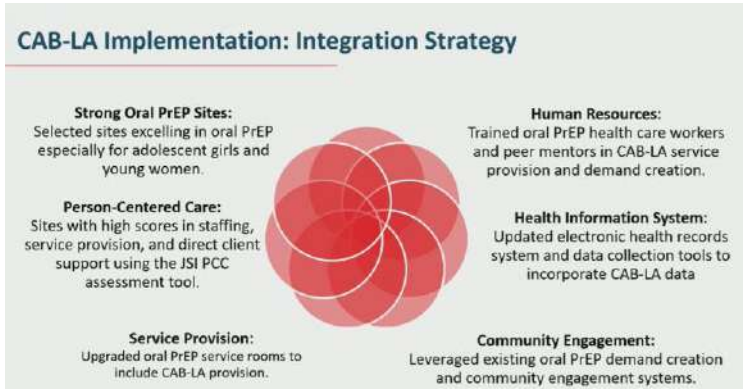
How Layering New Injectable CAB PrEP Onto Existing Person-Centered Service Delivery Support Patient PrEP Continuation, Zambia

Musonda M et al. AIDS 2024, Munich, Germany July 2024, Abs. OAE3906LB

- In Feb 2024, Zambia introduced CAB-LA PrEP

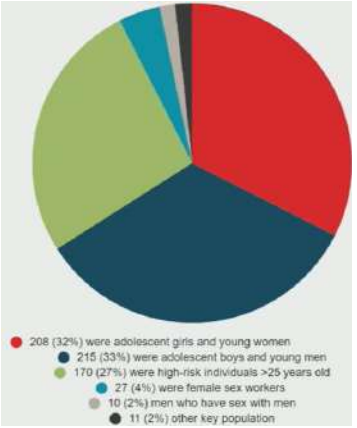
Zambia CAB-LA PrEP Client Support Strategy





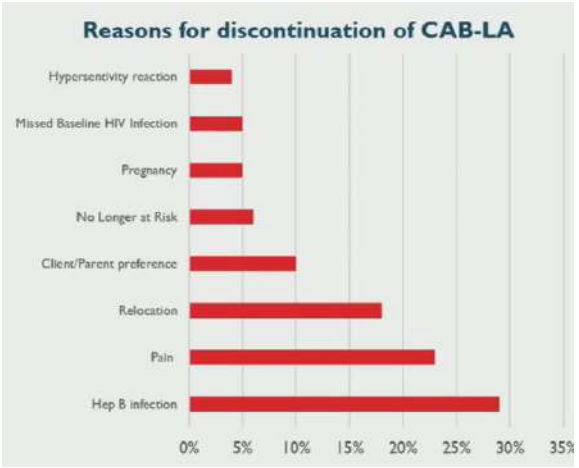
Zambia CAB-LA PrEP Introduction Timeline

- Between Feb 9-Mar 31, 2024, 641 pt started CAB-LA
  - Mean age 28 yr (16-54)
  - 57% female, 43% male
  - 32% AGYW, 33% ABYM
  - 30% transitioned from oral PrEP to CAB-LA, 70% no prior PrEP



Continuation assessment at 1 mo

- CAB LA: 446 pt due 1 mo (2nd injection)
  - 335 got 2nd injection – **75.1%1 mo continuation** (73% women, 77% men)
  - Continuation by risk
    - AGYW 70% ABYM 82%, FSW 77%, MSM 33%, high risk >25 yr 83%
- Oral PrEP: 631 oral PrEP same site
  - 463 due for 1 mo visit
  - 345 **(74.5%) returned at 1 mo**



Lessons Learned

Early implementation of CAB-LA demonstrates **minimal difference in continuation** between at sites with established person centered care services and strong oral PrEP performance.

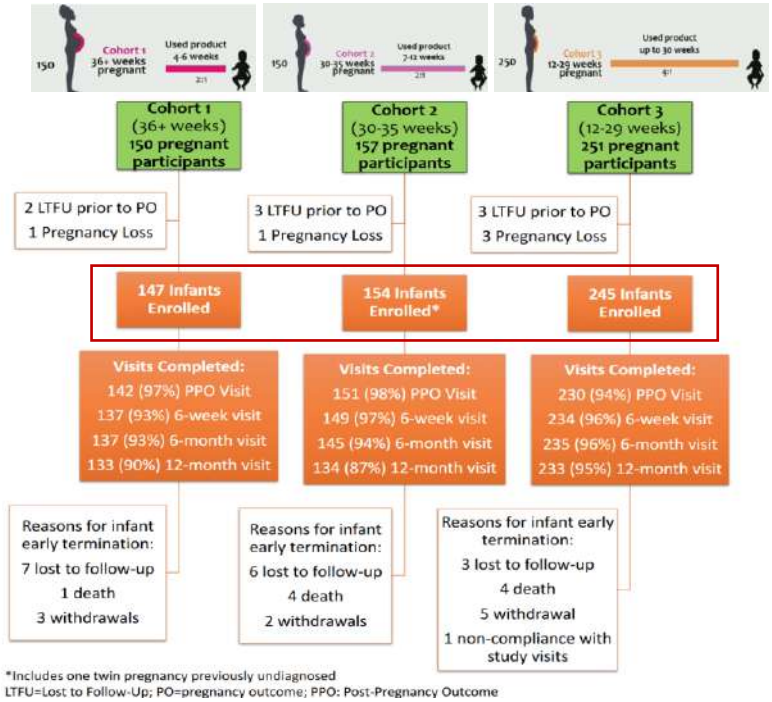
Integrating injectable PrEP into oral PrEP services can offer a **viable option for reaching non oral PrEP users** expanding PrEP coverage.

This demonstrates the timely gains in **layering a new HIV prevention option** onto a strong existing service delivery platform, with established client trust.

Safety Outcomes of Infants of Mothers Using DPV Ring or Oral PrEP in DELIVER MTN 042 Trial

Fairlie L et al. AIDS 2024, Munich, Germany July 2024, Abs. TUPEC197

- 546 infants enrolled (Cohort 1: 147, median IU exposure 3.4 wk; Cohort 2: 154, 9.1 wk; Cohort 3: 245, 16.0 wk)



→ Infant retention across visits and cohorts high (87-95%)

→ Overall, 99% live births, 4.4% PTD, 5% LBW

Birth Outcomes, AE, Infant Deaths, Early Growth by Cohort and Product

	Cohort 1		Cohort 2		Cohort 3	
	Ring	Oral TDF/FTC	Ring	Oral TDF/FTC	Ring	Oral TDF/FTC
Preterm births	1/99 (1%)	2/49 (4%)	6/103 (6%)	4/51 (8%)	8/200 (4%)	3/48 (6%)
Low birthweight	2/94 (2%)	3/47 (6%)	6/101 (6%)	3/50 (6%)	12/193 (6%)	3/48 (6%)
SAEs or ≥ Grade 3 AEs	23/99 (23%)	15/48 (31%)	30/103 (29%)	10/51 (20%)	41/197 (21%)	6/48 (13%)
Infant deaths	0/99 (0%)	1/48 (2%)	4/103 (4%)	0/51 (0%)	4/197 (2%)	0/48 (0%)
6-week WFL z-score (median, IQR)	1.04 (-0.27 – 1.87)	0.53 (-0.38 – 2.23)	0.62 (-0.63 – 1.43)	0.65 (-0.06 – 1.63)	0.80 (-0.08 – 1.68)	0.97 (-0.30 – 1.96)

Ring: Dapivirine vaginal ring; IQR: interquartile range; WFL: weight-for-length; SAEs: serious adverse events; PrEP: pre-exposure prophylaxis

Infant deaths causality: Hypoxic Ishaemic encephalopathy (1), prematurity (1), meconium aspiration syndrome (1), severe pneumonia (1), blunt head injury (1), dysmorphic features, CMV, multi-organ failure (1), Acute gastroenteritis (2). None deemed related to study product exposure by site PI or protocol medical officer. * Included congenital anomalies reviewed and verified by study geneticist: Missing toe nails, Trisomy 21, laryngomalacia, polydactyly, undescended testes (3), dysmorphic features, biliary atresia, pectus excavatum, tongue tie

→ No significant difference PTD, LBW by cohort or product

→ SAE in 61/399 (15%) infants exposed to ring, 14/147 (10%) exposed to oral PrEP, none related to product

→ 9 infant deaths (DPV ring 8/399, 2%; oral PrEP 1/147, 1%), none considered related to product (see above footnote)

→ WAZ at 6 wks did not differ by cohort/product

→ 11 birth defects infants (see above footnote), no clustering and none considered related

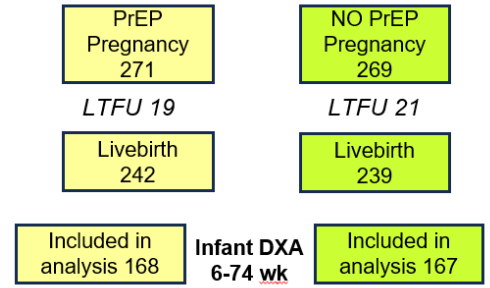
→ Developmental milestones through 12 mos in normal range for most in all cohorts & products

- Through 6- & 12-mo FU of infants, no safety concerns observed related to DPV ring or oral PrEP.
- Supports use of ring and oral PrEP in pregnancy.

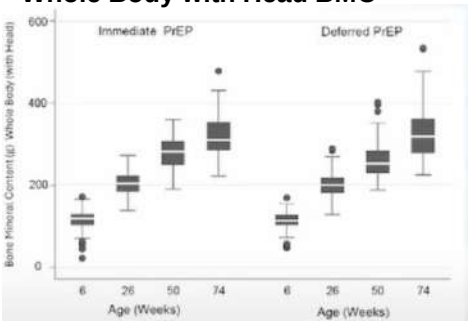
Bone Mineral Content (BMC) in Infant Born to Women Without HIV Infection Receiving PrEP During Pregnancy or Deferred

Naidoo KL et al. Pediatric HIV Workshop 2024, Munich, Germany July 2024, Abs. 24

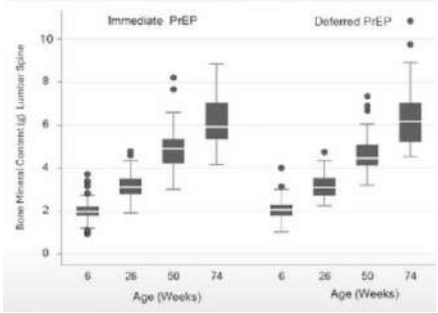
- Evaluation of BMC by DXA scan at age 6-74 wks in infants of mothers randomized to get TDF/FTC PrEP during pregnancy compared to those born to mothers not receiving PrEP during pregnancy (deferred) (CAP 016 trial)
- BMC whole body with head and lumbar spine by DXA at 6, 26, 50 and 42 wk; maternal TFV levels measured twice during pregnancy



Whole Body with Head BMC



Lumbar Spine BMC



	Number (n)	Exposed Mean (SE)	Number (n)	Not Exposed (Mean (SE)	Mean Difference (95%CI)	Adjusted P Value
	Whole Body (with head) Bone Mineral Content (g)					
Age (Weeks)						0.283
6	137	115.11 (2.90)	128	115.86 (2.82)	-0.74 (-8.69 to 7.20)	0.854
26	100	200.92 (3.60)	80	202.18 (3.23)	-1.26 (-10.75 to 8.23)	0.795
50	66	266.24 (3.94)	65	275.41 (3.89)	-9.17 (-20.02 to 1.69)	0.098
74	56	327.74 (4.30)	55	322.72 (4.20)	5.02 (-6.74 to 16.78)	0.403
	Lumbar Spine Bone Mineral Content (g)					
Age (Weeks)						0.329
6	131	2.06 (0.06)	126	1.99 (0.06	0.07 (-0.10 to 0.23)	0.442
26	98	3.13 (0.08)	78	3.11 (0.07)	0.02 (-0.18 to 0.22)	0.838
50	66	4.70 (0.08)	66	4.83 (0.08)	-0.14 (-0.36 to 0.09)	0.241
74	58	6.29 (0.09)	55	6.15 (0.09)	0.14 (-0.11 to 0.38)	0.274

Adjusted for birth weight, gestational age, breastfeeding < or > 20 d

→ No significant difference BMC btn *in utero* PrEP exposed/unexposed in unadjusted and adjusted analysis

→ Stratified maternal PreP based on maternal TFV levels (low vs moderate-high) and compared only moderate-high PrEP to unexposed

Whole Body (with Head) and Lumbar Spine Bone Mineral Content in Infants by randomization arm and maternal PrEP adherence

	Immediate PrEP Arm		Deferred PrEP Arm	Mean Difference (95%CI): Moderate-to-High Adherence vs Deferred PrEP	P value
Age (Weeks)	Low Adherence (<200 fmol/punch)	Moderate-to-High Adherence (≥200 fmol/punch)	PrEP Unexposed		
Bone Mineral Content at Lumbar Spine (g)					
6	n=72 1.66 (0.86)	n=92 1.52 (0.95)	n=155 1.68 (0.89)	-0.16 (-0.39 to 0.08)	0.187
26	n=41 3.21 (0.53)	n=56 3.12 (0.52)	n=79 3.13 (0.51)	-0.01 (-0.19 to 0.17)	0.910
50	n=27 5.07 (1.05)	n=39 4.75 (0.79)	n=66 4.65 (0.83)	0.09 (-0.23 to 0.43)	0.551
74	n=26 6.24 (1.08)	n=32 5.99 (1.13)	n=55 6.33 (1.36)	-0.34 (-0.90 to 0.23)	0.242
Bone Mineral Content of Whole Body (with Head) (g)					
6	n=72 97.20 (45.58)	n=93 92.46 (50.48)	n=155 95.12 (47.06)	-2.67 (-15.16 to 9.83)	0.675
26	n=42 202.76 (32.87)	n=57 205.14 (26.06)	n=81 201.37 (29.37	3.77 (-5.82 to 13.36)	0.439
50	n=27 291.85 (38.71)	n=39 269.31 (38.54)	n=65 264.0 (44.93)	5.31 (-11.83 to 22.45)	0.540
74	n=26 328.54 (56.78)	n=30 314.05 (49.90)	n=55 331.05 (67.54)	-17.01 (-44.97 to 10.96)	0.230

→ No difference BMC comparing moderate-high PrEP use to unexposed

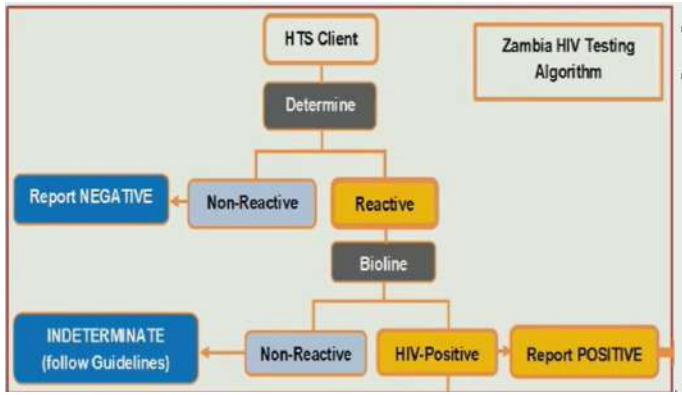
- No significant change in BMC with *in utero* PrEP exposure during pregnancy.

Early HIV Infection Diagnostic Challenges With CAB-LA PrEP Implementation in Routine Public Health PrEP Service, Zambia

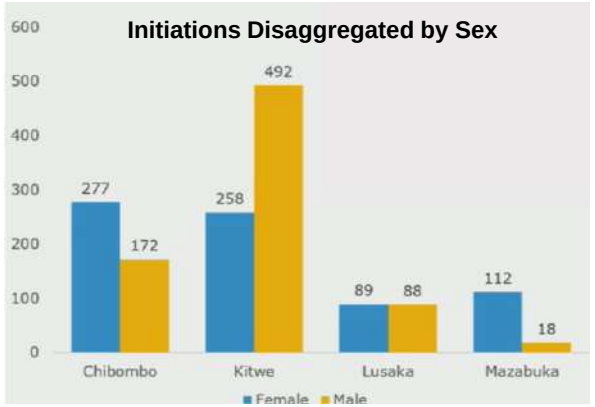
Mulenga L et al. AIDS 2024, Munich, Germany July 2024, Abs. OAC2206LB

- Oral PrEP programs in place in Zambia since 2018; preparation for CAB PrEP introduction began in 2022, with PEPFAR CAB donation arriving in 2024.
- Implementation: phase 1 9 sites, phase 2 +12 sites

CAB PrEP Initiation Criteria, Screening and HIV Testing



- Screening for Acute HIV Infection (AHI) using paper based tool
- HIV Testing
  - Standard national testing algorithm using rapid tests (A1: Determine HIV-1/2)
  - Blood sample collected for Nucleic Acid Amplification Test (NAAT)
    - NAAT not pre-requisite for injection initiation
  - If HIV RDT and AHI screening is negative
    → 1st CAB-LA initiation injection is administered
  - 2nd CAB-LA injection is given one month later after confirming continuation eligibility

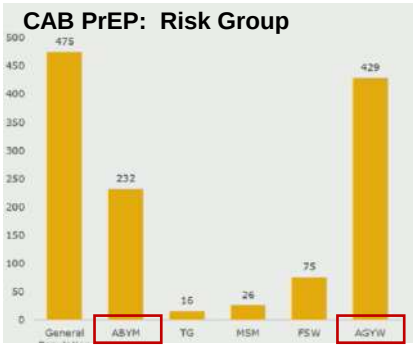


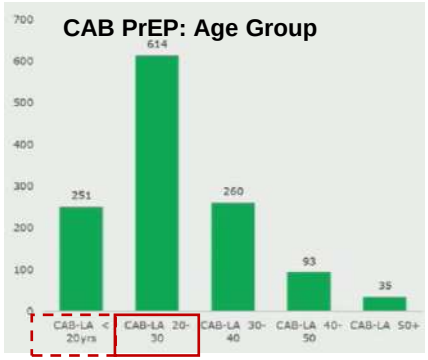
→ 11 incident pregnancies in women on CAB-LA PrEP (~1.5%)
- 5 stopped and transitioned to oral PrEP
- 6 have continued CAB PrEP

→ Feb 9-July 10 2024: 1335 pt screened to be at risk HIV

→ 1248 were RDT/AHI negative and started on CAB (~48% female, ~51% male).

→ 12/1248 started on CAB tested RDT negative but found to be NAAT positive
- 4/12 on CAB-LA when NAAT results received (3 had 1, 1 had 2 injections)
  - VL on CAB when NAAT returned: <30 x2, 131 and 533,000; started on TDF/FTC/DRV/r ART; 2 tested, no resistance mutations observed





- Good uptake and demand (including adolescents) but missing some with acute HIV; plan to strengthen screening including use 2 parallel RDT to increase positive predictive value; strengthen pregnancy registry.

Evaluation of Long-Acting CAB PK During Pregnancy – Pharmacokinetic Substudy HPTN 084

Marzinke M et al. AIDS 2024, Munich, Germany July 2024, Abs. SY2504

- Nested sub-study evaluating PK CAB-LA in pt who continued to receive CAB-LA injections during pregnancy; data presented on 1st 50 evaluated. Criteria:
  - Pregnancy resulted in live birth or stillbirth/IU fetal demise with GA at time outcome ≥36 wks
  - ≥4 CAB-LA injections during pregnancy AND ≥4 CAB-LA injections in year prior to 1st + pregnancy test
- Pt underwent monthly sampling during pregnancy; plasma trough levels averaged for each pt over pre-pregnant, pregnancy by trimester, and 24 wk PP period
- Evaluated the frequency of trough levels above protocol-specified threshold (4x-protein-adjusted 90% inhibitory concentration [4x PA-IC_{90} = 0.664 ug/mL.
- Trough ratios compared between pregnant and pre-pregnant period

- Pre-pregnancy: before pregnancy report date
- Pregnancy*:
  - 1st trimester: pregnancy report date through 12 weeks, 6 days gestation
  - 2nd trimester: 13 weeks gestational age through 26 weeks, 6 days gestation
  - 3rd trimester: 27 weeks gestational age through pregnancy outcome date
- Post-partum: pregnancy outcome date through 24 weeks after pregnancy outcome date

Sub-Study Patient Characteristics

Median Age (years)* (Q1, Q3)	25 (22, 29)
Median Weight (kg)* (Q1, Q3)	61 (52, 69)
Median Body Mass Index (kg/m²)* (Q1, Q3)	24 (21, 28)
Pregnancy Outcome	
Full-term live birth	45/50 (90%)
Pre-term live birth	5/50 (10%)
Total number of CAB-LA injections prior to pregnancy	
Median (Q1,Q3)	19 (7,24)
Number of CAB-LA injections in the year prior to pregnancy	
4	5/50 (10%)
5	3/50 (6%)
6	39/50 (78%)
7	3/50 (6%)
Number of CAB-LA injections during pregnancy	
4	35/50 (70%)
5	15/50 (30%)

*At enrollment into the main study

CAB-LA Trough Levels in Pre-Pregnant, Pregnant and Postpartum People

	Pre-pregnancy	Pregnancy	Post-partum
Participants (n)	50	50	49
Weight (kg)			
Mean (SD)	66.3 (15.9)	71.8 (15.5)	68.6 (15.5)
BMI (kg/m²)			
Median (Q1, Q3)	25.3 (22.1, 30.3)	27.6 (23.6, 31.7)	25.8 (23.7, 29.7)
CAB-LA C_{trough}(µg/mL)			
Median (Q1, Q3)	**2.1 (1.3, 2.7)** ↔	**1.9 (1.5, 2.2)** ↔	**2.5 (2.0, 3.5)**
95% CI for median	1.80, 2.43	1.76, 2.07	2.23, 3.18

→ CAB-LA trough levels are lower in pregnancy than pre-pregnancy or postpartum but well above IC_{90}

Evaluation of Long-Acting CAB PK During Pregnancy – Pharmacokinetic Substudy HPTN 084

Marzinke M et al. AIDS 2024, Munich, Germany July 2024, Abs. SY2504

CAB-LA Trough Levels in Pregnancy By Trimester

	Overall Pregnant Period	First trimester	Second trimester	Third trimester
Participants with any CAB C_{trough} measurements (n)	50	47	50	47
Number of C_{trough} measurements per participant				
Median (Q1, Q3)	4 (4,5)	1 (1,1)	2 (2,2)	2 (1,2)
CAB-LA C_{trough} (µg/mL)				
Median (Q1, Q3)	1.9 (1.5, 2.2)	2.5 (2.0, 3.2)	1.7 (1.4, 2.3)	1.6 (1.3, 2.0)
95% CI for median	1.76, 2.07	2.28, 2.94	1.63, 1.99	1.38, 1.79
5th percentile	1.09	1.44	1.04	0.81
Participants with average CAB-LA C_{trough} ≥ 0.664 µg/mL (%)*	**100**	**100**	**100**	**98**

*Protocol-defined target CAB-LA concentration; 4x PA-IC_{90}

→ CAB-LA trough levels ↓ over the course of pregnancy, lowest in 3rd trimester; however, 98-100% have levels **above efficacy target**

Sensitivity Analysis of CAB-LA Trough Level Ratios

	Pregnancy/ Pre-Pregnancy	1st Trimester/ Pre-Pregnancy	2nd Trimester/ Pre-Pregnancy	3rd Trimester/ Pre-Pregnancy
12 month Pre-Pregnancy (~6 injections)				
CAB-LA C_{trough} Ratio				
Median (Q1, Q3)	0.8 (0.6, 1.0)	1.1 (0.8, 1.3)	0.8 (0.6, 1.0)	0.7 (0.5, 0.8)
95% CI for median	0.7, 0.9	0.9, 1.3	0.7, 0.9	0.6, 0.8
6 month Pre-Pregnancy (~3 injections)				
CAB-LA C_{trough} (µg/mL)				
Median (Q1, Q3)	0.7 (0.6, 0.9)	1.1 (0.8, 1.2)	0.7 (0.5, 0.9)	0.7 (0.5, 0.8)
95% CI for median	0.7, 0.8	0.9, 1.2	0.6, 0.9	0.6, 0.8

→ Sensitivity analysis restricted "pre-pregnant" period to the 6 or 12 mo period prior to pregnancy; results similar, with ↓ levels in 2nd and 3rd trimester

CAB-LA Trough Level Ratio Pre-Pregnant and Pregnant Periods

	Pregnancy/ Total Pre-Pregnancy	1st Trimester/ Total Pre-Pregnancy	2nd Trimester/ Total Pre-Pregnancy	3rd Trimester/ Total Pre-Pregnancy
CAB-LA C_{trough} Ratio*				
Median (Q1, Q3)	0.9 (0.7, 1.5)	1.3 (1.0, 1.9)	0.9 (0.7, 1.5)	0.8 (0.6, 1.2)
95% CI for median	0.9, 1.1	1.1, 1.7	0.8, 1.1	0.7, 1.0

*A ratio of 1.0 means no difference between pre-pregnancy and pregnancy

→ Ratio of trough levels between pre-pregnant and each trimester decline from 1st through 3rd trimester, lowest in 3rd trimester

Estimation of Area Under the Concentration Time Curve (AUC)

	Overall Pregnant Period	First trimester	Second trimester	Third trimester
Participants with measurements during period (n)	44	5	48	34
Duration of time period included in analysis (days)				
Median (Q1, Q3)	197 (180, 217)	56 (56, 57)	64 (56, 84)	57 (56, 77)
CAB-LA AUC (days*µg/mL)[1]				
Median (Q1, Q3)	429 (350, 504)	148 (143, 159)	137 (112,187)	109 (77, 132)

→ AUC ↓ over the course of pregnancy

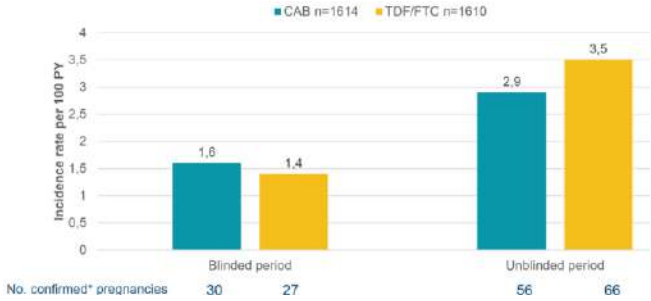
- CAB-LA levels (trough, AUC, trough ratios) ↓ during pregnancy but 100% in 1st/2nd and 98% in 3rd trimester were above target.
- Dose modifications likely not needed, will have more data (+25 pt, contribution weight, BMI, albumin on PK; unbound levels).
- Planned assessment of women who become pregnant and first initiate CAB during pregnancy and evaluation infant exposures during breastfeeding.

Initial Evaluation of Injectable CAB-LA Safety During Pregnancy – HPTN 084 Open-Label Extension (OLE)

Delany-Moretiwe S et al. AIDS 2024, Munich, Germany July 2024, Abs. SY2503

- Evaluation of pregnancy outcomes in women who became pregnant during OLE of HPTN 084.

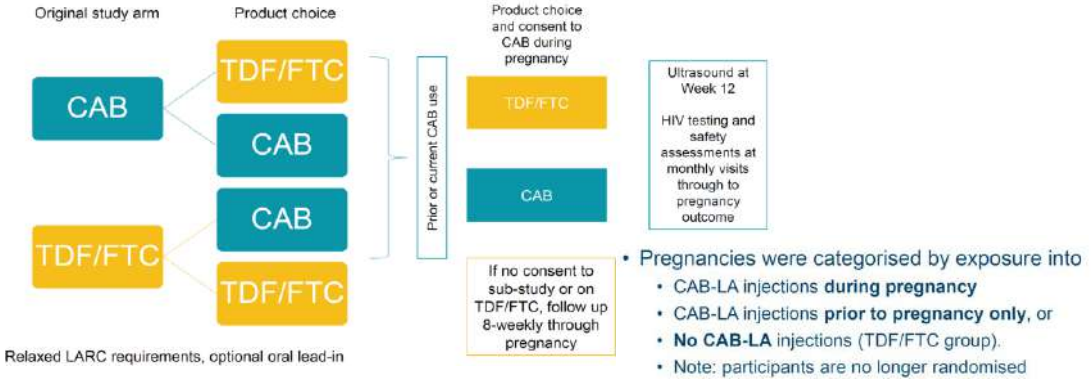
Pregnancy Incidence During Original Study Randomized Period and Pregnancy Outcomes



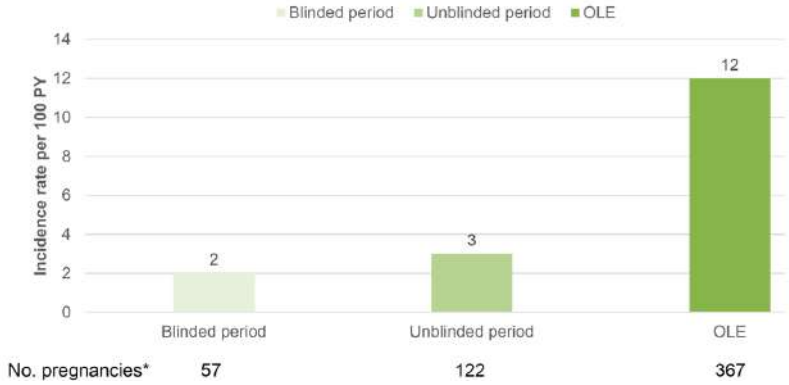
	CAB-LA	TDF/FTC
Pregnancies with a reported outcome	79	91
Outcomes		
Ectopic	0 (0%)	1 (1%)
Therapeutic/elective abortion	2 (3%)	1 (1%)
Spontaneous abortion <20 weeks	10 (13%)	4 (4%)
Stillbirth/intra-uterine fetal death ≥ 20 weeks	4 (5%)	4 (4%)
Premature live birth < 37 weeks	4 (5%)	4 (4%)
Full term live birth ≥ 37 weeks	58 (73%)	77 (84%)
Major congenital anomalies	1	1

→ During randomized study, most births full term, similar rates PTD, stillbirth for CAB and oral PrEP, slightly more miscarriages CAB.

OLE Pregnancy Study Design



Pregnancy Incidence Rate 100PY Original Study and OLE



→ # pregnancies significantly ↑ during OLE (relaxed LARC requirements)

From start of OLE until 31 DEC 2023

2472 participants joined the OLE

410 participants had ≥ 1 pregnancy recorded

312 participants had ≥1 pregnancy with a recorded outcome

325 pregnancies with recorded outcome included in safety analysis
(n=64 pregnancies at time of OLE start, n=261 incident pregnancies)

320 pregnancies with 1 outcome
5 pregnancies with 2 outcomes

Initial Evaluation of Injectable CAB-LA Safety During Pregnancy – HPTN 084 Open-Label Extension (OLE)

Delany-Moretiwe S et al. AIDS 2024, Munich, Germany July 2024, Abs. SY2503

	Active CAB-LA n (% or IQR)	Prior CAB-LA n (% or IQR)	No CAB-LA n (% or IQR)
Total no. pregnancies	**212**	**68**	**45**
Median age at pregnancy start (years)	28 (26-33)	27(25-30)	27 (24-30)
Median no. previous pregnancies	2 (1-3)	1 (0.5-2)	2 (1-2)
Mean no. previous live F/T births	2 (1-2)	1 (0-2)	1 (1-2)
Pregnancy history			
No prior pregnancy	20 (9)	17(25)	4 (9)
No previous poor outcome	138 (65)	38 (56)	30 (67)
Previous poor pregnancy outcome	54 (25)	13 (19)	11 (24)
History of STIs pre-pregnancy	158 (75)	44 (65)	24 (53)
Median BMI (kg/m^2) at pregnancy detection	27 (23-31)	27 (24-33)	27 (23-31)

→ Most pregnancies CAB exposure (86%); baseline characteristics of pt similar btn group.s

CAB Injections Prior to Pregnancy

	Active CAB-LA n (% or IQR)	Prior CAB-LA n (% or IQR)	No CAB-LA n (% or IQR)
Total no. pregnancies	**212**	**68**	**45**
Total no. CAB injections pre-pregnancy			
None	20 (9%)	-	45 (100%)
1 to 3	32 (15%)	11 (16%)	-
> 3	160 (75%)	57 (84%)	-
Median interval between last injection and first positive pregnancy test (weeks)	8 (8-9)	14 (8-56)	-
Median no. CAB injections during pregnancy	4 (2-4)	-	-

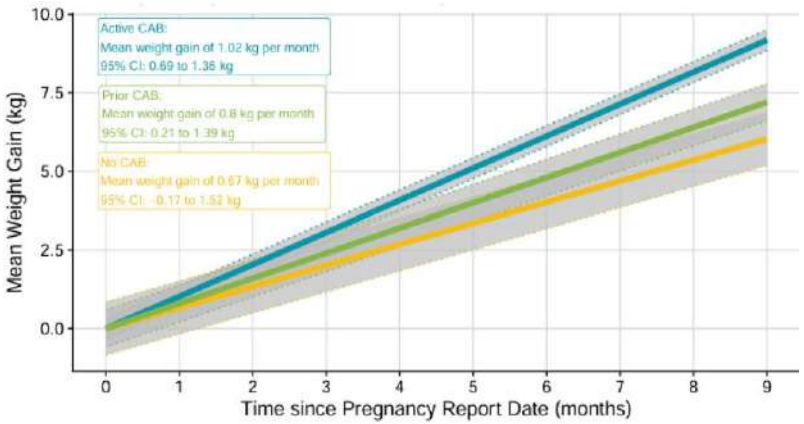
→ Most of active and prior CAB group pregnancies had >3 CAB injections prior to pregnancy, with 8-14 weeks between last injection and pregnancy diagnosis.

Pregnancy AEs

	Active CAB-LA n (95% CI)	Prior CAB-LA n (95% CI)	No CAB-LA n (95% CI)
Any Grade 2+ AE incidence rate*	376 (337-417)	282 (208-374)	238 (168-326)
Pregnancy-related Grade 2+ AE incidence rate*	38 (27-53)	47 (20-93)	31 (10-73)
Gestational hypertension	9 (4-17)	6 (<1-33)	6 (<1-35)
Hyperemesis gravidarum	6 (2-14)	12 (1-42)	0 (0-23)
Afterbirth pain	6 (2-14)	6 (<1-33)	0 (0-23)
Pre-eclampsia	3 (1-9)	0 (0-22)	6 (<1-35)
Meconium-stained amniotic fluid	2 (<1-8)	0 (0-22)	0 (0-23)
Premature labour	1 (<1-6)	0 (0-22)	6 (<1-35)
Foetal distress	1 (<1-6)	6 (<1-33)	0 (0-23)
Post-partum haemorrhage	1 (<1-6)	6 (<1-33)	0 (0-23)
Cephalo-pelvic disproportion	0 (0-4)	6 (<1-33)	13 (2-45)

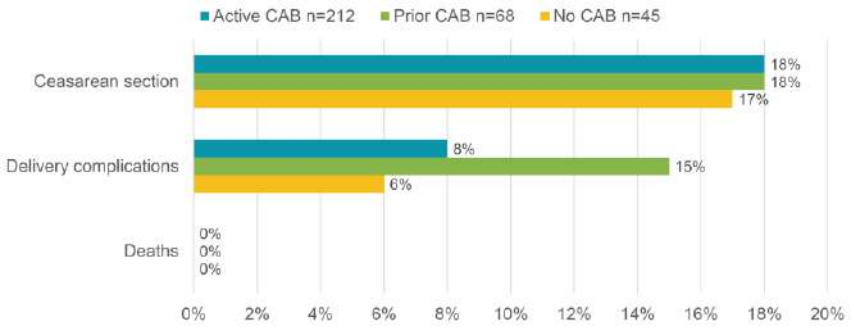
→ Incidence rate pregnancy Gr 2 AE similar btn groups – prior CAB > active CAB > no CAB. PT labor, preeclampsia, highest in no CAB grp.

Pregnancy Weight Gain



→ Weight gain during pregnancy highest in the active CAB group; none above recommended weight gain for pregnancy

Delivery; Maternal Mortality

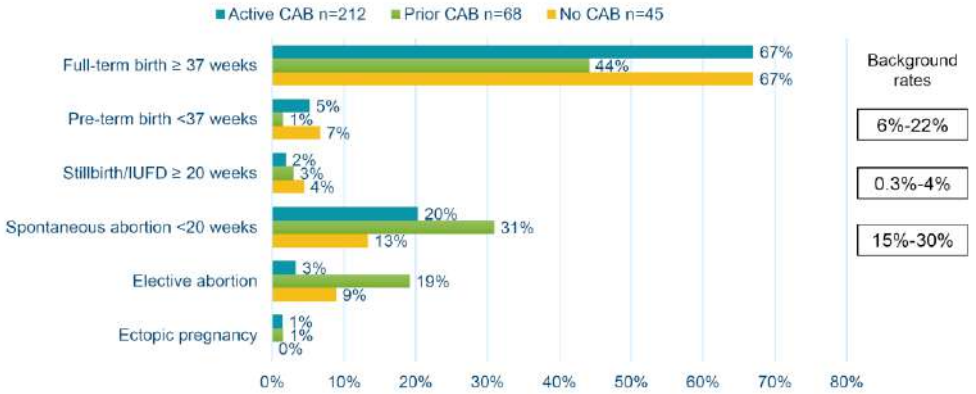


→ CS similar btn groups, rate delivery complications similar in active CAB and no CAB group; no maternal deaths in any group

Initial Evaluation of Injectable CAB-LA Safety During Pregnancy – HPTN 084 Open-Label Extension (OLE)

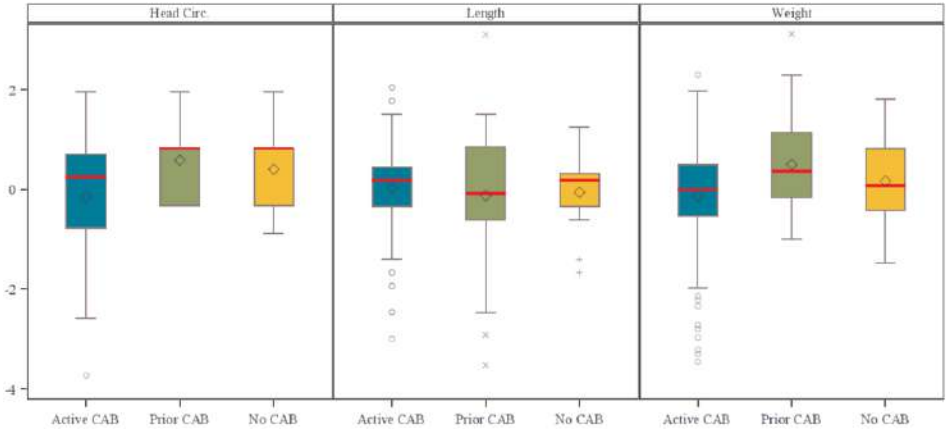
Delany-Moretiwe S et al. AIDS 2024, Munich, Germany July 2024, Abs. SY2503

Pregnancy Outcome



→ Pregnancy outcomes CAB & no CAB ~ similar by exposure and **consistent with background rates**

IU Growth – Birth HC, Length, Weight Z-Scores by Exposure Group



→ No different birth anthropometrics btn groups

Infant Outcomes, Live Births

	Active CAB-LA N (% or IQR)	Prior CAB-LA	No CAB-LA
Live infants	157	31	35
Median gestational age at delivery (weeks)	39 (37-40)	38 (36-40)	37 (37-39)
Median birth weight (kg)	3 (3-3)	3 (3-4)	3 (3-4)
Size for gestational age*			
Small	17 (10%)	2 (6%)	3 (9%)
Appropriate	104 (66%)	15 (48%)	15 (43%)
Large	21 (13%)	10 (32%)	9 (26%)
Missing	15 (10%)	4 (13%)	8 (23%)
Neonatal death within 28 days	4	0	0

1 death associated with major congenital anomaly, 3 deaths due to respiratory distress

→ Most live-born infants all groups full-term with similar birth weight; appropriate size for GA highest in active CAB group

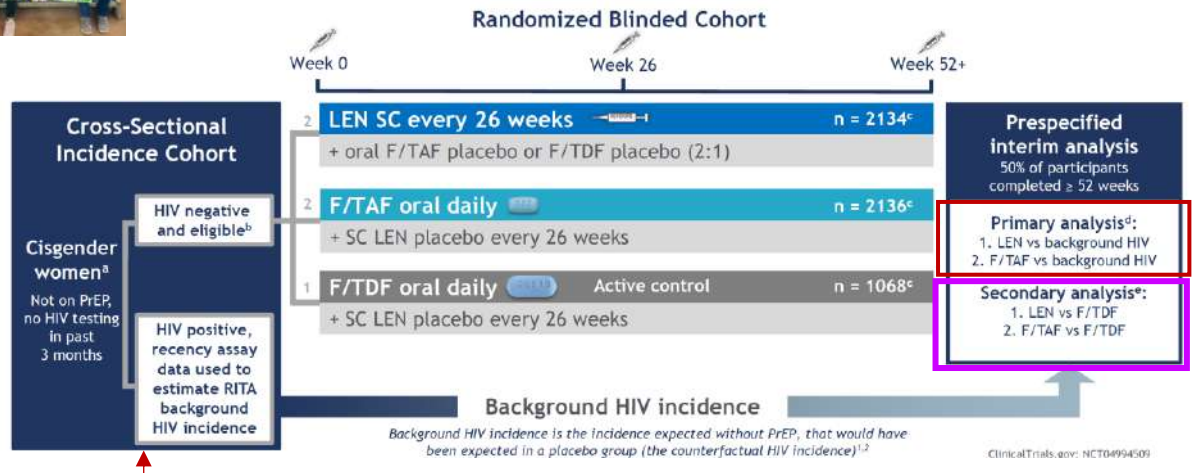
→ 4 infant deaths, none considered related to study product

- Maternal, pregnancy & infant outcomes were consistent across non-randomized exposure groups and with expected background rates.
  - No maternal deaths or HIV infection
  - Similar rates adverse pregnancy outcomes regardless CAB exposure
  - Infant growth parameters similar across groups
- CAB-LA was well-tolerated in pregnant women.
  - Pregnancy-related AE rates similar across groups, including gestational hypertension
  - Weight gain within normal range for pregnancy
- These initial data provide reassurance regarding use of CAB in pregnancy; high pregnancy incidence allows for ongoing safety information accrual.

Complete HIV Prevention HIV with 2x Yearly Subcutaneous Lenacapvir vs F/TAF in Cis-Gender Women in Uganda and South Africa

PURPOSE 1

Bekker et al. AIDS 2024, Munich, Germany July 2024, Abs. SS0407



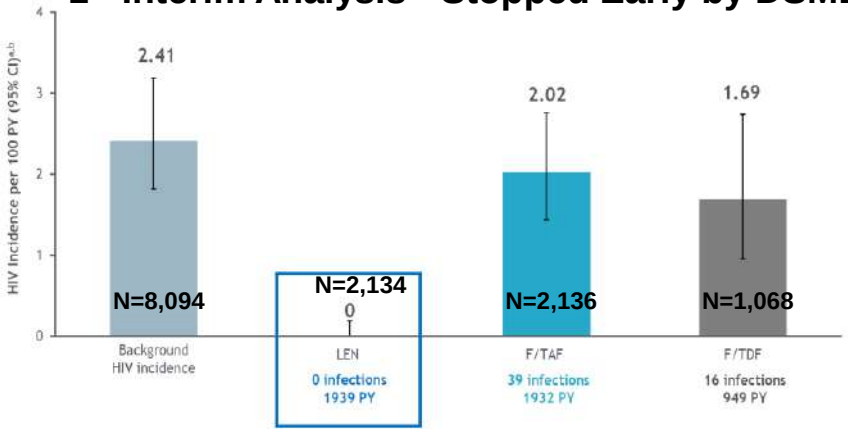
Background HIV incidence primary comparison

Background Demographics Balanced Between Arms

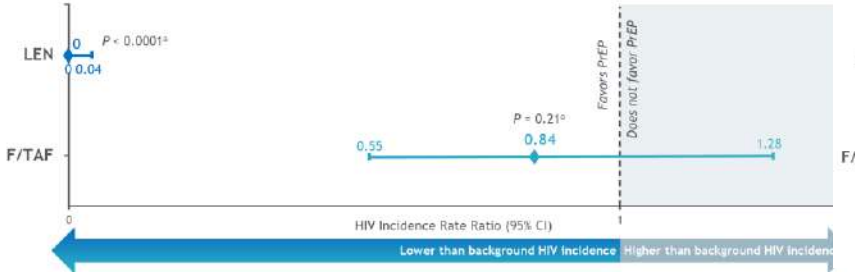
Characteristic	LEN, n = 2138	F/TAF, n = 2137	F/TDF, n = 1070
Age, years, median (range)	21 (16-25)	21 (16-26)[a]	21 (16-25)
Age 16 to <18, years, n (%)	56 (2.6)	45 (2.1)	23 (2.1)
Black race,[b] n (%)	2135 (99.9)	2136 (100)	1068 (99.8)
Highest education level college/university,[c] n (%)	183 (8.6)	198 (9.3)	109 (10.2)
Marital status, n (%)			
Married	26 (1.2)	30 (1.4)	17 (1.6)
Living with primary partner	148 (6.9)	132 (6.2)	73 (6.8)
STIs, n (%)			
Chlamydia trachomatis	520 (24.3)	562 (26.3)	263 (24.6)
Neisseria gonorrhoeae	197 (9.2)	178 (8.3)	90 (8.4)
Trichomonas vaginalis	154 (7.2)	165 (7.7)	82 (7.7)
Syphilis	57 (2.7)	63 (2.9)	29 (2.7)
Any prior use of PrEP, n (%)	143 (6.7)	121 (5.7)	71 (6.6)
Any prior HIV testing, n (%)	1713 (80.1)	1731 (81.0)	860 (80.4)
Median time since last HIV test, months (Q1, Q3)	6.8 (4.7, 11.5)	6.6 (4.8, 11.0)	6.5 (4.6, 11.0)

2-3% young adolescent enrolled

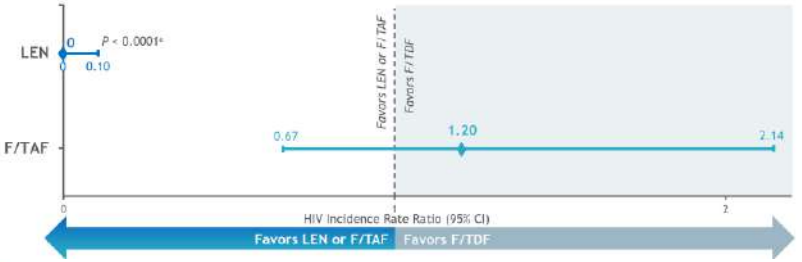
1st Interim Analysis - Stopped Early by DSMB



LEN and F/TAF vs Background Incidence:
LEN 100% effective; F/TAF not different than background



LEN and F/TAF vs F/TDF :
LEN 100% effective; F/TAF not different than F/TDF



→ **Zero HIV infections** in women receiving twice-yearly LEN for PrEP; all pt being offered open-label LEN

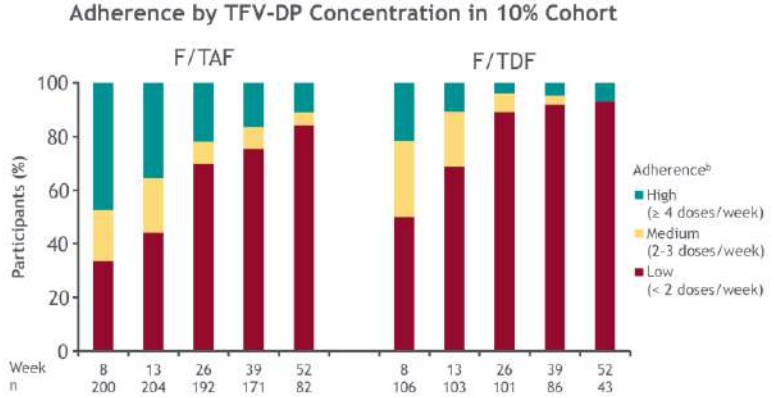
→ LEN efficacy was superior to both background incidence and F/TDF

Adherence to Oral PrEP Poor but Was Excellent for LEN On-Time Injections; All Drugs Well-Tolerated and Safe

Bekker et al. AIDS 2024, Munich, Germany July 2024, Abs. SS0407

PURPOSE 1

→ **Adherence to both F/TAF and F/TDF oral PrEP was low and declined over time**



→ Preselected 10% sample assessed for TFV-DP in DBS
- F/TAF: low <450; medium ≥450-<900; high ≥900 fmol/punch
- F/TDF: low <350; medium ≥350-<700; high ≥700 fmol/punch

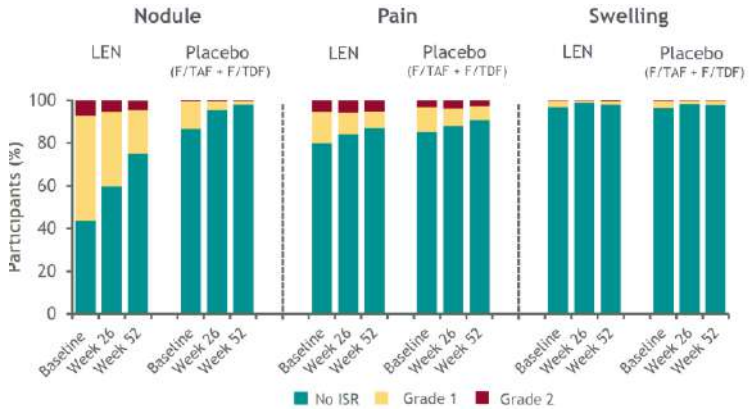
Excellent adherence to on-time injections for LEN and for LEN placebo

Injections were on time[a] for:
- 91.5% (4545/4967) at Week 26
- 92.8% (2025/2181) at Week 52

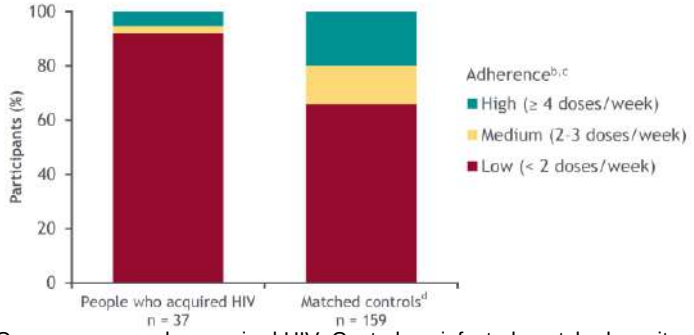
On-time injection similar on LEN and placebo (F/TAF and F/TDF)

→ Adherence to LEN defined as on-time injections, <28 weeks from last injection
→ Pt who presented late required negative HIV test to reinitiate product, which included reloading with oral LEN or placebo

Injection site reactions were mild and decreased frequency with subsequent injections (only 4 d/c in 25,329 injections)



→ **Case/control analysis found medium-high adherence to oral F/TAF was associated with 89% protection from HIV acquisition (OR 0.11, 95% CI 0.012-0.49, p=0.0006)**



→ Cases=persons who acquired HIV; Controls uninfected, matched on site and baseline VOICE risk score from same visit as HIV diagnosis visit of each case

LEN and F/TAF were well-tolerated and safe

Adverse Events[a], n (%)	LEN n = 2138	F/TAF n = 2137	F/TDF n = 1070
Any	1631 (76.3)	1665 (77.9)	830 (77.6)
Grade ≥ 2	1111 (52.0)	1078 (50.4)	533 (49.8)
Grade ≥ 3	88 (4.1)	95 (4.4)	50 (4.7)
Serious AEs	59 (2.8)	85 (4.0)	35 (3.3)
AEs leading to discontinuation of study drug	5 (0.2)[b]	2 (<0.1)[c]	0
AEs occurring in ≥10% of participants, n (%)			
Headache	285 (13.3)	352 (16.5)	155 (14.5)
Urinary tract infection	307 (14.4)	305 (14.3)	163 (15.2)
Genitourinary chlamydia infection	300 (14.0)	317 (14.8)	129 (12.1)
Upper respiratory tract infection	271 (12.7)	274 (12.8)	121 (11.3)
Nausea	144 (6.7)	234 (10.9)	142 (13.3)
Vomiting	125 (5.8)	235 (11.0)	107 (10.0)
Laboratory abnormalities, n with ≥1 post-baseline result	2126	2113	1054
Any Grade ≥ 1, n (%)	1929 (90.7)	1904 (90.1)	959 (91.0)

Six deaths[d] all in the F/TAF group; none related to study drug per investigator

Pregnancies Were Common and Rate of Adverse Outcomes Similar to Background Rates in General Population

Bekker et al. AIDS 2024, Munich, Germany July 2024, Abs. SS0407

Participants and Pregnancies, n (%)	LEN n = 2138	F/TAF n = 2137	F/TDF n = 1070
Participants with confirmed pregnancies	184	208	95
Confirmed pregnancies	193	219	98
Completed pregnancies	105 (54.4)	119 (54.3)	53 (54.1)
Stillbirths	3/105	4/119	1/53 (1.9%)
Births	55 (28.5)	45 (20.5)	21 (21.4)
Interrupted pregnancies	50 (25.9)	74 (33.8)	32 (32.7)
Induced abortion	30 (15.5)	40 (18.3)	20 (20.4)
Spontaneous miscarriage[b]	20 (10.4)	34 (15.5)	12 (12.2)

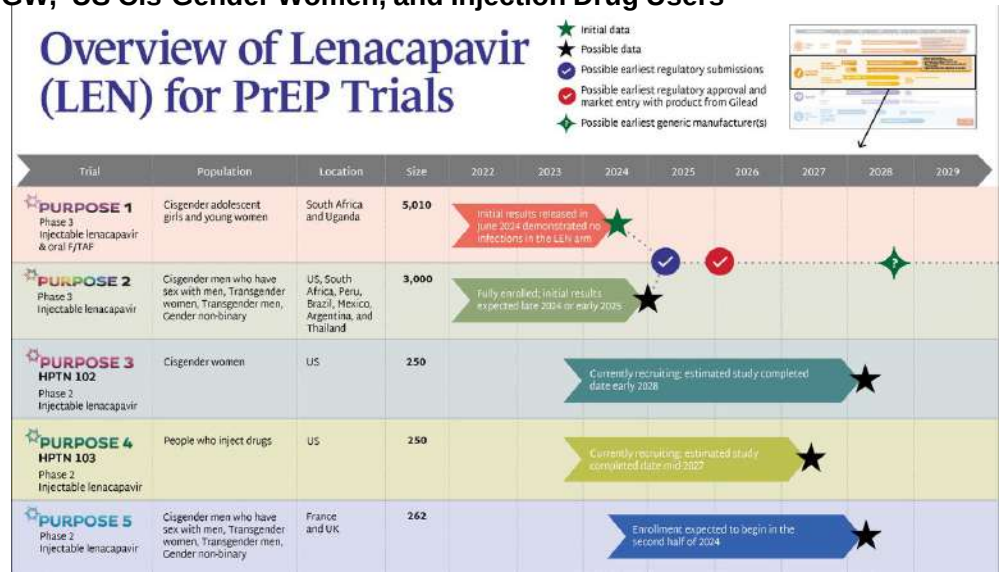
Expected spontaneous miscarriage rate[1,2]:
- ~10-20% of clinically recognized pregnancies
- ~30% of biochemically detected pregnancies

→ Pregnancy not uncommon (~9-10%).

→ Stillbirth & miscarriage rates not different with LEN vs to oral PrEP and none significantly different than expected background rate.

→ **No signal of increased adverse pregnancy outcomes with LEN.**

Additional Studies LEN PrEP Ongoing in MSM/TGW, US Cis-Gender Women, and Injection Drug Users



Thank You For Your Attention!

Questions?