IAS 2023
23 – 26 July
Brisbane, Australia & Virtual

INTERNATIONAL WORKSHOP ON
HIV & PEDIATRICS 2023

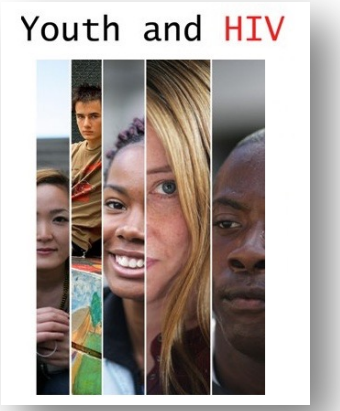
IAS 2023 & Pediatric HIV Workshop

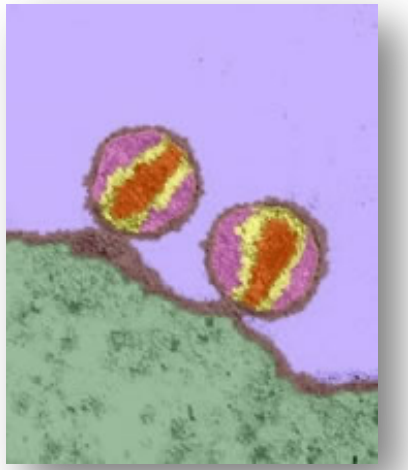
Selected PMTCT, Pediatric, Adolescent, and Maternal/Adult Abstracts

Lynne M. Mofenson MD

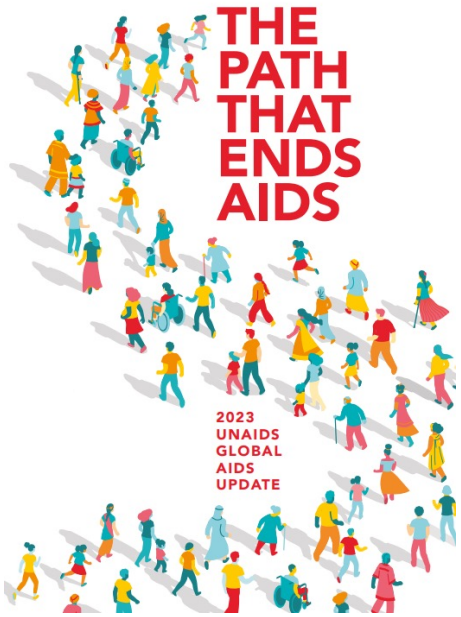
8-23-23

unicef



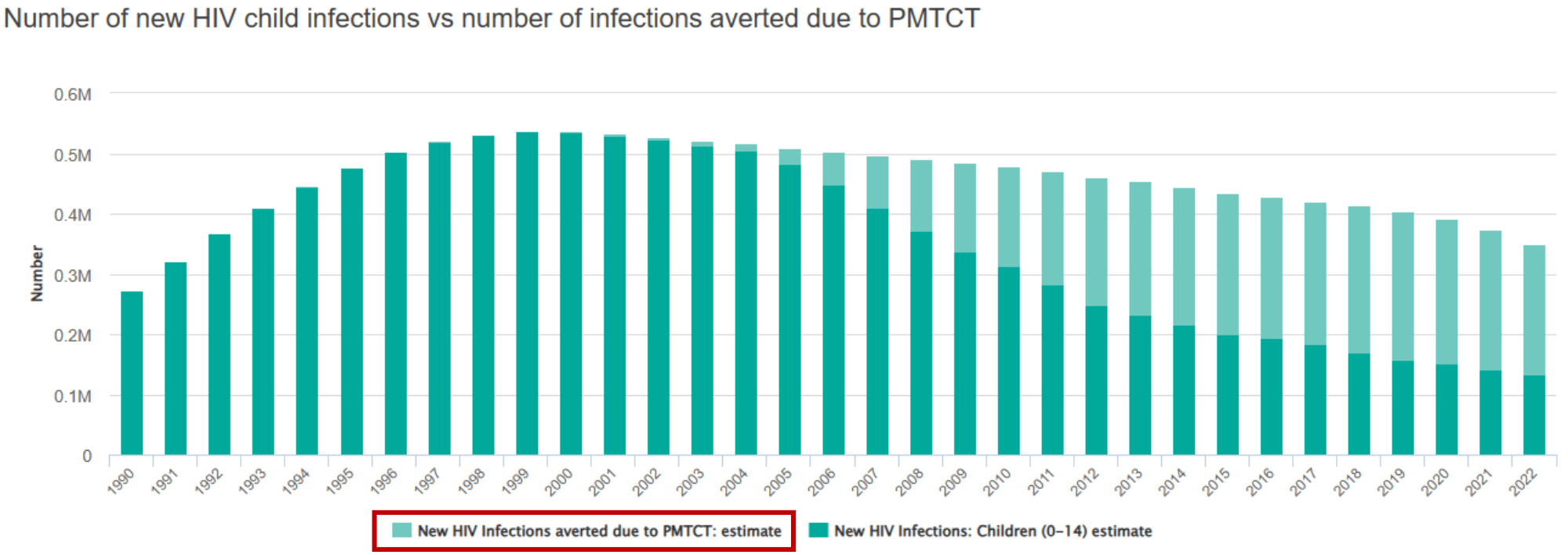


Update on Epidemiology of Pediatric HIV 2023



UNAIDS

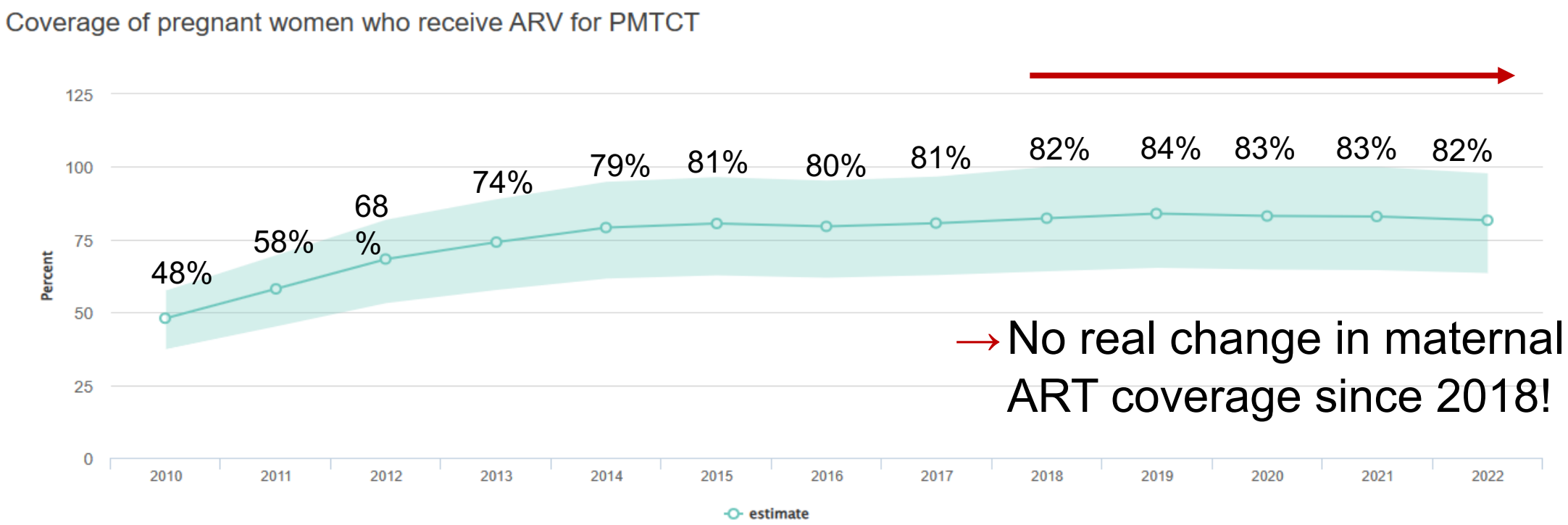
Over 3 Million New Infections Averted in Children With ART and PMTCT Programs Since 2000



Cumulative **3.4 million** new infections **averted** in children due to maternal ART

Source: UNAIDS epidemiological estimates 2023: *aidsinfo.unaids.org*

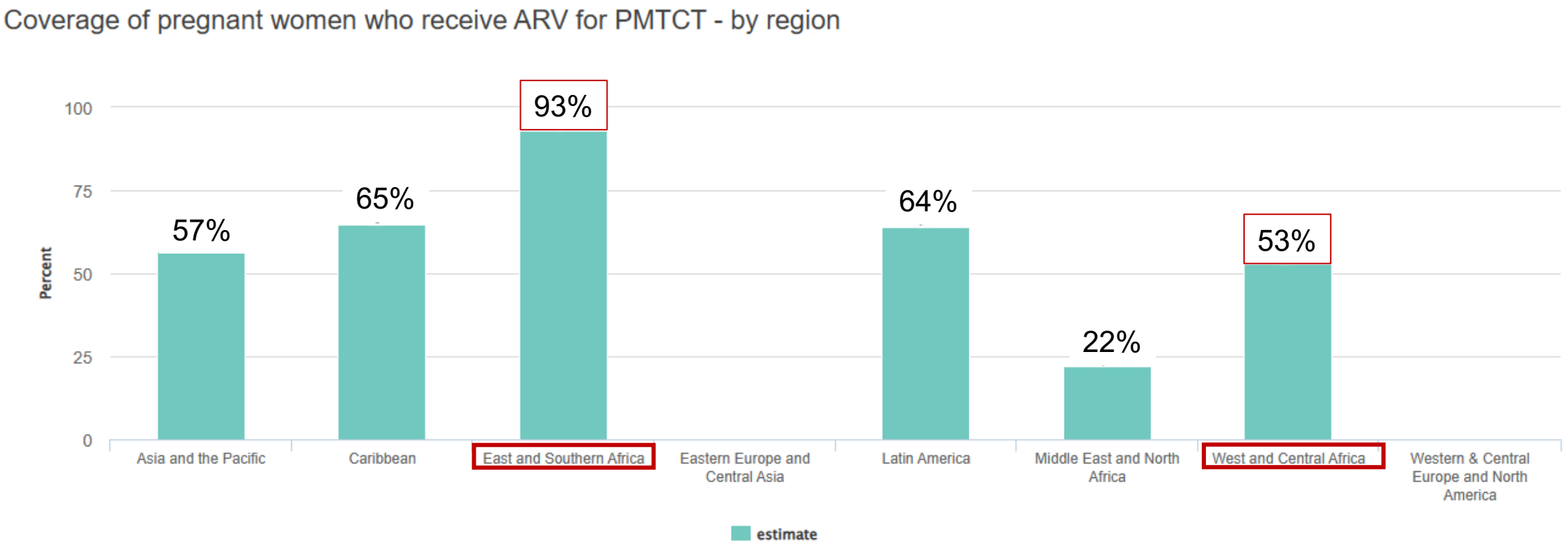
However, ART Coverage in Pregnant/Breastfeeding Women Has Remained Stalled Since 2018



→No real change in maternal ART coverage since 2018!

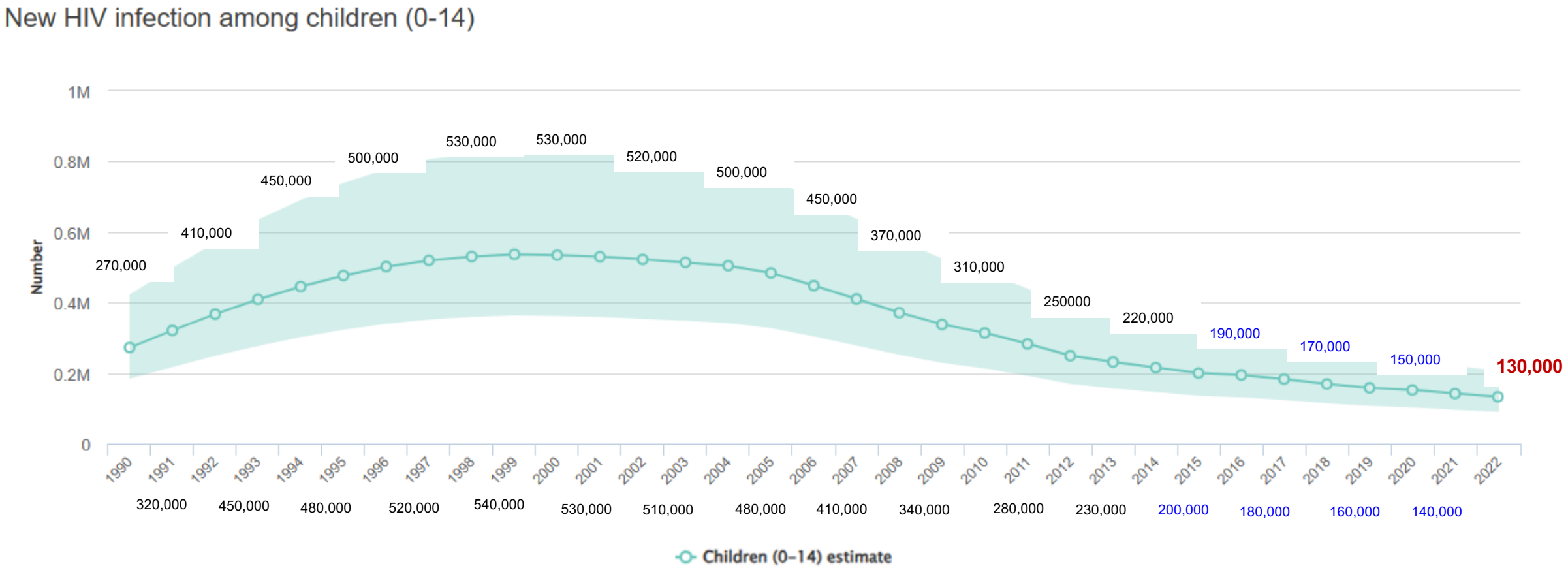
Source: UNAIDS epidemiological estimates 2023: *aidsinfo.unaids.org*

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



Source: UNAIDS epidemiological estimates 2023: *aidsinfo.unaids.org*

New Child Infections Have Only Slightly Decreased



→ **130,000 new pediatric HIV infections** estimated in 2022

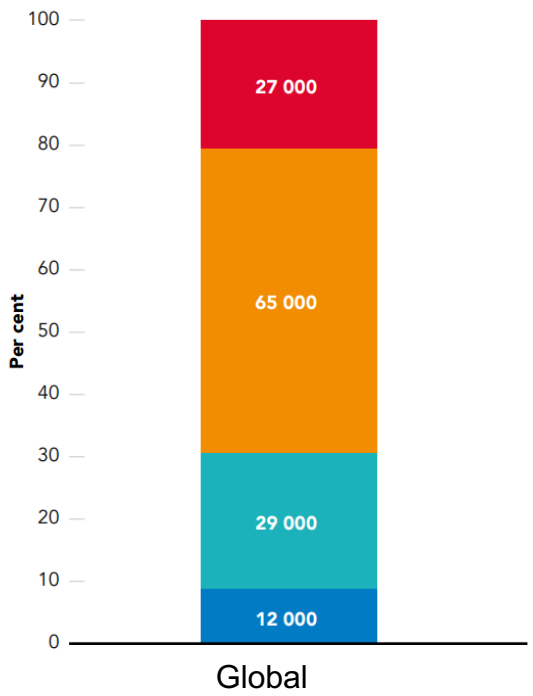
→ Although 58% decline from 2010, since 2015, ↓ new infections is only 10,000/year

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

Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

Causes of New Child Infections Globally 2022 Varies by Region

- Globally 65,000 new child infections – nearly 50% - still occur because **pregnant women are not diagnosed and started on ART**
- Significant regional differences:
  - In West/Central Africa, 67% of new infections are due to lack of maternal ART and only 12% due to incident infection
  - In East/South Africa, only 29% are due to lack of maternal ART and incident infections account for 29% of new vertical infections

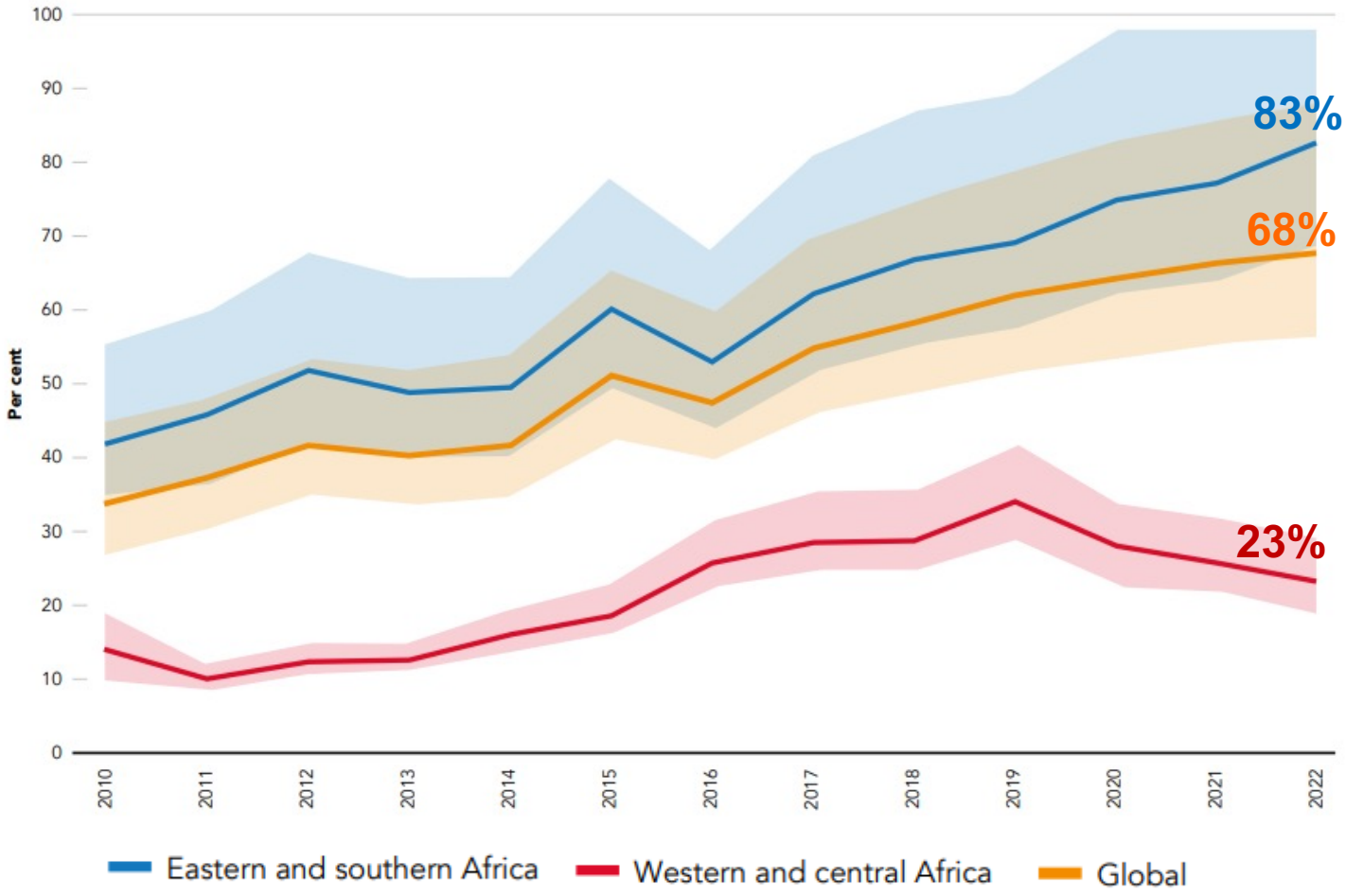


	Global	West/Central Africa	East/South Africa
Mother acquired HIV during pregnancy or breastfeeding	20%	29%	12%
Mother did not receive antiretroviral therapy during pregnancy or breastfeeding	49%	29%	67%
Mother did not continue antiretroviral treatment during pregnancy or breastfeeding	22%	29%	17%
Mother was on antiretroviral treatment but did not achieve viral supression	9%	13%	4%

Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

Early Infant Diagnosis Globally
Increased from 62% in 2021 to 68% in 2022

Figure 2.5 Percentage of HIV-exposed children who were tested for HIV by two months of age, global and selected regions, 2010–2022



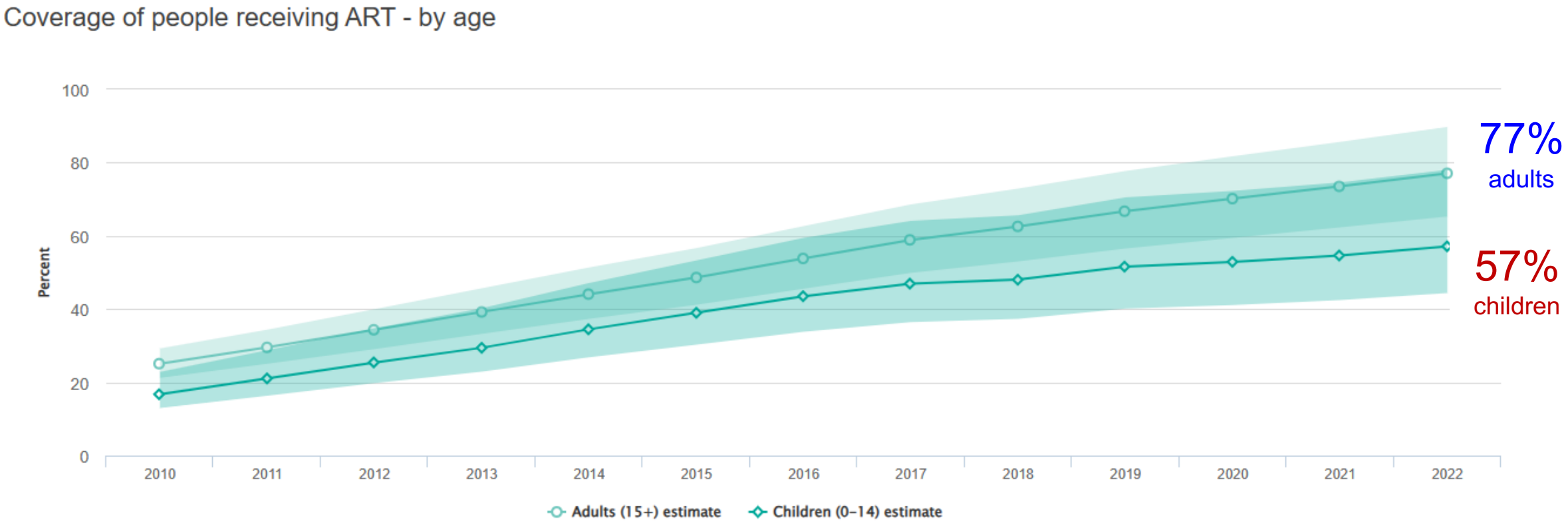
UNICEF 2022 DATA *data.unicef.org/topic/hivaids/paediattric-treatment-and-care/*

→ **Globally, 68% of infants had EID by age 8 weeks in 2022**, a **slight increase** from 62% in 2021

→ **EID in west/central Africa** (generally lower HIV prevalence countries) **decreased** between 2019 and 2022, currently coverage is only **23%**

→ **EID in east/southern Africa** (most high HIV prevalence) **continues to increase** in 2022, currently coverage is **83%**.

ART Coverage in Children Remains Significantly Lower than ART Coverage in Adults

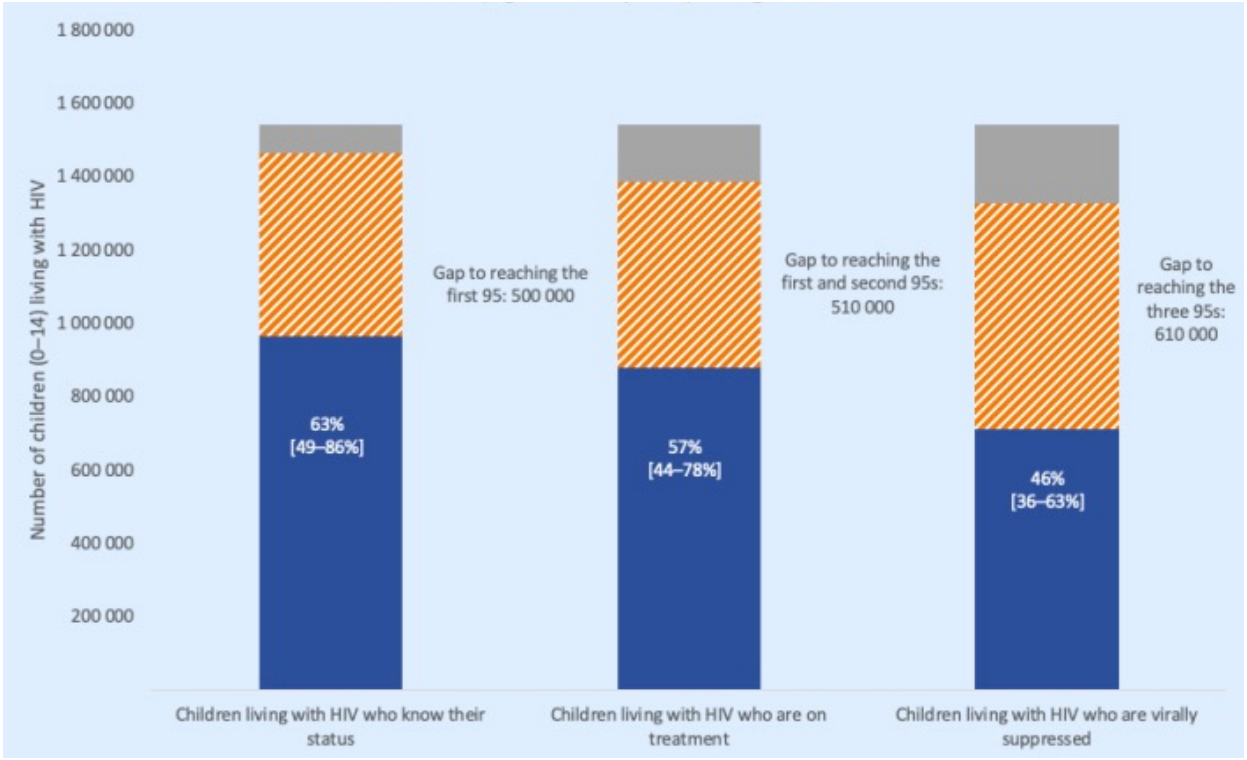


→ 62% of children living with HIV who are not on ART are estimated to be age 5-14 years – so HIV testing outside of EID is critical, such as home or self-testing

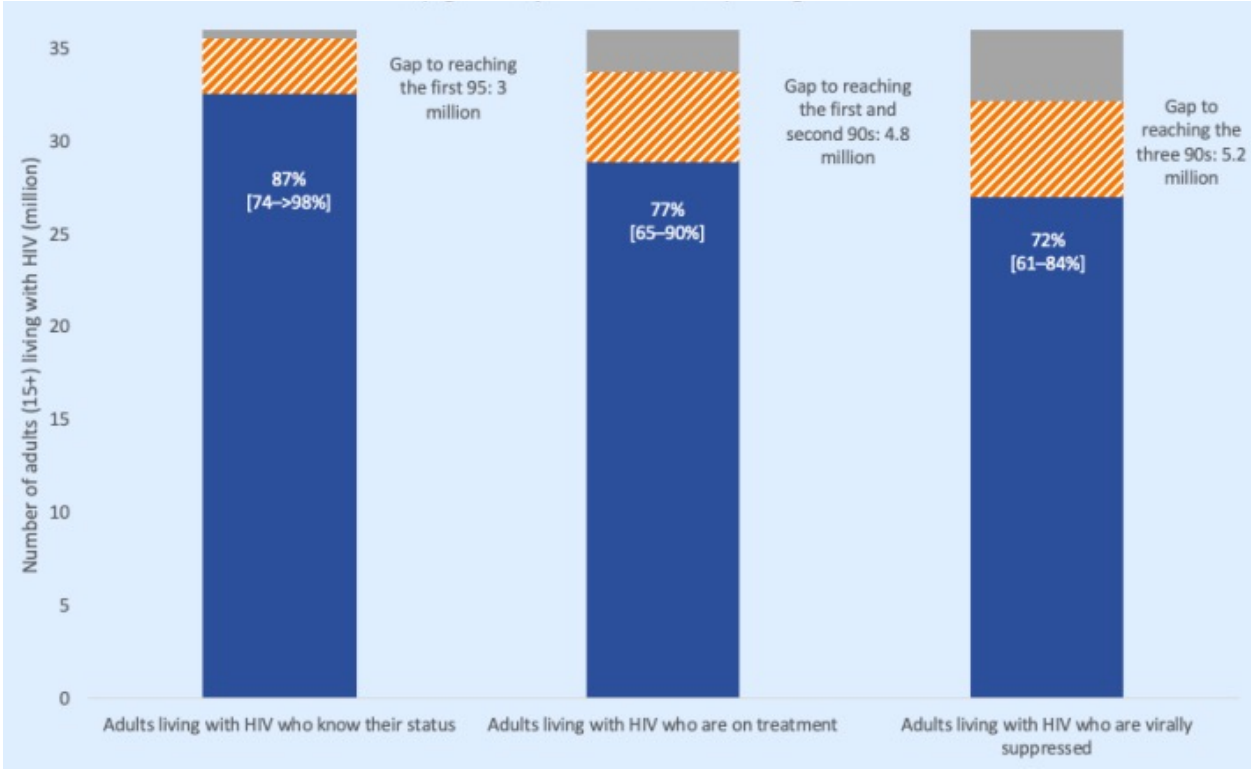
Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

Progress Toward HIV Testing And Treatment Cascade Targets, Stratified by Age

Children (aged 0-14 years) living with HIV



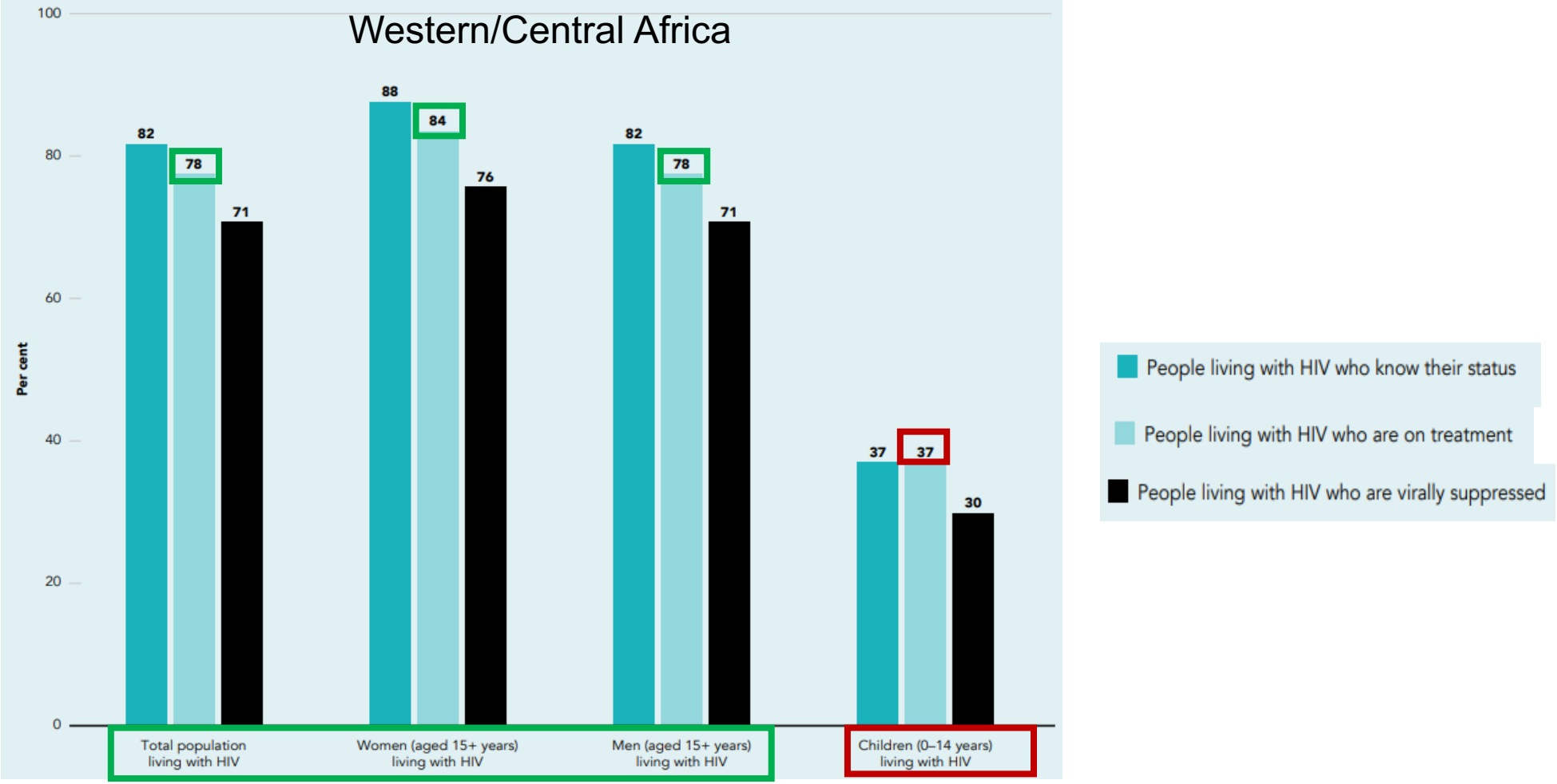
Adults (aged 15 years or older) living with HIV



→Children lag behind adults in knowing HIV status (63% vs 87%), being on ART (57% vs 77%), and viral suppression (46% vs 72%)

Significant Regional Differences: In Western/Central Africa Nearly 2 of Every 3 Children Living with HIV Are **Not** Receiving ART

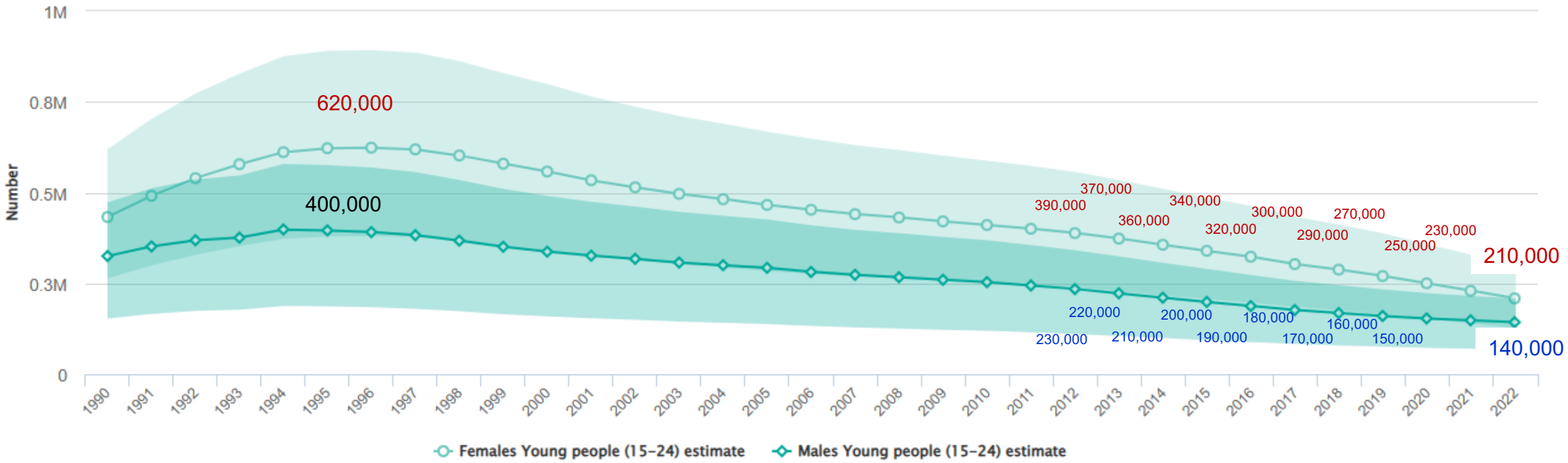
In Contrast, 3 of Every 4 Adults with HIV Are Receiving ART



Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

New HIV Infections Adolescents and Young People Age 15-24 Years

New Infections, Adolescents and Young People 15-24 Years, by Sex



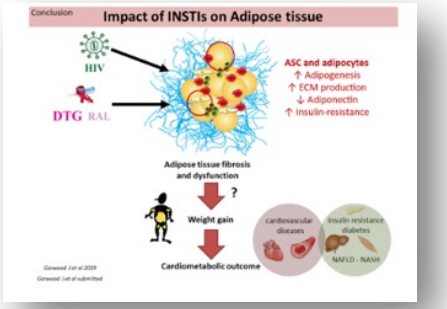
→ Although the annual rate of new infections in adolescents/young people has ↓ ~65% from peak in 1997, the decline has slowed to ~10-20,000/year in last 10 years (2012-2022)

→ Adolescent girls and young women continue to have 1.5-fold higher rate of new infections then adolescent boys and young men

Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

Photo credit: Paul Jeffrey, World Council of Churches

Pediatric Treatment: ARV Drugs, ARV Effects, Viral Efficacy



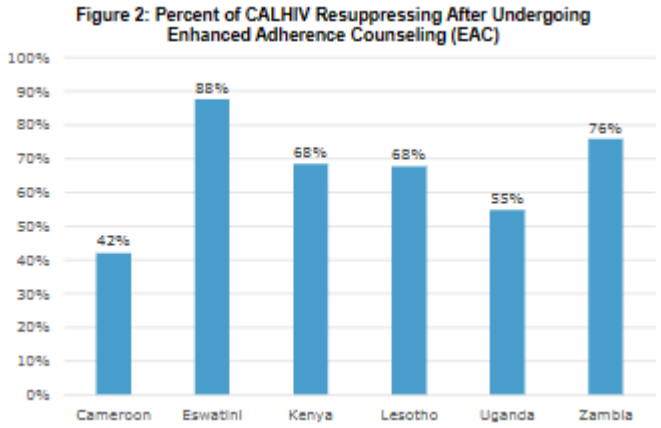
Managing Pediatric/Adolescent Treatment Failure in Seven Sub-Saharan Countries, New Horizon Study

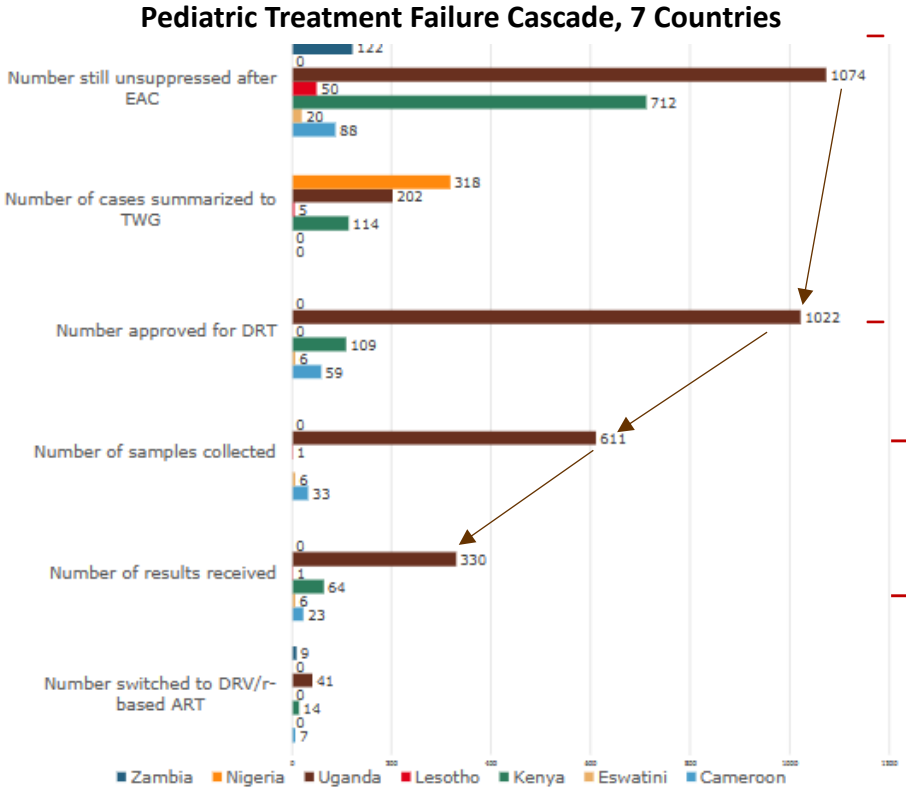
Spencer M et al. AIDS 2023, Brisbane Australia July 2023, Abs. TUPEE09

- New Horizon Collaborative is focused on drug donation of DRV/r and ETV by J&J for treatment of children with viral failure on ART and building country health capacity for management of children with treatment failure
- Data from 7 New Horizon Collaborative countries – Cameroon, Eswatini, Kenya, Lesotho, Nigeria, Uganda and Zambia – on treatment failure management cascade obtained from country programs

– 6,245 children were failing PI or DTG-based regimen: 2,380 in Uganda (38%), 2,259 in Kenya (36%), 575 in Nigeria (10%), 507 in Zambia (9%), 217 in Eswatini (3%), 155 Lesotho (2%), 152 Cameroon (2%)

– Most received enhanced adherence counseling (EAC) and had viral **resuppression**, varied between countries (42-88%).





– Children with continued viremia were referred to technical working groups for review and drug resistance test (DRT) approval; **Uganda** had highest rates of DRT approval but <60% of approved tests were collected, and only 50% received test results.

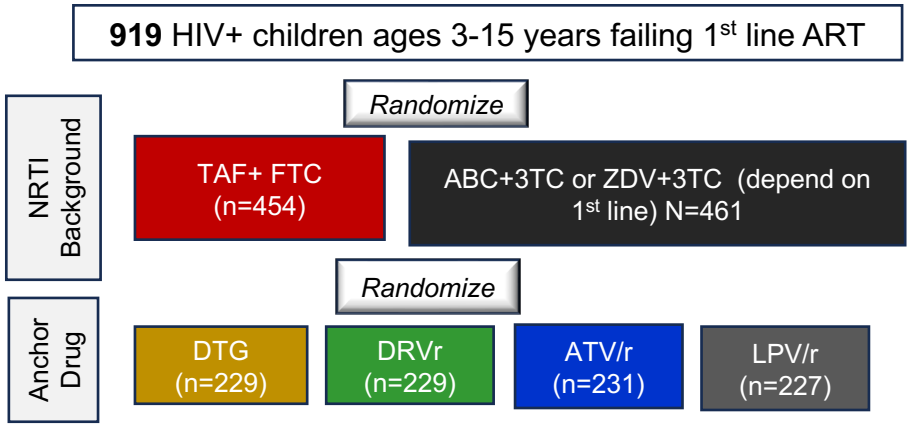
– **Challenges to DRT** included patient fees, lab capacity, and long turnaround time for results.

→EAC is strong tool to achieve resuppression

→Variability in management btn countries & challenges with access DRT observed

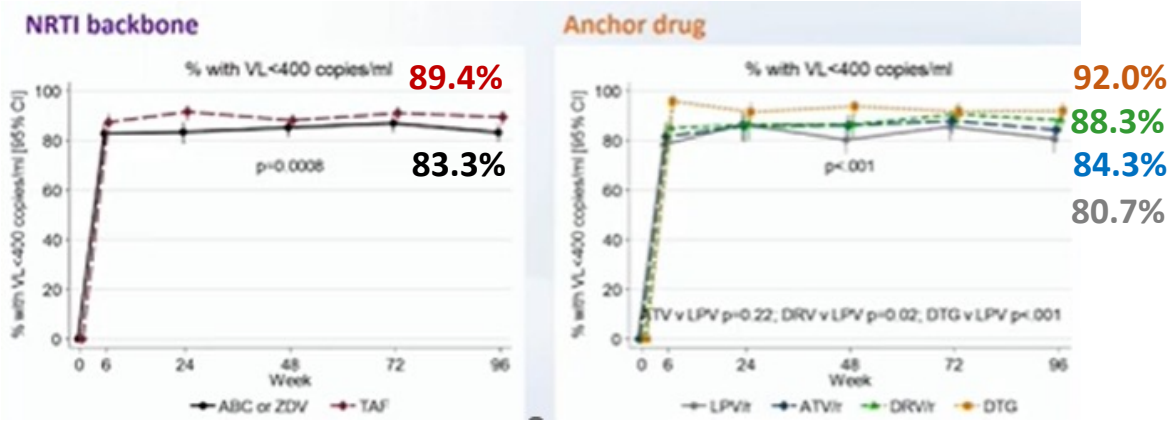
CHAPAS-4 – Second-Line ART Options for Children with HIV in Uganda, Zambia and Zimbabwe: Factorial 4x2 Open-Label Randomized Trial

Bwakura-Dangarembizi M et al. Int Pediatric HIV Workshop, Brisbane Australia July 2023, Abs. 1 & AIDS 2023, Abs. OALBB0503



	n (%) or median (IQR)	
Male	497	(54%)
Age (years)	10	(8, 13)
WHO stage 1/2	778	(85%)
3/4	141	(15%)
CD4 (cells/mm³) (n=906)	669	(413, 971)
VL (copies/ml)	17 573	(5 549, 55 700)
Weight-for-age	-1.6	(-2.4, -0.9)
Height-for-age	-1.6	(-2.3, -0.8)
BMI-for-age	-1.0	(-1.7, -0.4)
1st-line NRTI	ABC 53% ZDV 47%	
1st-line NNRTI	EFV 56% NVP 44%	
Years on 1st-line ART	5.6	(3.3, 7.8)

Virologic Response (VL <400 c/mL), Stratified by Randomization



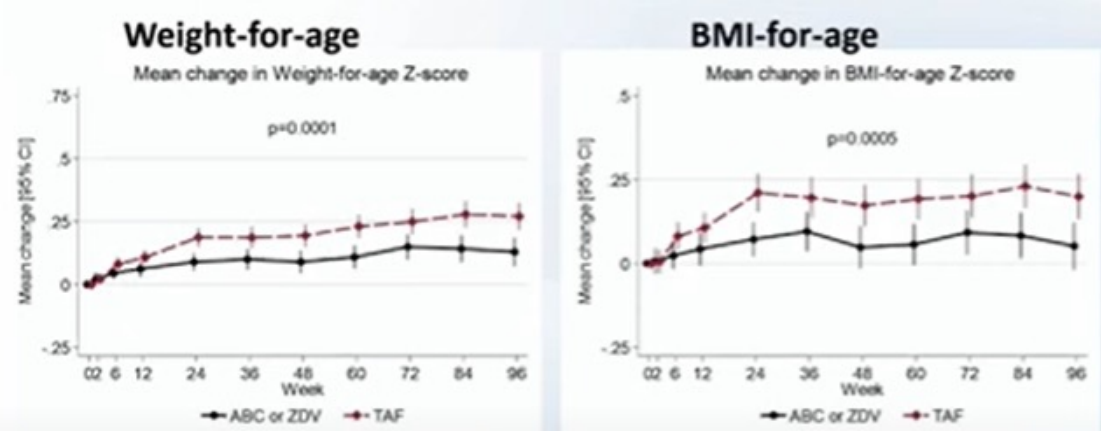
- No difference CD4 response either randomization
- No difference AE for NRTI
- More grade 3/4 (mostly bilirubin) for ATV/r vs LPV/r
- DTG fewer grade 3/4 AE vs LPV/r
- DEXA: Greater ↑ BMD total body with TAF (p=0.04), no difference z score
- Increase total cholesterol and LDL with LPV/r vs ATV/r, DRV/r or DTG

	% Wk 96 VL < 400/ % Difference (95% CI)	P value
TAF vs ABC or ZDV *(**TAF superior**)*	89.4% vs 83.3%/ 6.3% (1.0,10.6)	**0.004**
DTG vs LPV/r or ATV/r *(**DTG superior**)*	92.0% vs 82.5%/ 9.7% (4.8, 14.5)	**<0.0001**
DRV/r vs LPV/r or ATV/r *(**DRV/r trend to superior**)*	88.3% vs 82.5%/ 5.6% (0.3, 11.0)	**0.04**
ATV/r vs LPV/r *(non-inferior)*	84.3% vs 80.7%/ 3.4% (-3.4, 10.2)	0.33

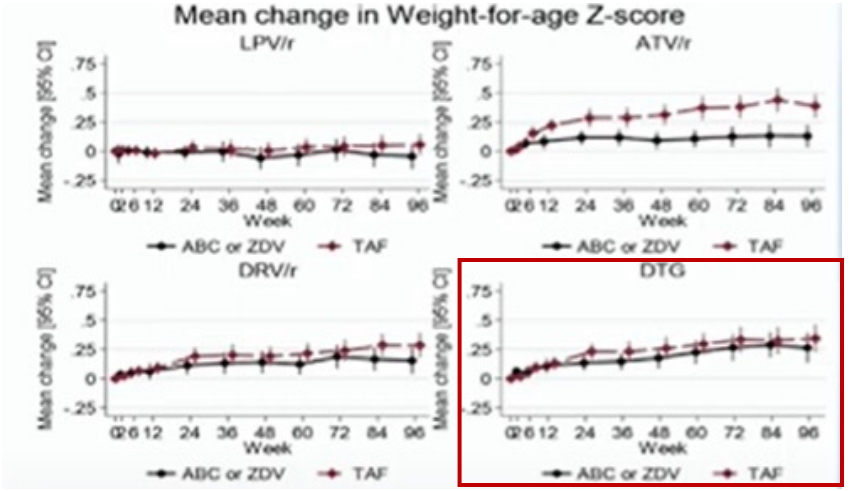
CHAPAS-4 – Second Line Options for Children with HIV in Uganda, Zambia and Zimbabwe: Factorial 4x2 Open-Label Randomized Trial

Bwakura-Dangarembizi M et al. Int Pediatric HIV Workshop, Brisbane Australia July 2023, Abs. 1 & AIDS 2023, Abs. OALBB0503

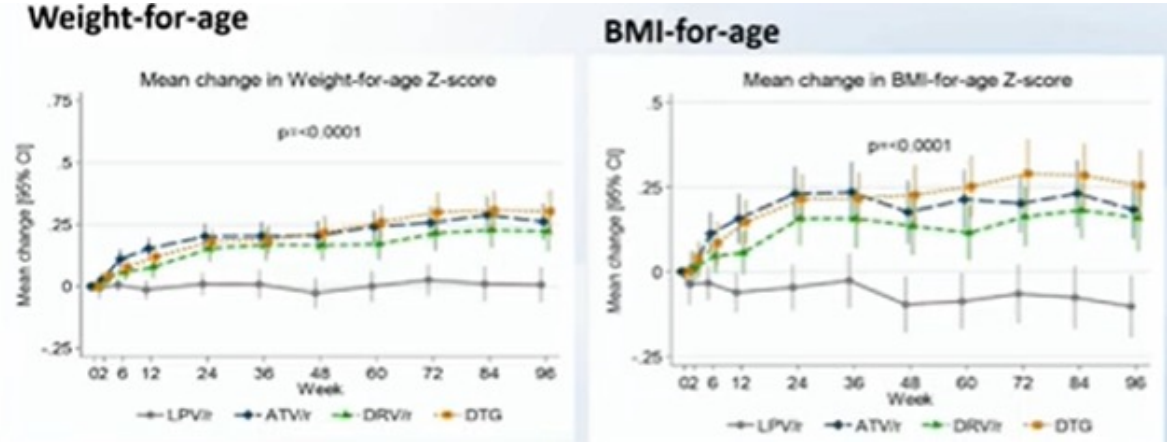
- NRTI: ↑ weight to wk 96: +7.0 kg TAF vs +6.2 kg ABC or ZDV



- Non-significant ↑ weight with DTG/TAF (interaction=0.51)



- Anchor drug: ↑ weight in all arms except LPVr
- Change in weight to wk 96: +5.6 kg LPV/r vs +6.7 kg ATV/r vs +6.7 kg DRV/r vs +7.2 kg DTG



→TAF superior to SOC ABC or ZDV

→DTG superior to SOC 2nd line PI ART

→ATV/r was as good as LPV/r

→DRV/r trend to being superior to other PI regimens

→LPV/r had poorest weight gain and least favorable lipid profiles

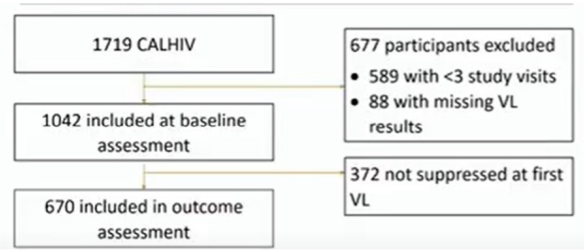
→Suggest need for child-friendly formulation TAF/FTC + DTG, DRV/r or ATV/r for 2nd line ART

Low-Level Viremia (LLV) as a Risk Factor for Viral Failure (VF) in Children and Adolescents with HIV

BIPAI Baylor International Pediatric AIDS Initiative

McKenzie KP et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs. 3

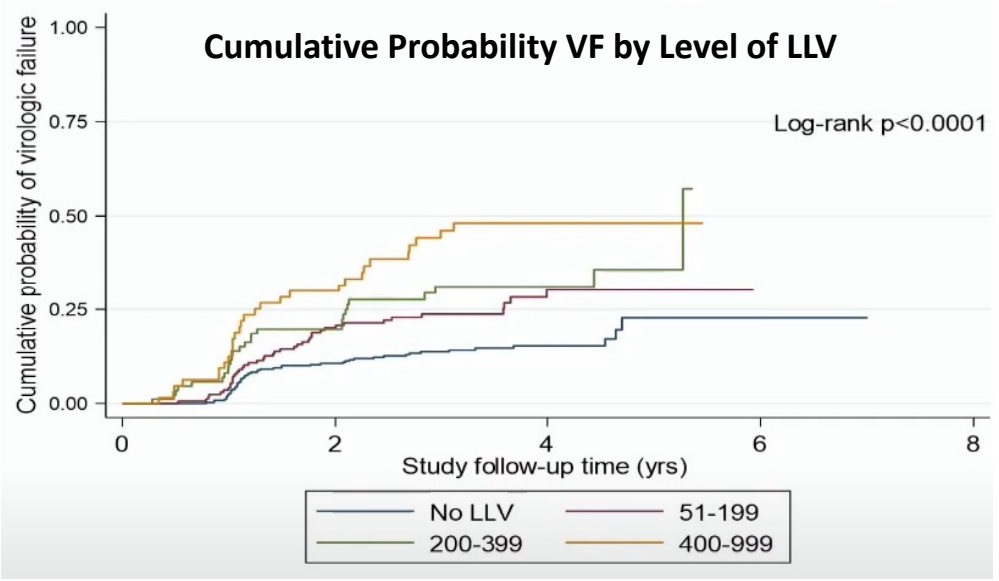
- Chart review, 2 Tanzania BIAPI sites, of 1,042 CALHIV <19 yr on ART for ≥6 mos; FU for those with ≥2 VL after initial undetectable VL (<50)
  - 51% ♀, mean age 10 yr; age ART start 48.1 mo; 66% on DTG, 26.8% PI



- 318 (47.5%) had LLV: 51-199 c/mL:167 (52.5%); 200-399 c/mL: 87 (27.4%); 400-999 c/mL: 64 (20.1%)

Adjusted Hazard Ratio for Factors Associated with VF

		aHR (95% CI)	P value
VL	no LLV	1	
	51-199	1.7 (1.1-2.6)	0.01
	200-399	2.2 (1.4-3.5)	0.001
	400-999	3.3 (2.1-5.4)	<0.0001
Age (yr)	<5 yr	1	
	5-9	0.7 (0.4-1.2)	0.18
	10-14	0.5 (0.3-095)	0.03
	15-18	0.6 (0.3-1.3)	0.22
Nutrition	Normal	1	
	SAM/MMM	6.6 (1.03-42.7)	0.05
CD4	Normal	1	
	Moderate	2.2 (1,2-3.9)	0.008
	Severe	8.3 (1.7-40.0)	0.009



→LLV was associated with ↑ risk VF, with higher LLV levels associated with higher risk

→Age, malnutrition, CD4 count also associated

HIV Drug Resistance (DR) in Adult Clients Experiencing ART Failure After Switch to DTG-Based 1st Line ART in Mozambique

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

Bhatt N et al. AIDS 2023, Brisbane Australia July 2023, Abs. LBEPB16

- Cross-sectional study, 7 clinics Gaza Province, Mozambique Aug 2021-Feb 2022, of DR post-ART failure; genotype conducted on samples from 716 patients (although study in adults, expect similar results children):
  - age ≥18 yr on 1st line ART for ≥12 mos before switch to DTG ART and unsuppressed VL (≥1,000) ≥ 6 mos post-DTG and 2nd unsuppressed VL after completing at least 3 enhanced adherence counseling visits (EAC)
- 216 (30%) with VF; genotyping for 172 (80%), 167 (90%) successful; 130 (78%) of these had pre-DTG VL available.

- Intermediate-high DTG resistance in 35/167 (21%).
- 10/25 (27%) with DTG resistance had resistance to *all 3 drugs* in TLD; if 2-drug resistance, none had combined DTG-TDF resistance.
- Pt with ART failure and DTG resistance **more likely to have unsuppressed (19%) or no (40%)** VL than suppressed (11%) VL prior to DTG switch.

VL Pre-DTG Switch in Pt with ART Failure

	Pre-DTG Unsuppressed	Pre-DTG Suppressed	Pre-DTG No VL
ART failure	88	81	47
Not genotyped	21	18	10
DTG resistance	**13/67 (19%)**	**7/63 (11%)**	**15/37 (41%)**
No DTG resistance	54/67 (81%)	56/63 (89%)	22/37 (60%)

→In pt with **confirmed VF** on DTG, 21% had DTG resistance

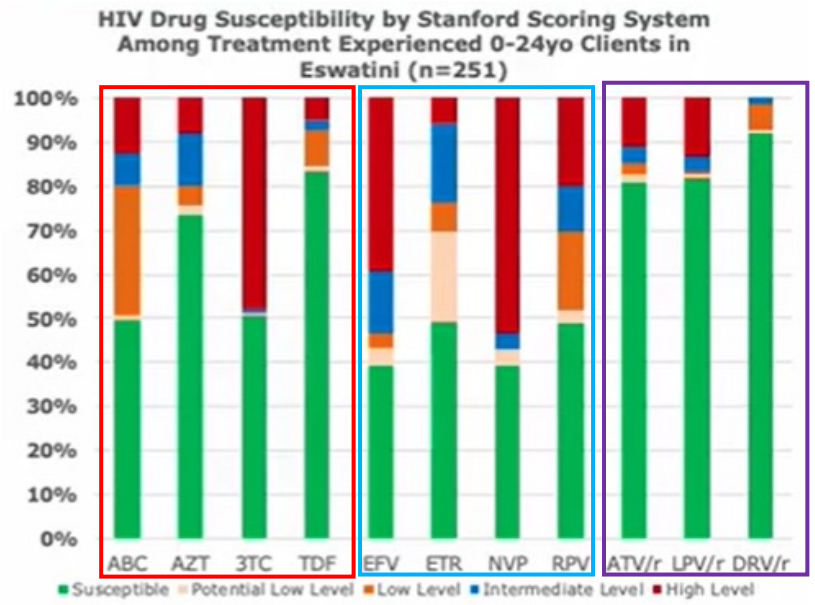
→Pt with **unsuppressed or no VL prior to DTG switch** higher risk of DTG resistance

HIV Drug Resistance Trends Among 251 ART-Experienced Children and Young Adults Ages 0-24 Years with Viral Failure, Eswatini

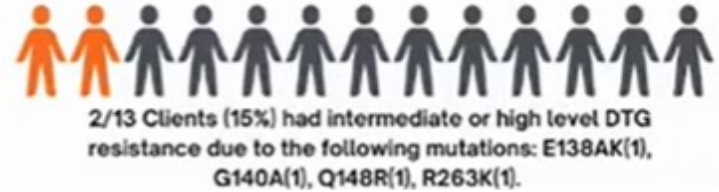
Zyambo KD et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPB0108

- Retrospective review EMR and genotype results (National Reference Lab South Africa, using DBS, performed btn Jan 2014-Jan 2023) from BIPAI-Eswatini from 251 ART-experienced clients aged 0-24 years, with ≥2 detectable VL on PI or DTG-based ART

ART at time viral failure and genotyping



InSTI - DTG



- NRTI: ~50% had high level resistance to 3TC from M184V mutation
- NNRTI: Despite none on NNRTI at time of genotype and many had not ever received, ~50% had high level resistance to NNRTI, ~1/3 had high level resistance to RPV
- PI: ~20% had intermediate-high resistance to PI needing change ARV; DRV resistance less common
- InSTI: Of 13 pt on DTG, 2 (15%) had intermediate-high DTG resistance

→Shows importance of pediatric ARV drug resistance surveillance to inform/optimize future effective ART regimens

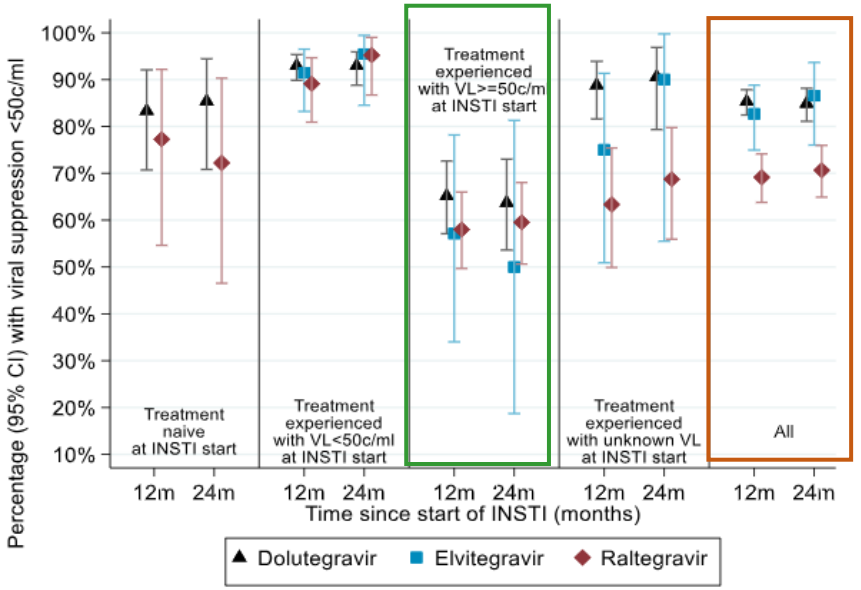
InSTI Use in Children with HIV in EPPICC in Europe/Thailand 2010-2020: Uptake and Viral Response

Scott K et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPB0253

- 7,835 children age <18 yrs in FU from Jan 1, 2010; proportion on InSTI increased from 1% in 2015 to 22% in 2020; highest in Western Europe (50% by 2020 vs ≤11% other regions)

		INSTI			
		DTG (n=1085)	EVG (n=176)	RAL (n=532)	BIC (n=18)
		n (%) or median [IQR]			
Sex, female		577(53)	87(49)	292(55)	12(67)
Age, years		14[11-15]	14[11-16]	11[6-15]	16[15-17]
Age group:	<2 years	2(0)	0(0)	26(5)	0(0)
	2 to <6 years	22(2)	1(1)	97(18)	0(0)
	6 to <12 years	259(24)	48(27)	161(30)	0(0)
	12 to <18 years	802(74)	127(72)	248(47)	18(100)
Ethnicity:	Black	453(43)	51(33)	110(21)	12(71)
	White	187(18)	47(30)	274(53)	1(6)
	Other	63(6)	5(3)	29(6)	0(0)
	Missing	340(33)	53(34)	100(19)	4(24)
Region:	Western Europe	844(78)	172(98)	341(64)	18(100)
	Eastern & Central Europe	192(18)	4(2)	25(5)	0(0)
	Russia	49(5)	0(0)	163(31)	0(0)
	Thailand	0(0)	0(0)	3(1)	0(0)
Perinatal HIV acquisition		961(97)	158(97)	469(96)	14(93)
Calendar year		2018[2016-19]	2017[2016-18]	2016[2012-18]	2020[2019-20]
Tx status:	Naïve	93(9)	6(3)	43(8)	2(11)
	Tx exp. & VL<50	540(50)	110(63)	139(26)	7(39)
	Tx exp. & viraemic (≥50)	244(22)	31(18)	207(39)	4(22)
	Tx exp. & missing VL	208(19)	29(16)	143(27)	5(28)
Years since ART start		9[4-12]	10[6-13]	6[2-12]	9[6-16]
CD4 count (mm³)		710[480-970]	765[545-1000]	661[358-1069]	670[477-781]

- Of the 1,811 children ever receiving InSTI, 1085 (60%) received DTG, 532 RAL (29%), 176 EVG (10%), 18 BIC (1%)
- Median age at InSTI start 13 yr with variability across drug with RAL largest proportion <6 yr
- Median 6-10 yrs on ART when start InSTI
- Proportion ART-experienced and virally suppressed at InSTI start varied from 26% of those on RAL to 50% on DTG and 63% EVG



- Among all those on InSTI at 12 and 24 months, >80% were virally suppressed on DTG and EVG compared to 69-71% on RAL
- Children who were ART-experienced and viremic at InSTI start had lower levels of suppression (50-66%) than those ART-naïve or ART-experienced and virally suppressed at InSTI start

→Overall, 1 in 4 CLHIV were on InSTI, with variation by region

→>80% viral suppression on DTG/EVG, 70% RAL

→**Suppression lower among those ART-experienced and viremic at time InSTI switch**

Caution - DTG Resistance Can Occur in ART-Experienced Children Switched to DTG

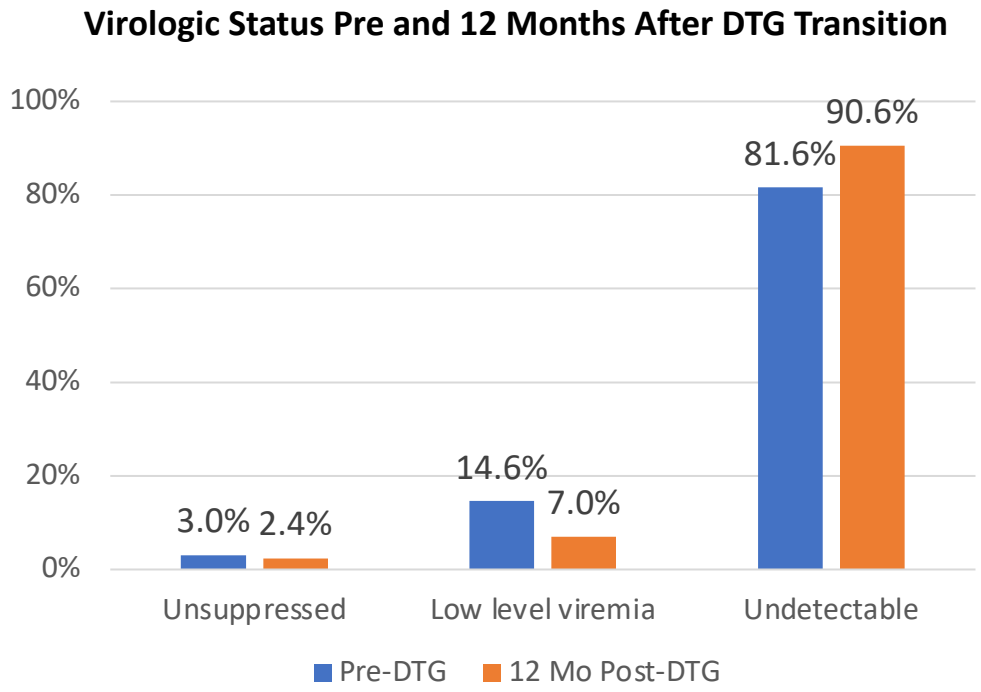
- ODYSSEY trial in children/adolescents showed viral superiority of DTG to standard care (Turkova A et al. *N Engl J Med*. 2021;385:2531–2543)
  - While none of the patients on 1st line DTG ART with VF had DTG resistance, 4/22 (**18%**) patients with VF on 2nd line DTG-based ART had DTG resistance
- IMPAACT P1093 PK study assessed DTG in 142 ART-experienced children/adolescents (Vavro C et al. *Antimicrob Agents Chemother*. 2021;66:e0164521)
  - 8/36 (**22%**) participants with VF on DTG developed resistance to DTG.
  - All with resistance had **viremia at the time of DTG initiation** (range 594 to >1 million c/mL); 6/8 had initial viral response to DTG
- While risk of resistance when switch to DTG in children with VF remains relatively low (~20%), as in Mozambique study in adults, **children who are viremic at the time of DTG switch** may be at greater risk of developing DTG resistance.

Viral Dynamics in Children Switched From PI to DTG ART, Nigeria

Nwanja E et al. AIDS 2023, Brisbane Austraia July 2023, Abs. OAB0105

- Used routine EMR records from 155 health facilities in Akwa Ibom and Cross River states, Nigeria, to evaluate viral response in 2,358 children age ≤9 years transitioned to DTG regimen as of Dec 2021
  - Median age 6 yr (IQR 4-7 yr); 51% ♀
  - At baseline
    - 81.6% (n=1,924) were undetectable (<40)
    - 14.6% (n=345) had low level viremia (41-999)
    - 3.8% (n=89) were unsuppressed (≥1000)
- Of 2,148 (91.1%) children who remained on ART after 12 months, 90.6% were undetectable, 7.0% had low-level viremia, and 2.4% were unsuppressed
- No difference in viral response by sex

→Improved viral response observed in CLHIV post-DTG transition



Weight- and BMI-For-Age in Adolescents Transitioning to DTG

Jesson J et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs.19

- Evaluated weight and BMI-for-age evolution following DTG transition in adolescents with HIV in IeDEA West African Pediatric prospective cohort with at least 1 available weight within 24 mo before and 3 mo after DTG start through Sept 2022

prospective cohort since 2006 in 10 pediatric centers in 7 W Africa countries

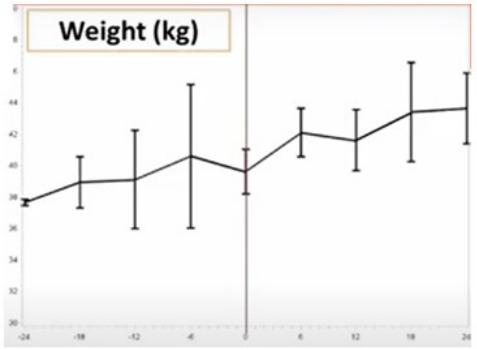
1467 adolescents 10-19 yr initiated or transitioned to DTG

1159 (79%) available weight data 24 mo before/at DTG

178 (15%) with available weight data ≥3 mo after DTG

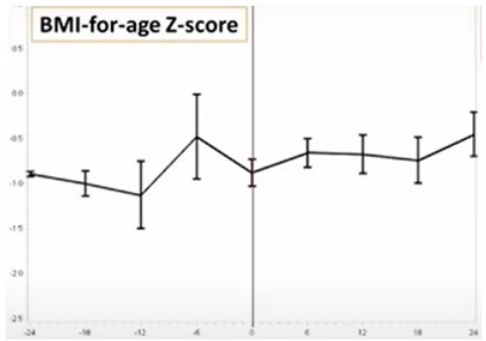
146 (82%) in clinical centers with at least 10 eligible pt

- 58% ♂
- Median age ART start 3.2 yr
- Median duration ART prior to DTG 9.6 yr
- Median age DTG start 13.2 yr



Weigth gain per kg per month (Confidence Interval 95%)	
Over 24 months prior dolutegravir initiation	Over 24 months after dolutegravir initiation
0.147 (0.023 ; 0.271)	0.125 (0.072 ; 0.178)

Months prior or after DTG initiation	-24	-18	-12	-6	0	6	12	18	24
N	53	34	21	32	94	68	76	48	70
Mean weight (kg)	38.1	38.4	39.9	40.9	38.0	42.1	41.9	43.8	43.8



BMI-for-age Z-score gain, SD per month (Confidence Interval 95%)	
Over 24 months prior dolutegravir initiation	Over 24 months after dolutegravir initiation
0.014 (-0.006 ; 0.036)	0.004 (-0.004 ; 0.011)

Months prior or after DTG transition	-24	-18	-12	-6	0	6	12	18	24
N	53	34	21	32	94	68	76	48	70
Mean BAZ	-0.68	-1.43	-0.51	-0.41	-0.82	-0.61	-0.72	-0.69	-0.44

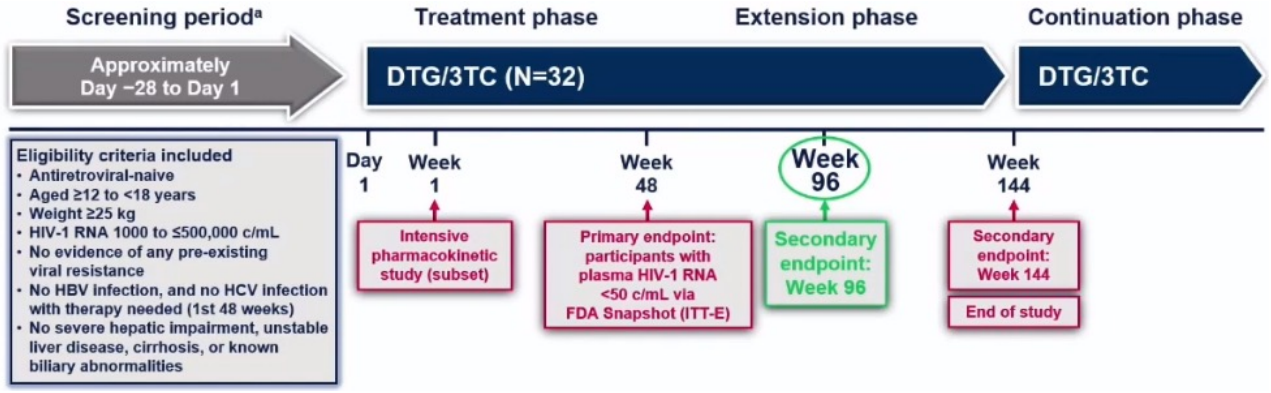
→No excessive weight or BMI gain in after DTG transition in West African adolescents, but sample size small and FU post DTG short

→Will continue to monitor

Efficacy and Safety of DTG/3TC in ART-Naïve Adolescents, DANCE Study Week 96 Results

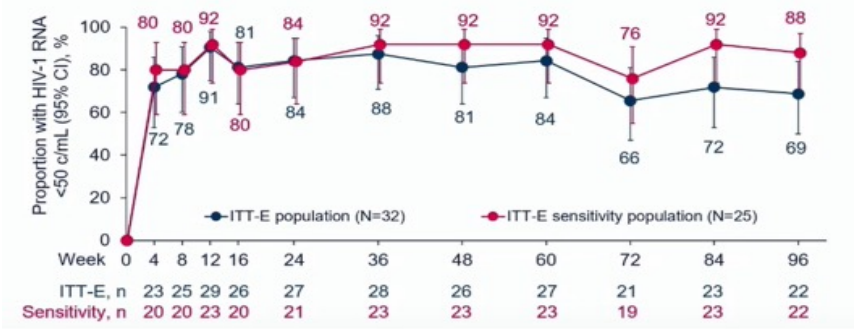
Puthanakit T et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs.18; AIDS 2023 Abs. EPB0250

- Ongoing single-arm study evaluating dual DTG/3TC (50/300mg) in 32 ART naïve adolescents (median age 17 yr, median RNA 4.96, 83% horizontal tx) from 9 centers in Thailand, Kenya and South Africa (1 site closed due to GCP non-compliance so sensitivity analysis excluded these 7 pt)



Viral Response <50 Through Week 96

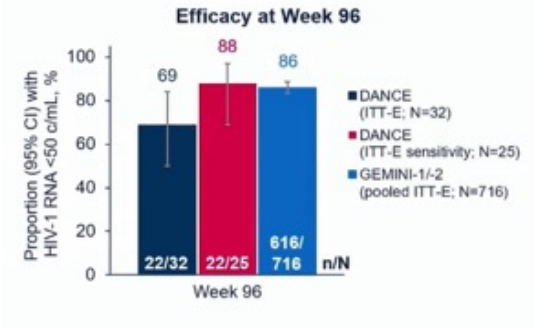
Overall ITT-E and Excluding 1site ITT-E sensitivity analysis



Comparison AE DANCE to Adult GEMINI Study

- Most AE were grade 1 or 2; 1 pt grade 3 TB (achieved and maintained viral suppression)
- 4 SAE, none related to study drug, no deaths

Comparison Virologic DANCE to Adult GEMINI Study



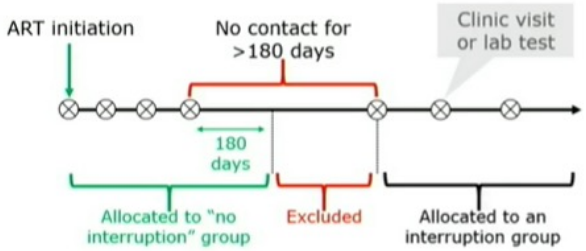
→DTG/3TC well tolerated, high efficacy and no resistance observed (1 VF) in ART-naïve adolescents through week 96; small numbers but support use DTG/3TC in adolescents as 1st line option

→PENTA-21 study is evaluating DTG/3TC in children 2-15 yr

Effect of Unplanned Care Interruption on Mortality In Persons Living with HIV Restarting ART in South Africa

Moolla H et al. AIDS 2023, Brisbane, Australia, Abs. OAC0104

- Survival analysis 63,421 adults starting ART 2004-2019, S Africa IeDEA cohort
  - Median age 33 yr; 68% ♀; 33% started 2012-2015, 44% started 2016-2019
- Care interruption: 180 d no contact, then return care (for 1st interruption: early <6 mo post ART start vs late ≥6 mo)

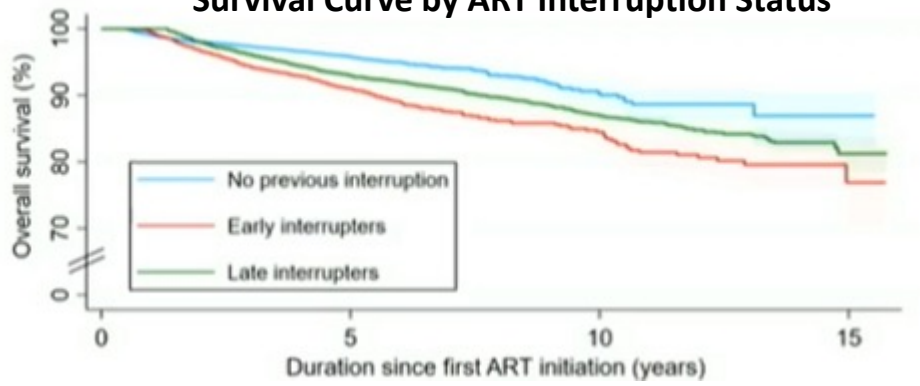


Mortality by ART Interruption Status

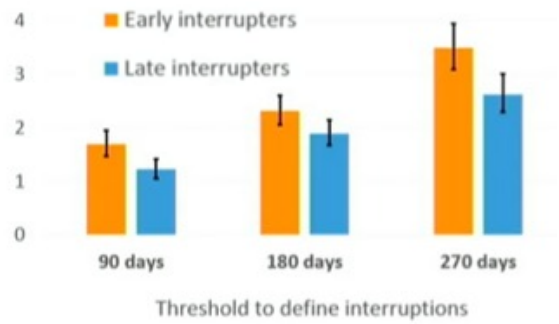
	# ALHIV (63,421)	Person-yrs (188,358)	Deaths (3,585)	Adjusted*HR
No interruption	40,828	132,594	2,587	1
Early interruption	8,845	18,429	427	2.32 (2.1-2.6)
Late interruption	13,748	37,334	571	1.90 (1.7-2.2)

*Adjusted for other significant factors: sex, baseline age and CD4

Survival Curve by ART Interruption Status



HR by Duration ART Interruption, Stratified by Early vs Late Interruption



→Care interruption doubled risk of mortality; even late interruption ↑ mortality

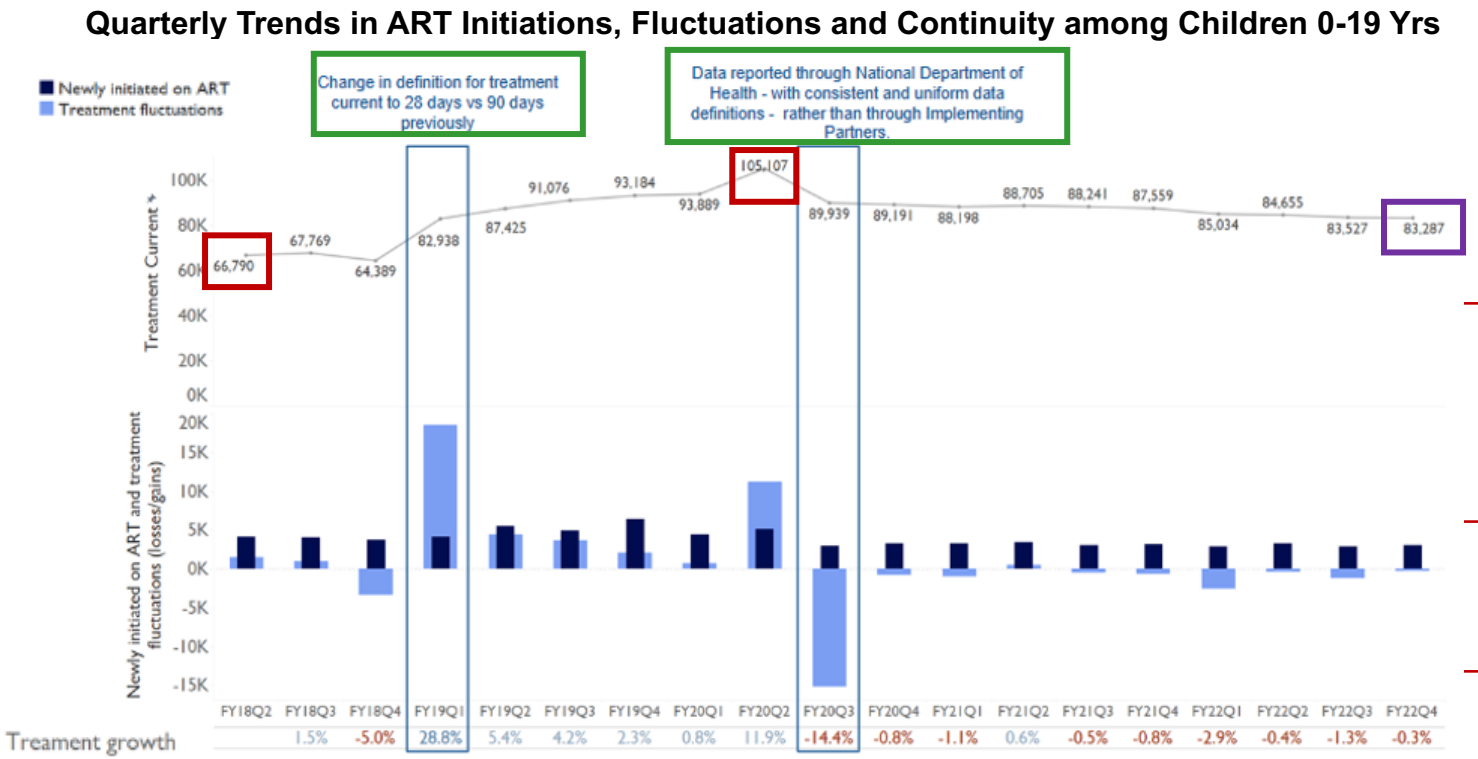
→Mortality ↑ as duration of care interruption increases

→Although in adults, expect might see same in children

Trends in ART Continuity in Children/Adolescents with HIV in 14 Districts in South Africa 2019-2022

Mugisa B et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPC0482

- Retrospective review of pediatric ART data from PEPFAR DATIM system, 5-year period Jan 2018-Sept 2022, 14 districts South Africa



→57% ↑ in ART initiation Mar 2018-Mar 2020 (from 66,780 to peak of 105,107), but 21% ↓ to Sept 2022 (to 83,287), despite 31,223 new ART initiations in same period

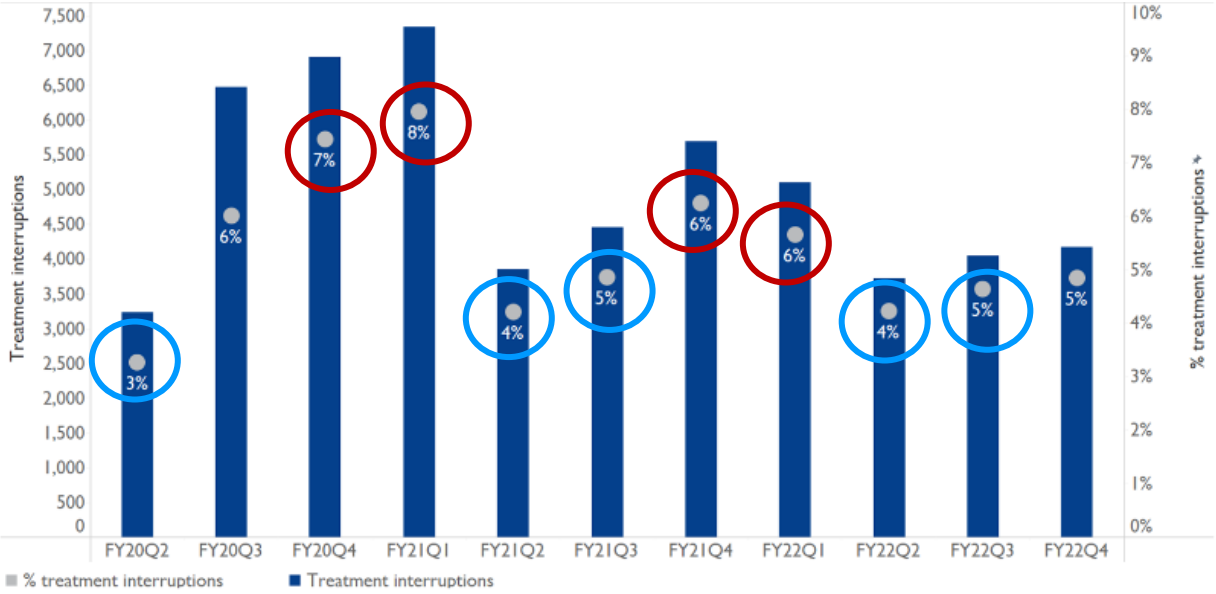
→Mortality accounted for only 0.9-2.4% of loss between Oct 2019-Sept 2022 (1,148 deaths)

→Changing definitions complicate interpretation

→Some programs losses could also account for decrease, with an expected >20% decrease new infections and by aging-out of child/adolescent HIV care

Trends in ART Continuity in Children/Adolescents with HIV in 14 Districts in South Africa 2019-2022

Mugisa B et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPC0482



→Mobility of the population may also play a part - ART interruptions were marked by seasonality, with 6-8% interruption during holiday months around Dec (Q4-Q1), compared to 3-5% during non-holiday months

- Results highlight the complexities in program retention for children with HIV and underscore the need for enhanced program data to improve accountability for continuity of care and need to standardize reporting systems to ensure precision and accuracy

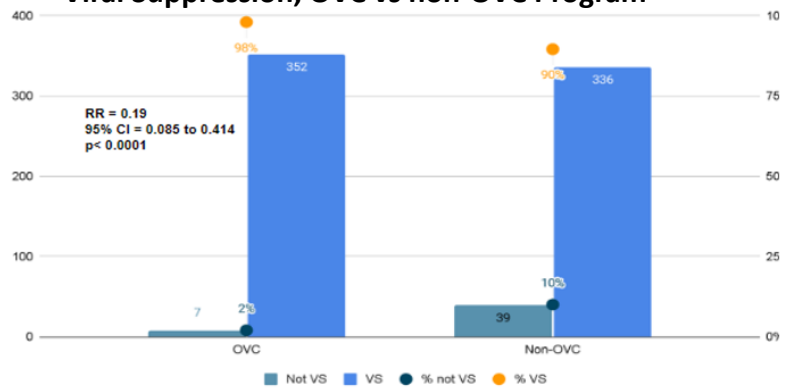
Children/Adolescents with HIV Who Are Active in OVC Program More Likely to Be Virally Suppressed Than Those Not in OVC Program in Ethiopia

Meheretu W et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPC0491

- Routine clinical data collected for 364 OVC and 429 non-OVC children from same clinic/hospital, all receiving ART, mean age 12.3 years; viral suppression endpoint.

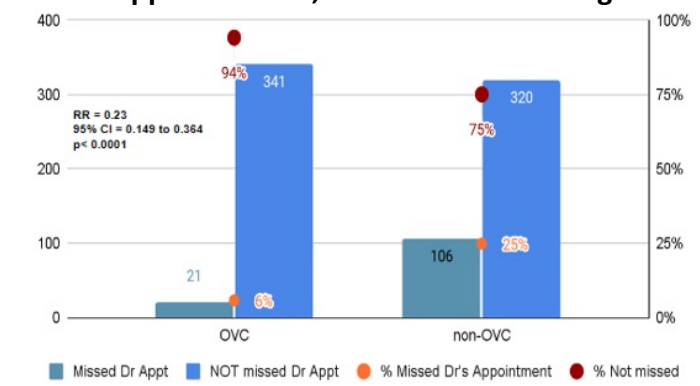
OVC Comprehensive Program focuses on:
- Family-based
- Children aged 0-17 with known risk factor (i.e., HIV+, Caregiver is LHIV, SVAC)
- Case management
- Key Benchmarks

Viral Suppression, OVC vs non-OVC Program



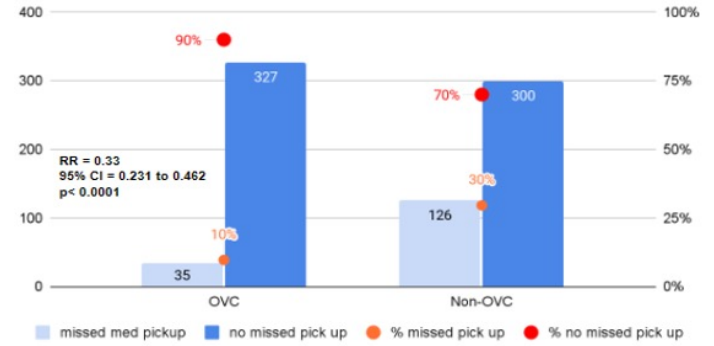
→ OVC program pt likely to have viral suppression than pt not in OVC program (98% vs 90%)

Missed Appt Last 6 Mo, OVC vs non-OVC Program



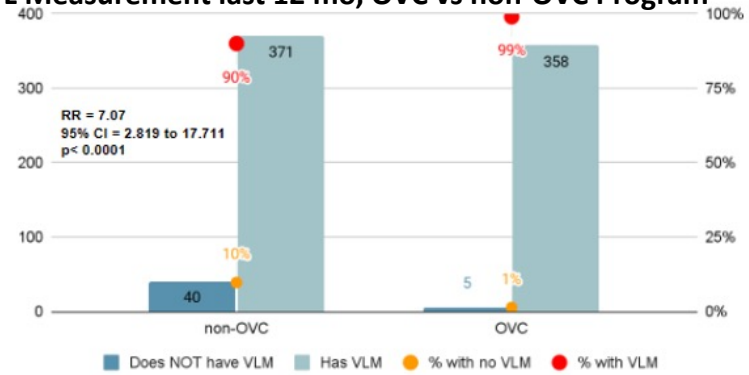
→ OVC program pt 23% ↓ risk of missing clinic appt past 6 mos than pt not in OVC program

Missed On-Time ART Pick-Up, OVC vs non-OVC Program



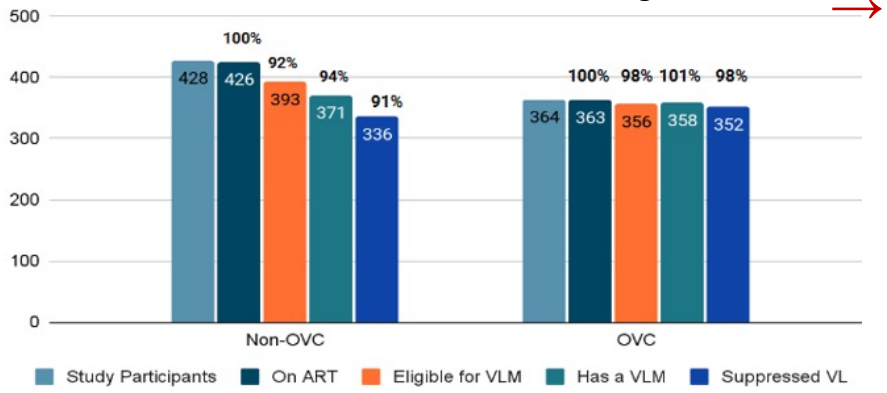
→ OVC program pt 23% ↓ risk of missing ART pick up on time than those not in OVC program

VL Measurement last 12 mo, OVC vs non-OVC Program



→ Non-OVC program pt 7-fold greater risk of not having VL measurement past 12 mo

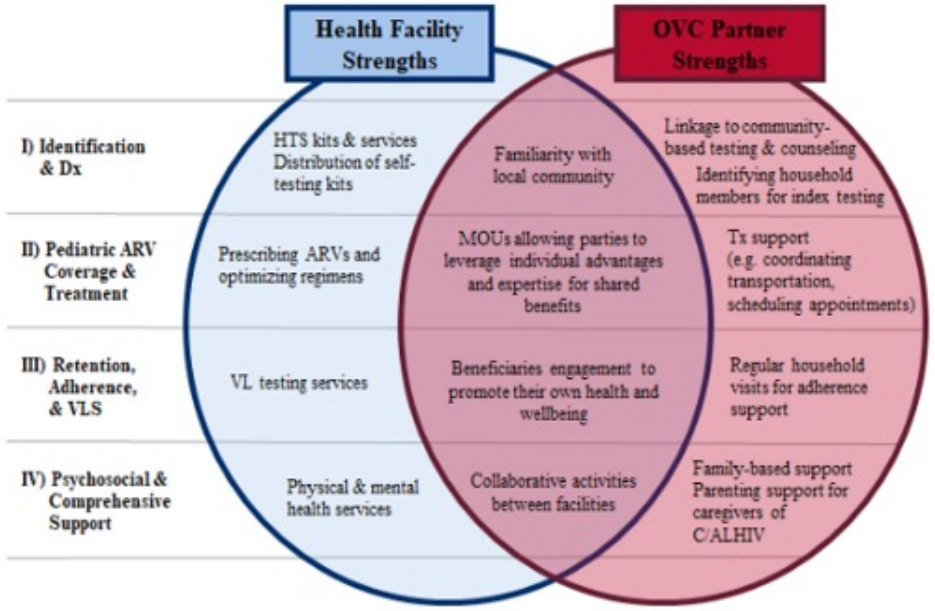
HIV C&T Cascade, OVC vs non-OVC Program



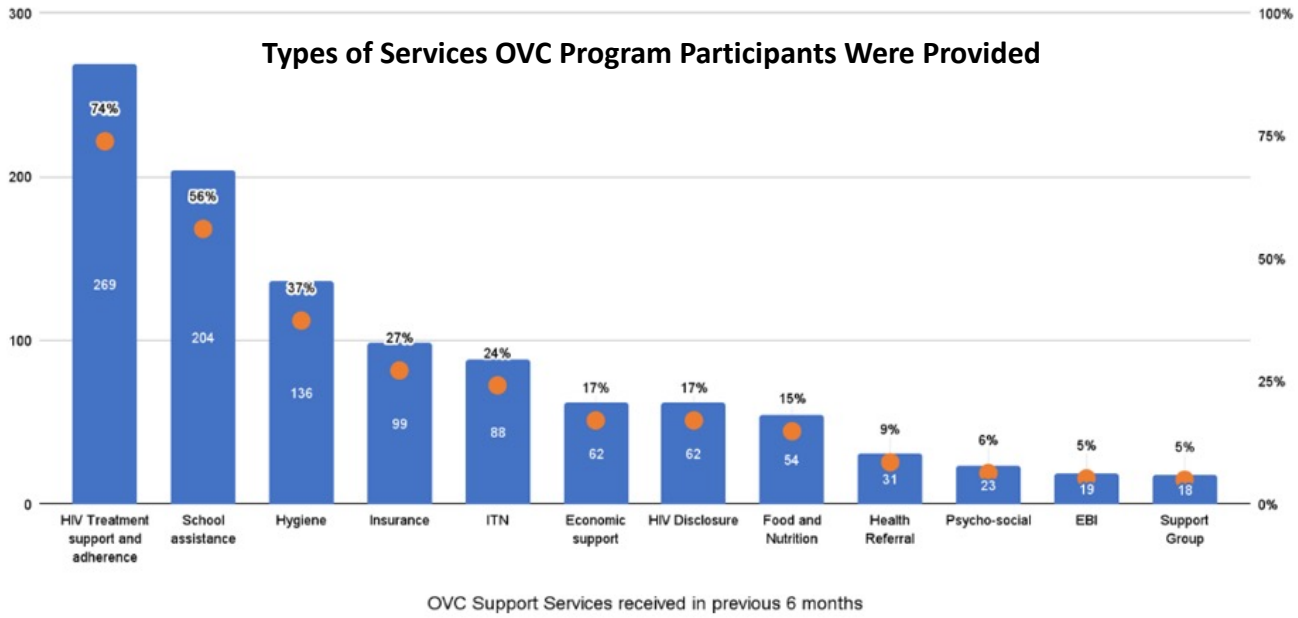
→ Compared to children in clinical care alone, children in both the clinical care and OVC program in Ethiopia had better viral suppression, clinic and ART pick-up adherence and ↑ VL measurement.

Advantages of Being in OVC Program in Ethiopia

Meheretu W et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPC0491



→Additional services provided by OVC program in addition to that provided by clinic program at same site



→ Top 5 services provided: support with HIV treatment and adherence, school assistance (financial, with homework), hygiene/WASH, insurance and ITN

Perinatally-Infected Young Adults Have Poorer Viral Suppression Than Those Who Acquire HIV Later in Life, Zimbabwe

Dzavakwa N et al. AIDS 2023, Brisbane Australia July 2023, Abs. EPB0248

- Population based cross-sectional survey of 17,682 randomly selected young people aged 18-24 years resident in 24 communities in 3 provinces of Zimbabwe; DBS taken for HIV antibodies and VL.
- 435 self-reported they were HIV positive: 196 perinatal infection, 239 behavioral acquisition

Variable		YPHIV (196) n (%)	YBHIV (239) n (%)	p
Sex	Male	46 (23.5)	21 (8.8)	<0.001
	Female	150 (76.5)	218 (91.2)	
Age, years	18-20	99 (50.5)	54 (22.6)	<0.001
	21-24	97 (49.5)	185 (77.4)	
Age of diagnosis, years[1]	Median (IQR)	7 (1-12)	20 (17-21)	0.001
Height for age z-score, (age 18-22)[2]	Mean (SD)	-1.26 (1.05)	-0.72 (1.17)	<0.001
	Stunted	32 (22.1)	11 (9.9)	0.01
Socioeconomic status	Poorest	60 (30.6)	100 (41.8)	0.009
	2	36 (18.4)	50 (20.9)	
	3	34 (17.4)	44 (18.4)	
	4	38 (19.4)	26 (10.9)	
	Least poor	28 (14.3)	19 (8.0)	
Ever had sex[3]	No	75 (38.5)	16 (6.7)	<0.001
	Yes, but not in the past year	27 (13.9)	17 (7.1)	
	1 partner in the past year	79 (40.5)	167 (69.9)	
	>1 partner in the past year	14 (7.2)	39 (16.3)	
Ever been pregnant, including currently (women only)		60 (40.0)	172 (78.9)	<0.001
Condom use (only participants who have had sex in past year)	Use condoms most of the time	52 (55.9)	84 (40.8)	0.015
Marital status	Never married	158 (80.6)	97 (40.6)	<0.001
	Married or living together	27 (13.8)	101 (42.3)	
	Divorced, widowed or separated	11 (5.6)	41 (17.2)	
Previous diagnosis of tuberculosis	Yes	13 (6.6)	4 (1.7)	0.008
Symptoms of common mental health disorder	Shona Symptom Questionnaire ≥8	18 (9.2)	24 (10.0)	0.76

- Overall, 61% female, mean age 20 years
- Youth with behavioral HIV were more likely female, age 21-24 years, diagnosed at older age and lower SES.
- Youth with perinatal HIV were more likely to be stunted, less likely to have had sexual debut, be married or be pregnant, and had higher TB prevalence.
- Youth with perinatal HIV were almost 2-times as likely to have unsuppressed VL

Association Lack of Viral Suppression and Mode HIV Acquisition

	YBHIV	YPHIV	OR (95% CI)	p
Adjusted for sex, age, marital status and education	39.0%	54.2%	1.83 (1.17-2.85)	0.008

→Young people with perinatal HIV have worse health outcomes and greater risk of viral non-suppression.

Characteristics and Causes of HIV-Related In-Patient Pediatric Deaths, Two Tertiary Hospitals Zambia Jan-Dec 2021

Zyambo KD et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPB0108

- Describe characteristics associated with 148 HIV-related in-patient deaths in children occurring in the only 2 children's hospitals in Zambia between Jan-Dec 2021

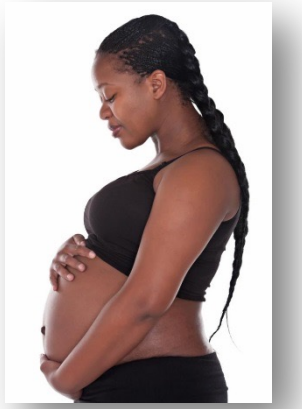
#	VARIABLE		FREQ.	(%)
1.	HIV Status			
	Exposed	Received PMTCT	32	(36.4)
		Not given PMTCT	47	(53.4)
		Unknown	9	(10.2)
			88	(100)
	HIV Positive	ART Started	43	(71.7)
		ART not started	17	(28.3)
			60	(100)
2.	Vaccination Status			
	No vaccines ever received by child		26	(17.6)
	Vaccines not up-to-date for age		4	(2.7)
	Vaccines are up-to-date for age		115	(77.7)
	Missing information		3	(2.0)
			148	(100)
3.	Nutritional Status			
	Severe Acute Malnutrition		67	(45.3)
	Moderate Acute Malnutrition		13	(8.8)
	Normal Nutrition		55	(37.2)
	Missing information		13	(8.8)
			148	(100)
4.	Sex of child			
	Female		74	(50)
	Male		74	(50)
			148	(100)
5.	Feeding Option			
	Breastfed		49	(33.1)
	Mixed Feeding		50	(33.8)
	Never Breastfed		24	(16.2)
	Missing information		25	(16.9)
			148	(100)
	VARIABLE		MEDIAN	(IQR)
6.	Age in Months at Admission		10	(17)
7.	Duration between Admission and Death (in days)		7	(25.5)
8.	Last Bodyweight Measurement Recorded (in kg)		5.35	(4.06)

- Of 148 deaths, 88 (60%) in HIV-exposed infants, **53% not receiving ARV for PMTCT**.
- HIV confirmed in 60 (41%) with **28% never started on ART**
- 53% had moderate-severe malnutrition
- Mixed breastfeeding noted in 34%, no breastfeeding in 16%
- Median age at admission was 10 mos (IQR 17)
- Median duration admission-death was 7 days

#	Primary Diagnosis Associated with Death	Freq.	%
1.	Infectious or Parasitic Diseases	15	10.1
2.	Developmental Anomalies	2	1.4
3.	Blood or blood-forming organ Diseases	1	0.7
4.	Circulatory System Diseases	8	5.4
5.	Digestive System Diseases	6	4.1
6.	Immune System Diseases	1	0.7
7.	Musculo-skeletal or Connective Tissue Diseases	1	0.7
8.	Nervous System Diseases	8	5.4
9.	Respiratory System Diseases	86	58.1
10.	Skin Diseases	2	1.4
11.	Pregnancy, Childbirth or the Puerperium	5	3.4
12.	*	13	8.8

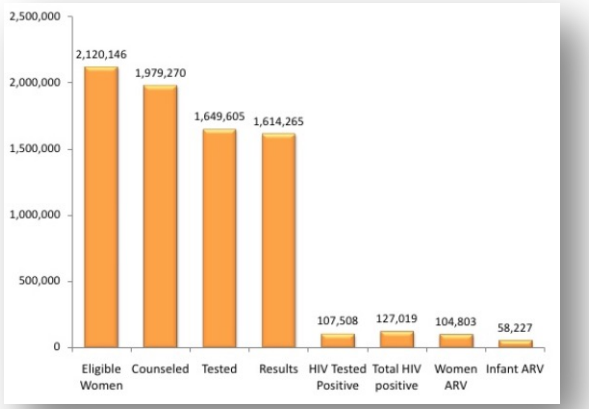
- Primary cause of death was respiratory diseases in 58%, followed by infectious/parasitic disease in10%

→Most HIV in-hospital related deaths occurred in **children age <24 mos and almost 50% had not received either ART or PMTCT**. Most deaths due to **respiratory diseases**.





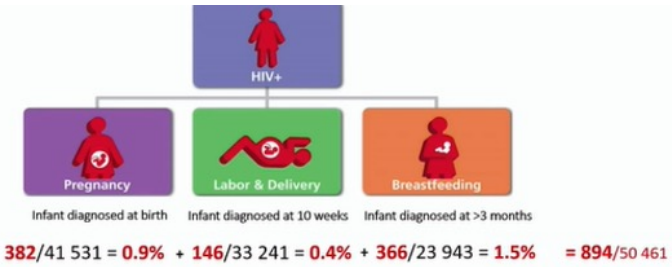
PMTCT Cascade



Factors Associated with Breast Milk Transmission in ART Era

Anderson K et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs. 11

- Retrospective study of 50,461 infants of 48,166 mothers in Western Cape born May 2018-Aug 2021 (3-yr cohort), FU to Aug 2022 (15-51 mos)
  - ART: 51% before and 27% during pregnancy (83% NNRTI, 11% InSTI, 5% PI), 6% no ART
  - At delivery, 78% mothers VL <1000, 62% CD4 >350
  - MTCT 1.8% (n=894): 0.9% IU, 0.4% IP, 1.5% BF (dx age >3 mos)



- Evaluated risk factors for BF MTCT in mother known HIV+ at delivery and infant dx age >3 mos:
  - Younger maternal age (1.5 ↑ risk if 20-<30, 2.2 ↑ risk if <20 vs ≥30 years)
  - Higher parity (1.6 ↑ risk if parity ≥3)
  - Inconsistent ART during pregnancy ↑ risk
  - Lower CD4 ↑ risk
  - **Higher VL ↑ risk**

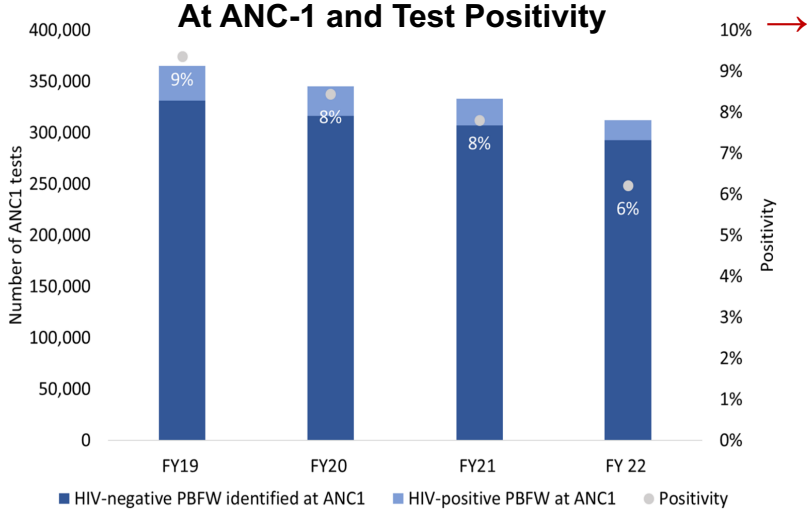
Timing ART	• Before pregnancy, no gaps • During pregnancy >8 wk prior delivery, no gaps • **Before pregnancy, +gaps** • **During pregnancy >8 wk prior delivery, +gaps** • **Start/restart pregnancy <8 wk before delivery** • **Restart pregnancy >8 wk prior delivery, +- gaps** • **No ART recorded**	1 1.6 (0.8-3.6) **2.3 (1.2-4.5)** **4.5 (2.4-9.5)** **6.0 (3.0-12.1)** **7.2 (1.9-13.2)** **7.0 (1.6-13.8)**
Most recent CD4 (last 12 mos)	>500 350-499 **200-349** **<200** **Unknown**	1 1.6 (0.7-36) **3.2 (1.6-6.4)** **5.2 (2.6-10.1)** **2.8 (1.5-5.2)**
Most recent VL (last 6 mos)	<100 100-999 **1000-9999** **>10,000** **Unknown**	1 1.5 (0.5-4.3) **4.7 (2.5-8.8)** **23.1 (12.2-43.9)** **5.5 (1.4-8.8)**

Maternal HIV Re-Testing Uptake Across 15 Districts South Africa

Mabasa H et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs 39

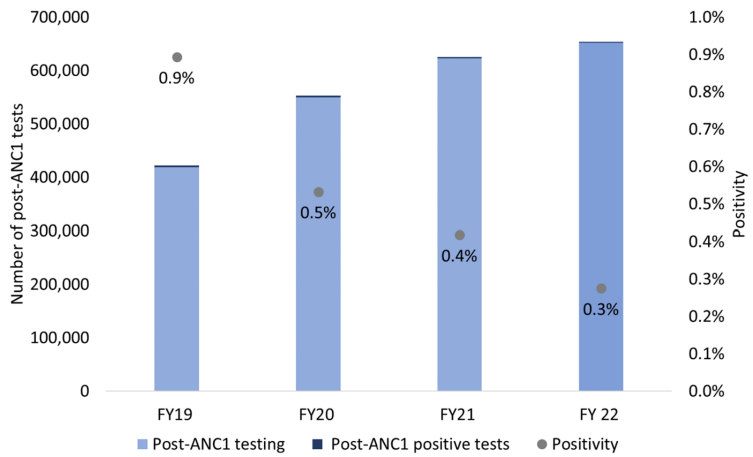
- Evaluated data reported for ANC1 and post-ANC1 HIV testing in PEFPAR MERS from FY19 (10/18)- FY 22 (9/22) in 15 USAID-supported districts

Annual # Pregnant Women Receiving HIV testing At ANC-1 and Test Positivity



→ Despite ↓ in ANC1 testing volume/HIV+ (356,257 tested/9%+ to 311,946/6%+) FY19 to FY22, ANC1 testing coverage remained ≥98% & those already on ART at ANC1 ↑ from 62% to 73%

Annual # Pregnant Women Receiving HIV testing At Post-ANC-1 and Test Positivity



→ Post-ANC1 testing ↑ FY19 to FY22 by 56% from 418,759 to 651,823; positivity ↓ from 0.9% to 0.3%, and positive tests↓ from 3741 to 1793

Annual Post-ANC1 Coverage and ANC1/Post-ANC1 Ratio Pregnant and BF Women

	FY19	FY20	FY21	FY 22
Proxy Post-ANC1 testing coverage*	126%	174%	203%	223%
Ratio of ANC1 : Post-ANC1 tests**	1 : 1.1	1 : 1.6	1 : 1.9	1 : 2.1
* Proxy Post-ANC1 testing coverage = Post-ANC1 testing / HIV-negative PBFW at ANC1 x 100%				
** Ratio of ANC1 tests to Post-ANC1 tests = Post-ANC1 testing / HIV-negative PBFW at ANC1				

→ Progress in post-ANC1 testing, but need to closely monitor retesting in BF period

→ ANC1/post-ANC1 testing ratio ↑ from 1:1.1 to 1:2.1, but incomplete adherence BF period (repeated BF testing should result in higher ratio for post-ANC1 tests)

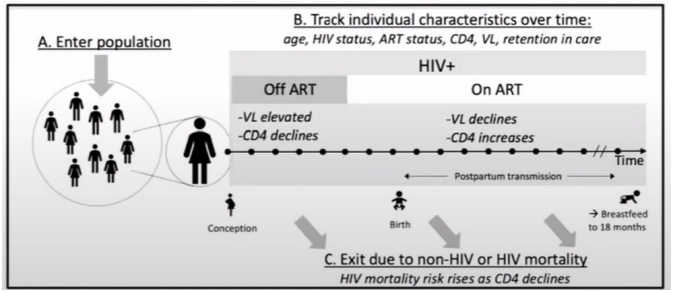
→ Infant HIV+ at 2 mos stable at 0.6%; HIV+ at 12 mo slight ↑ HIV+ from 0.8% FY19 to 0.9% FY22

Modeling the Impact VL Testing and Mentor Mothers on MTCT in High HIV Prevalence Setting

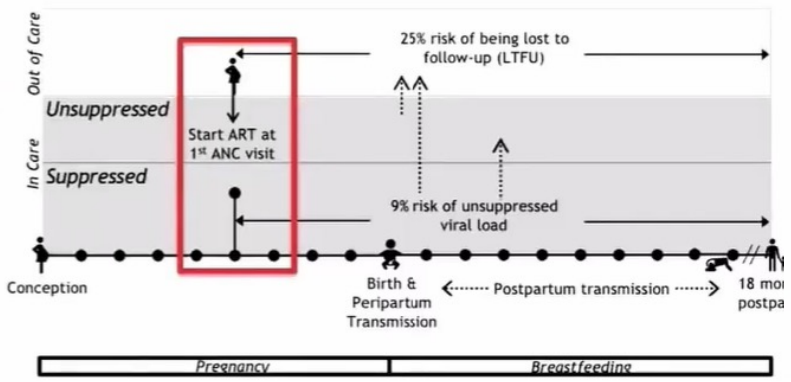
Duarte H et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs.12

- Microsimulation model to estimate impact of VL testing and MM on MTCT in high HIV prevalence setting; describes hypothetical cohort women with recent HIV starting ART in pregnancy through pregnancy/BF and risk MTCT

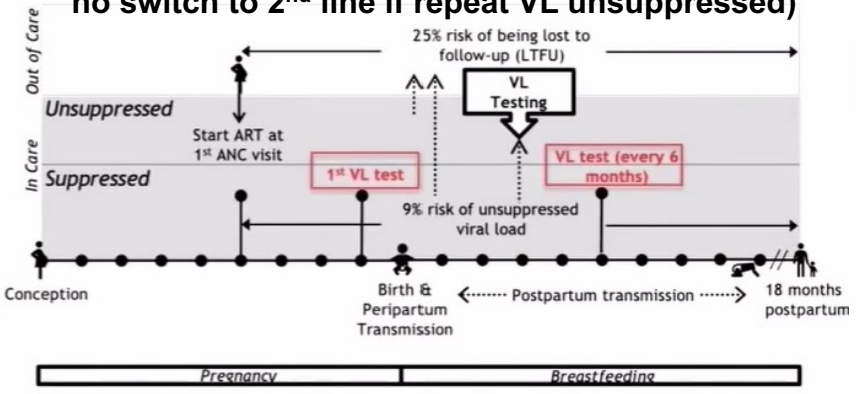
Microsimulation Model



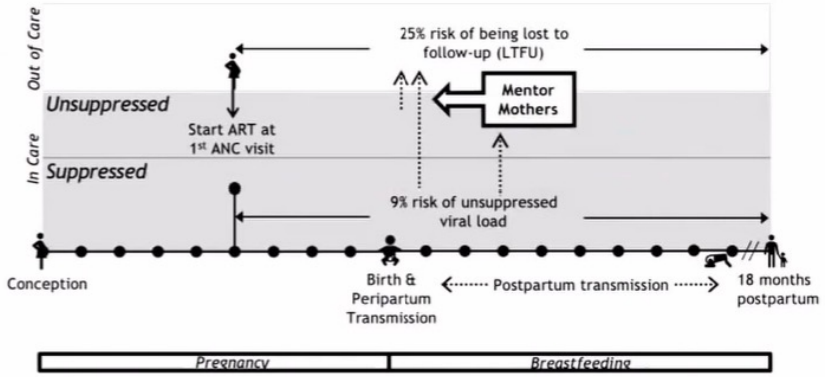
No VL Testing or MM
(Assume: DTG ART start 5 mo GA, Risk VF 9%, risk LTFU 25%)



VL Testing (50 or 100% adherence guidelines)
(Assume: VL 3 mo after ART start then q6 mo during BF (Kenya); 50% resuppress counseling, no switch to 2nd line if repeat VL unsuppressed)



MM
(Assume MM program ↓ LTFU from 25% to 10%)



- Evaluated 6 strategies, including combination MM/VL testing

1. NT
2. VL-50%
3. VL-100%
4. MM
5. MM/VL-50%
6. MM/VL-100%

Modeling the Impact VL Testing and Mentor Mothers on MTCT in High HIV Prevalence Setting

Duarte H et al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs.12

Scenario	Births	%VS at Delivery	%VS at 9 months postpartum	%Infants with HIV acquisition at 18 months postpartum	Relative Reduction in infants with HIV acquisition
NT	94,496	95%	82%	10.35%	NA
VL-50%	94,496	95%	82%	10.34%	0.1%
VL-100%	94,496	95%	83%	10.30%	0.5%
MM	94,495	97%	90%	9.14%	11.7%
MM/VL-50%	94,495	97%	90%	9.12%	11.9%
MM/VL-100%	94,495	97%	91%	9.09%	12.2%

→Limited impact of VL testing (0.1-0.5% reduction)

→MM has greater impact than VL testing (11.7% reduction)

→Concurrent implementation of both has greatest impact (11.9-12.2% reduction)

- Why limited impact of VL testing – VL testing can only improve outcomes for mothers who are:
  - Retained in care
  - Have unsuppressed VL – only small proportion of women (9%) have unsuppressed VL – if rate VF is higher, impact↑
- Why greater impact of MM relative to VL testing
  - MM programs intervene further upstream in the cascade of care, preventing LTFU
  - Have the potential to impact a larger proportion of mothers than VL testing
- Greatest impact is with combination MM and VL testing
- Note: did not account for potential enhanced infant prophylaxis if mom viremic (but only 9% viremic in pregnancy)

Factors Associated with Acceptance Partner HIV Self-Testing and PrEP in Pregnant High-Risk Women Kenya

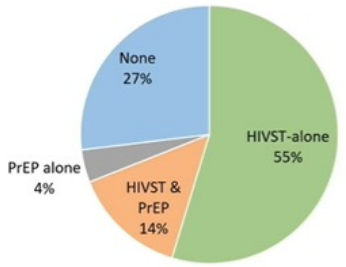
Ngumbau N et al. AIDS 2023, Brisbane Australia July 2023, Abs. OAC0403

- To evaluate acceptance of PrEP, HIVST or combined PrEP/HIVST, used data from PRIMA study: 911 high-risk women (score >6 on assessment tool) offered HIVST for male partner with unknown HIV status, and PrEP

Baseline characteristics of high HIV risk pregnant women

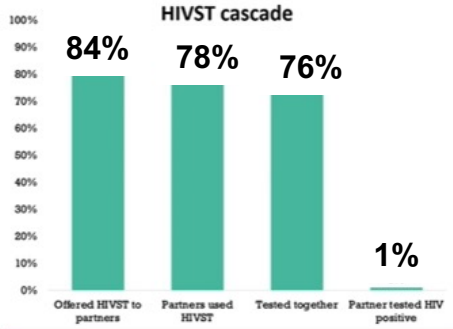
Demographics	N (%) or Median (IQR)
Age	24 (21 – 30)
Married	790 (87%)
Polygamous marriage	100 (13%)
High social support	547 (62%)
High HIV risk perception	395 (44%)
History of IPV	117 (13%)
Moderate-to-severe depression	138 (17%)
Partner characteristics	
Partner age (years)	30 (26-36)
Partner HIV status	
Negative	43 (5%)
Unknown	867 (95%)
Tested for HIV together	145 (18%)

Distribution of HIVST & PrEP acceptance



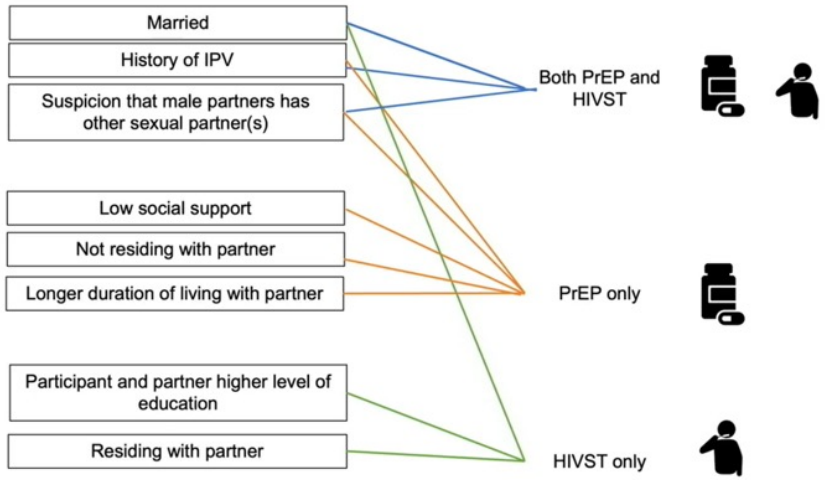
- HIVST was generally more acceptable than PrEP

HIVST cascade



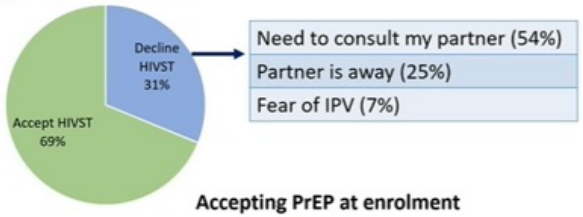
- Increased male partner's HIV status awareness from 5% to 82%
- Increased couple testing from 18% to 76%

Covariates → Intervention(s) Accepted

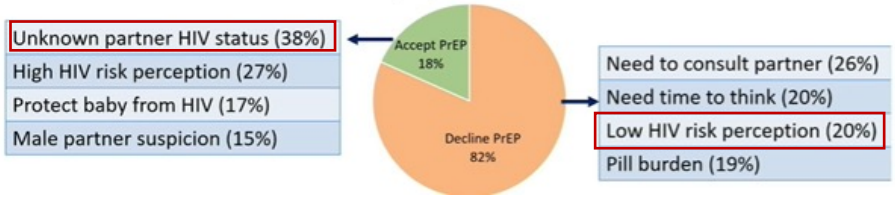


Reasons for accepting or declining HIVST & PrEP

Accepting HIVST at enrolment



Accepting PrEP at enrolment



→Awareness of ♂ partner HIV status guides ♀ HIV prevention decisions

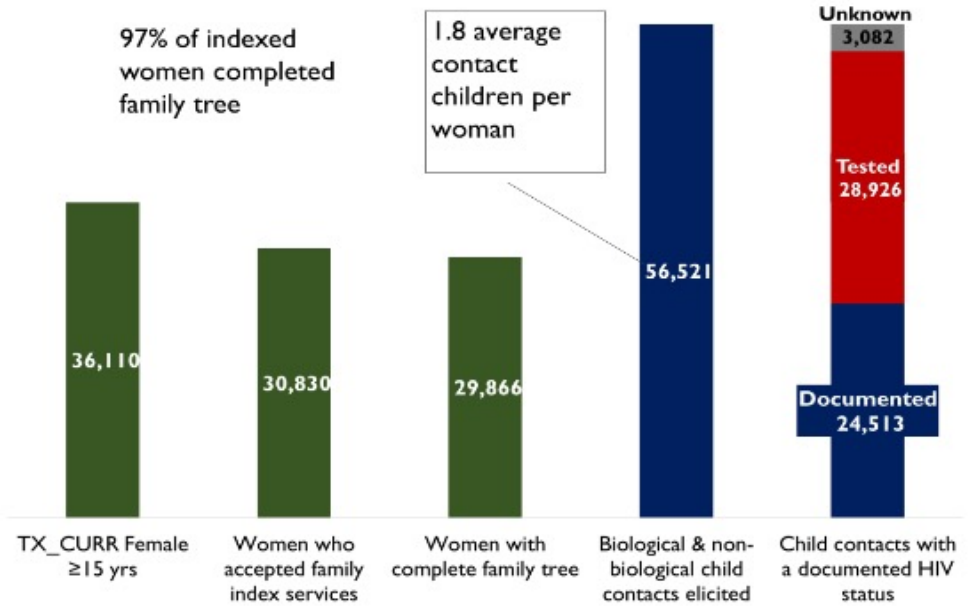
→Low HIV risk perception may hinder acceptance of HIVST and PrEP

→Women unable or unwilling to negotiate HIVST prefer PrEP alone

"Know Your Child's Status" (KYCS) Model to Find and Link Undiagnosed Children with HIV, Zambia

Ndhlovu AP et al. AIDS 2023, Brisbane Australia July 2023, Abs. EPC0474

- In 2022, USAID DISCOVER rolled out KYCS to all 173 project-supported sites
  - Obtain line-list of all women with HIV on ART from each facility to pull biologic and non-biologic children (contacts) aged ≤19 years
  - Project provided resources (registers, test kits, transport) to facilitate HIV testing



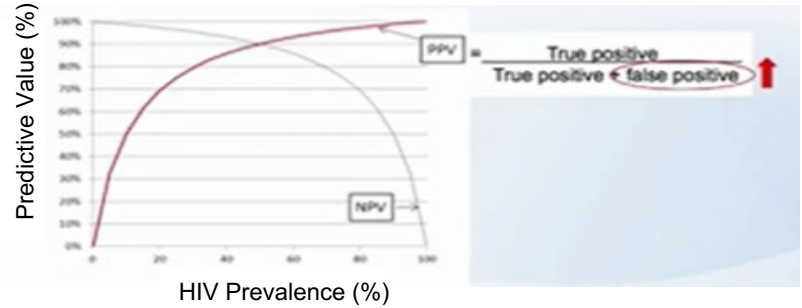
- 30,830 (85%) of women with HIV accepted line-listing, of which 56,521 contacts elicited (average 1.8 child per woman)
- Only 24,513 (43%) of contacts had known HIV status; 90% (28,926) contacts with unknown status tested.
- ID 903 children with HIV ≤19 yrs (1.46% yield), all linked to ART
- Median age of identified children with HIV was **15.2 years**
- Female contacts 1.5 times more likely to test positive than males; female adolescents 15-19 yr were ~3-times more likely to test positive than male counterparts

→KYCS requires large volume of HIV testing to find HIV+ pediatric patients but is a crucial and successful strategy to ensue no child/adolescent is left behind

High Prevalence Unconfirmed Positive HIV PCR Tests in African Infants with Perinatal HIV Exposure, IeDEA Consortium

Carlucci J e t al. International Pediatric HIV Workshop, Brisbane Australia July 2023, Abs.21

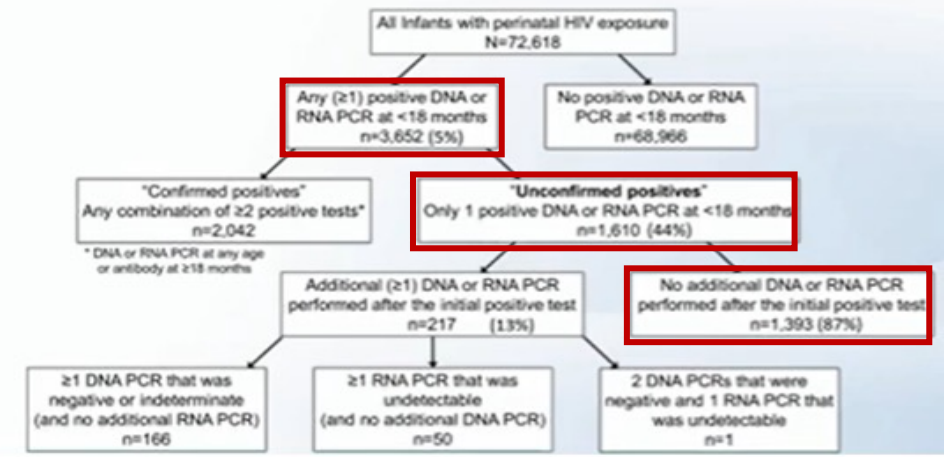
- As vertical transmission declines with maternal ART, predictive value of single infant positive PCR decreases, with probability of false positive result increasing
- Therefore, all + tests should have confirmatory testing to avoid misdiagnosis and unnecessarily started on ART



- Evaluated prevalence unconfirmed tests in African IeDEA infants born 2004-2011
  - Unconfirmed positive: infant with only 1 + viral test at age <18 mos and no additional + tests at age ≥18 mos

Of 72,616 perinatally exposed infants, 3,652 (5%) had ≥1 + test

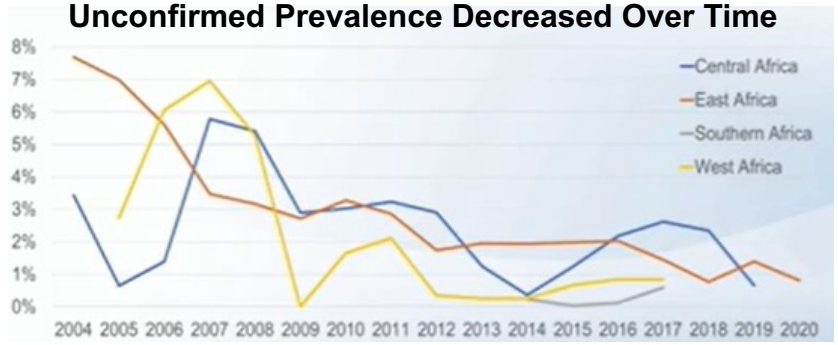
44% lacked a confirmatory test at <18 mos, most (87%) never repeat test



Unconfirmed + Tests by Africa Region

	All	Central 2004-20	East 2004-21	South 2014-17	West 2004-18
# exposed	*72,618*	10520	47015	8600	6483
% any + test	*5%*	4%	6%	2%	2%
unconfirmed + <18 mo	*44%*	58%	42%	13%	91%
Unconfirmed and no test at >18 mo	*87%*	80%	87%	95%	93%

Unconfirmed Prevalence Decreased Over Time



→Unconfirmed + test highly prevalent, but less common in more recent years

→Additional efforts needed to ensure confirmatory testing to reduce risk false + results

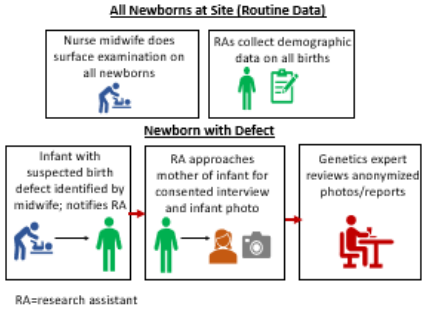
Adverse Pregnancy Outcomes Following DTG Transition Among Women Delivering at Birth Surveillance Sites in Eswatini

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

KINGDOM of ESWATINI
Ministry of Health

Gill M et al. Int. Ped Workshop, Abs 72; AIDS 2023, Brisbane Australia July 2023, Abs. EPB0207

- Birth defect surveillance, similar to Botswana Tsepamo Study, Sept 2021-March 2023 at 5 highest-volume maternity sites, in all 4 regions Eswatini (73% all births).
  - → 35,799 pregnant women; **30% HIV+**
  - → **88.8% HIV+ (9,583/10,806) received DTG ART**: 7,413 preconception; 1,514 during pregnancy; 639 non-DTG at conception but DTG at delivery; 27 unknown ART at conception but DTG at delivery; 1,697 on non-DTG ART at conception (94.2% on EFV)



Birth Outcomes (Birth Defects/NTD, Stillbirth, LBW, PTD) by HIV and ART Status

Women's HIV Status* and ART Regimen if HIV-Positive	Women delivering (live/stillbirth)	Single live births	Major birth defects (among all women delivering)	NTD (among all women delivering)	Stillbirths (among all pregnancies)*	LBW (<2500g among single live births)	PTD (<37 weeks gestation among single live births)
Total	**35,779**	35,375	141 (0.4)	32 (0.09)	868 (2.2)	3,215 (9.1)	3,555 (10.0)
HIV-negative	**24,965**	24,084	94 (0.4)	20 (0.08)	529 (1.9)	2,195 (9.1)	2,388 (9.9)
HIV-positive	**10,806**	10,285	47 (0.4)	12 (0.11)	337 (2.9)	1,020 (9.9)	1,167 (11.3)
DTG ART at conception	**7,413**	7,050	34 (0.5)	6 (0.08)	231 (3.0)	686 (9.7)	777 (11.0)
Non-DTG ART at conception	**1,697**	1,619	10 (0.6)	5 (0.29)	51 (2.9)	166 (10.3)	193 (11.9)
New on ART during pregnancy	**1,524**	1,453	3 (0.2)	1 (0.07)	51 (3.1)	157 (10.8)	185(12.7)
Unknown ART at conception	**172**	163	0	0	4 (0.9)	117(6.)	12 (7.4)
Unknown HIV status	**8**	6	0	0	2	0	0

*Data available for 3,150 (83.9%) of 3,753 miscarriages: 869 (27.6) HIV-positive, 2,228 (70.7%) HIV-negative, and 53 (1.7%) had an unknown HIV status.

→ Most HIV+ women in Eswatini are receiving DTG ART

→ Despite ART, HIV+ women slightly higher adverse pregnancy outcomes; no evidence DTG vs non-DTG preconception ↑ risk

→ No sig diff major BD prevalence by HIV status (0.4% both)

→ NTD non-significantly higher HIV+>HIV- (0.11 vs 0.08%, p=0.37)

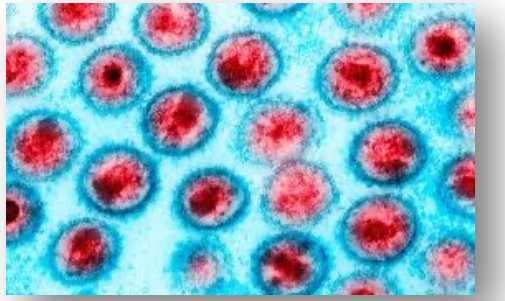
→ Compared to HIV-, HIV+ ↑ stillbirth (1.9 vs 2.9%, p<0.001), LBW (9.1 vs 9.9%, p=0.02), and PTD (9.9 vs 11.3%, p<0.001)

→ Among HIV+, no sig differ DTG vs non-DTG at conception for major BD (p=0.48), stillbirth (p=0.84), LBW (p=0.52) or PTD (p=0.03).

→ NTD higher in non-DTG vs DTG at conception (p=0.04) (# exposures smaller)

GETTING TO ZERO
PREVENTING HIV

TEST TREAT PREVENT



PrEP: Oral, Vaginal Ring, and Long-Acting CAB

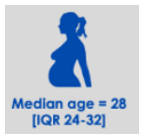
Predictors of Preference for Community-Based PrEP Delivery in Pregnant/PP Women Receiving Oral PrEP South Africa, Kenya

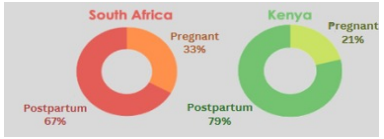
Wara NJ et al. AIDS 2023, Brisbane Australia July 2023, Abs. EPC0436

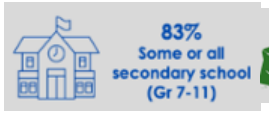
- Evaluated potential acceptability of offering differentiated community-based PrEP delivery in 394 pregnant (27%)/PP (73%) women enrolled in ongoing clinic-based PrEP trials in S Africa and Kenya (PrEP-PP and PrIMA).

Participant Characteristics

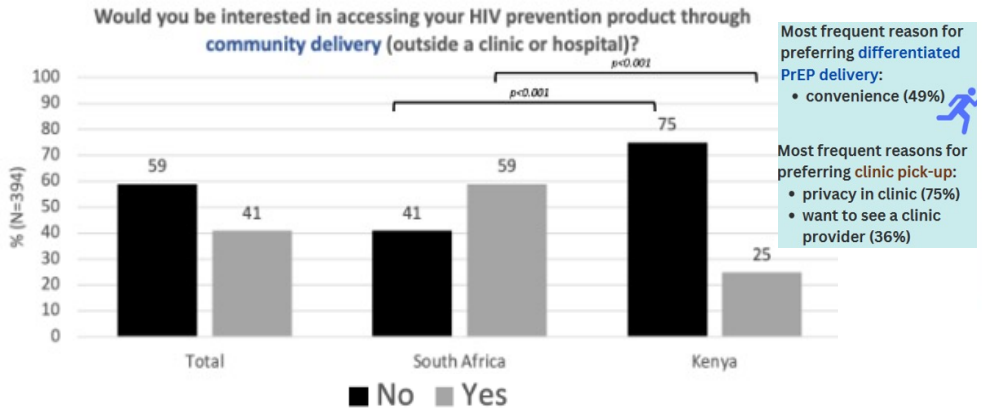
Participant Characteristics	Overall (N=394) Median [IQR] or %	South Africa (n=190) Median [IQR] or %	Kenya (n=204) Median [IQR] or %	p-Value
Age (median, IQR)	28 [24-32]	27 [22-32]	29 [25-33]	<0.01
Pregnant	27%	33%	21%	0.01
Postpartum	73%	67%	79%	
Last grade completed				
Primary (Grades 1-6)	7%	1%	13%	<0.01
Some or all secondary (Grades 7-11)	83%	93%	73%	
Some or all tertiary	10%	6%	14%	
Currently employed (formally or informally)				
No	79%	72%	87%	<0.01
Self-reported PrEP use over past 30 days				
Yes	75%	82%	68%	<0.01
Ever used any family planning methods				
Injectable contraceptive	79%	94%	66%	<0.01
Male/external condom	55%	90%	23%	<0.01







Kenya vs SA cohorts differed in age, pregnancy status, education, employment, PrEP use, and contraceptive use (p<0.05)



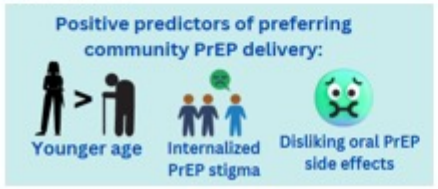
Most frequent reason for preferring differentiated PrEP delivery:
- convenience (49%)

Most frequent reasons for preferring clinic pick-up:
- privacy in clinic (75%)
- want to see a clinic provider (36%)

Predictors of Community-PrEP Delivery Preference

	Adjusted for age & country	
	aOR* (95% CI)	p-Value
Maternal age** (median, IQR) years	1.46 [1.05, 2.04]	0.03
Country (n, %) Kenya South Africa	0.23 [0.15, 0.36]	<0.01
≥1 Sexual partner (n, %)	0.34 [0.12, 0.95]	0.04
Endorsed ≥1 PrEP stigma statement	2.59 [1.58, 4.23]	<0.01
Oral PrEP dislike: Side effects (n, %)	3.26 [1.92, 5.51]	<0.01

Non-significant predictors (p>0.10): Age, country, obstetric history, other sociodemographic characteristics, oral PrEP likes, other oral PrEP dislikes
**Each individual adjusted for age, country*
***Per 10-year decrease*



- More interest in community delivery in South Afirca

→Importance of offering **choice** community and clinic options for PrEP pick-up

→Need for context specific strategies as varied by country

Anticipated Preferences for Long-Acting PrEP in Kenya in Pilot Pharmacy-Provided Oral PrEP Users

Roche S et al. AIDS 2023, Brisbane Australia July 2023, Abs. OAE0102

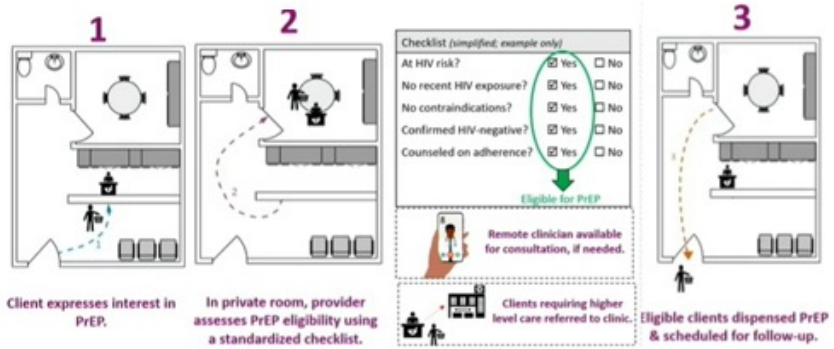

BMC Health Services Research

RESEARCH ARTICLE Open Access

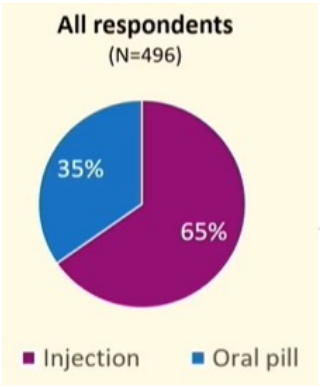
Design of a care pathway for pharmacy-based PrEP delivery in Kenya: results from a collaborative stakeholder consultation

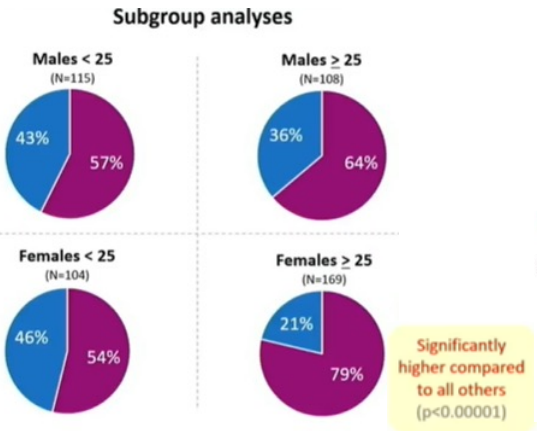
- Kenya is evaluating using private pharmacies for differentiated PrEP delivery; ongoing pilot study in Kisumu and Kiambu

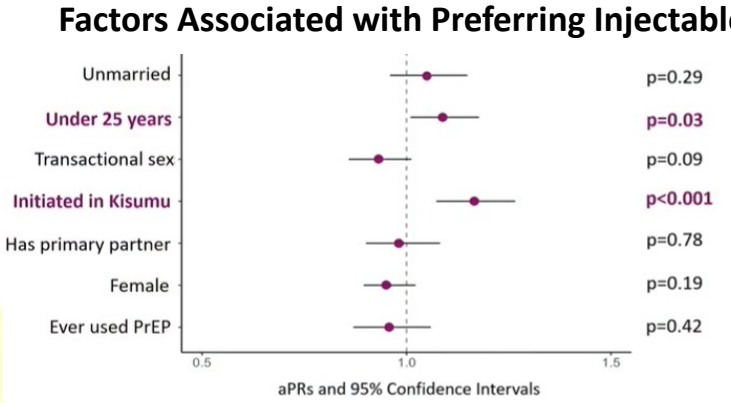
Overview	
Duration	6 months (February – July 2022)
Sites	12 pharmacies
Services	Oral PrEP, PEP
Eligibility	Age 18+, meets checklist eligibility
HIV testing	Provider-assisted blood-based HIVST
PrEP source	Donated by the Kenya MOH
Client fee	Free
Pharmacy compensation	$100 USD/month

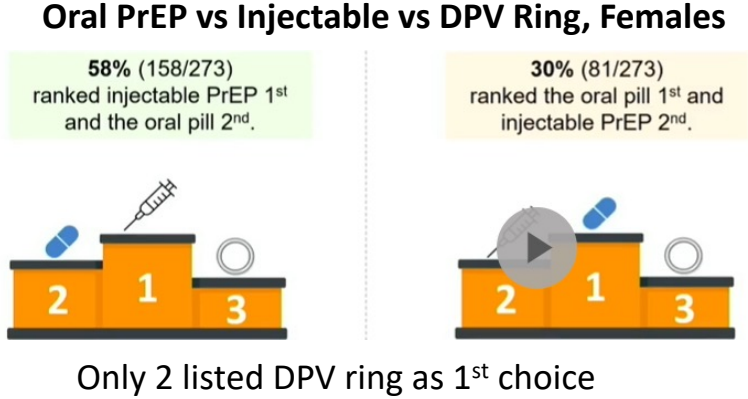


- Surveyed 496 PrEP clients at Month One FU regarding preference for oral PrEP, injectable PrEP, or vaginal ring if ♀; ~50% ♀ and <25 yrs; ~75% unmarried, ~85% PrEP-naïve







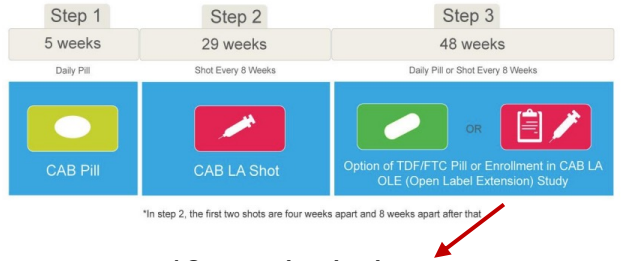


→Most – but not all - clients indicated preference for injectable PrEP; varied among subgroups, indicating importance of offering <u>both</u> oral PrEP as well as injectable PrEP

Acceptability of CAB-LA in Female Adolescents South Africa, Uganda and Zimbabwe

Hamilton E et al. Int. Ped Workshop, Abs 107; AIDS 2023, Brisbane Australia July 2023, Abs. OALBC

- Single-arm study in 55 adolescent ♀ age <18 yrs, 3 countries
- Step 1: oral CAB; Step 2: IM CAB; Step 3: IM CAB or oral TDF/FTC
- Included qualitative in-depth interviews 15 pt & 15 parents wk 34



48-week choice:
- 92% CAB-LA
- 8% oral TDF/FTC

Emergent Themes - Facilitators

- Lack of adherence challenges
- Discretion (vs. daily oral tablets)
- Knowledge of efficacy
- Administration mode
  - Needle size (1½ inch)
  - Site of administration (gluteal muscle)
  - Familiarity due to use of injectable contraceptives
- Parent/guardian buy-in

Emergent Themes - Barriers

- ISRs (injection site reactions)
  - injection pain
- Fear of the injection
- Some experienced side effects

→CAB-LA acceptable to AGYW, with 92% choosing to stay on CAB-LA; most felt benefits outweighed the pain of the injection

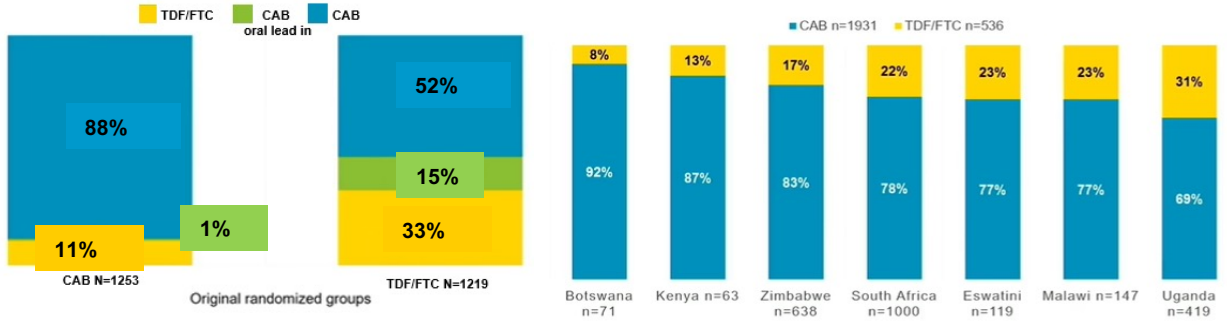
→However, choice matters – some pt still preferred oral tablets for various reasons

→Discuss barriers and facilitators with future clients as part of decision-making

Initial PrEP Product Choice in HPTN 084 Open-Label Extension

Delany-Moretlwe S et al. AIDS 2023, Brisbane Australia July 2023, Abs. OALBX0203

- Assessed PrEP choice (CAB-LA vs oral TDF/FTC), reasons for choice and factors associated with choice among HPTN 084 pt in open-label extension, when could choose PrEP modality
- 2,472 participated in open-label and product choice
- 78% overall chose to receive CAB-LA (varied by arm)



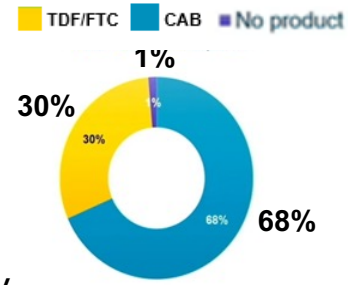
Product Choice by Country

Participant Characteristics by Product Choice

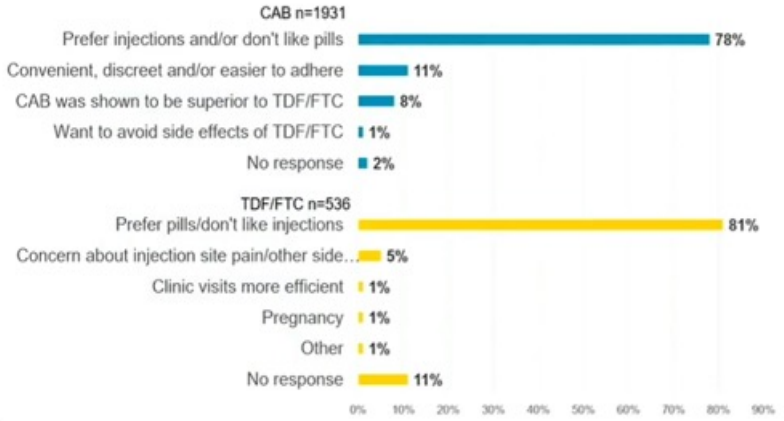
	CAB n=1931 (%)	TDF/FTC n= 536(%)	p-value
Age, median (IQR)	25 (22, 30)	24 (21, 30)	
≤ 25 years of age	54%	58%	0.430
Sexually active, not living with partner	58%	49%	0.022
Physical IPV, past 6 mo	8%	4%	0.012
Paid for sex, past mo	26%	20%	0.002
Partner living with HIV or unknown	22%	17%	0.186
Feels at high risk for HIV	27%	28%	0.197

→ Those who chose CAB appeared at ↑ risk for HIV and more likely not live with partner, had recent IPV and to have been paid for sex

Product Choice if Pregnant



Reasons for Product Choice



→Majority chose CAB, only 15% with oral lead-in

→Product choice influenced by personal preference for product attributes, risk behavior, and social/geographic context

→Importance of having choice of products available

Long-Acting HIV PrEP in AGYW in South Africa: Cost-Effective at What Cost?

Neilan AM et al. Int. Ped Workshop, Abs 20; AIDS 2023, Brisbane Australia July 2023, Abs. OAE0302

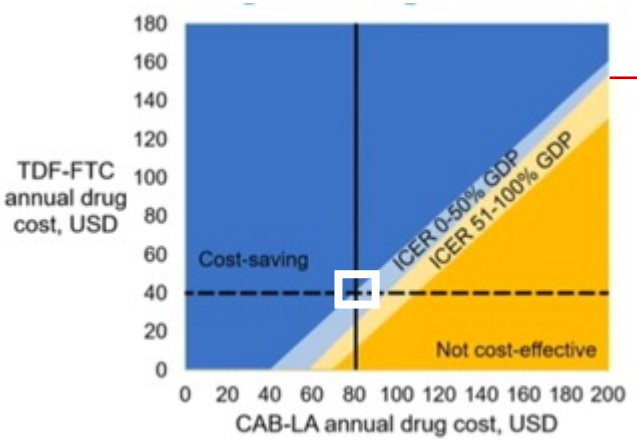
- Used CEPAC model to evaluate cost-effectiveness of TDF/FTC vs injectable CAB-LA in AGYW age 15-30 yr in South Africa over 10 yr period
- Evaluated highest annual drug price (maximal price premium) where CAB-LA has incremental cost-effectiveness ratio (ICER) <$3,500 (50% S Africa's per-capital annual GDP)

Input parameter	Value	Derivation
Mean age	26	Modeled population
# tx/10,000 AGYW over 10 yr	600	SA data
HIV incidence: No PrEP TDF/FTC CAB-LA	3.2/100 p-y 1.9/100 p-y 0.2/100 p-y	Delany-Moretiwe Lancet 2022, Palanee-Phillips PLosOne 2022
2-yr retention TDF/FTC CAB-LA	88% 85%	Delany-Moretiwe Lancet 2022
PrEP drug + program $/yr: TDF/FTC CAB-LA	**$40** / $12 **$80** / $21	
HIV care cost/yr	$230-$1,8000	Clarly Cost Eff Resource Alloc 2008
ART cost./yr	$50-$890	CHAI 2022

Adolescent girls and young women (n = 10,000)

Strategy	Incident infections	Life-years	Incremental life years	Costs, millions USD	ICER ($/LY)	CAB-LA max price premium (absolute price)
TDF-FTC	1,980	85,800		6.6	-	-
CAB-LA	1,080	85,950	+150	7.1	3,440	+$40 ($80)

ICERs calculated from unrounded estimates

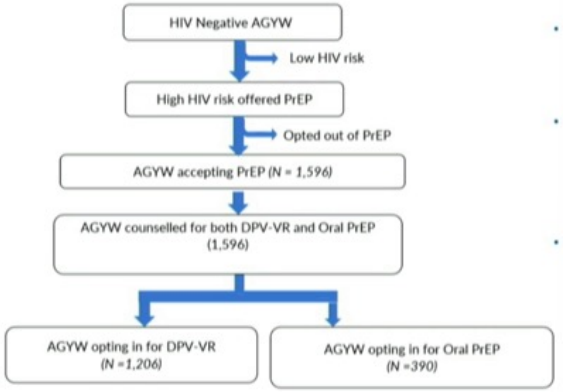


→For CAB-LA to be CE for AGYW in S Africa, needs to be priced at no more than twice TDF/FTC

Dapivirine Vaginal Ring Acceptability, Zimbabwe

Munjoma M et al AIDS 2023, Brisbane Austraiia July 2023, Abs. OAD0403

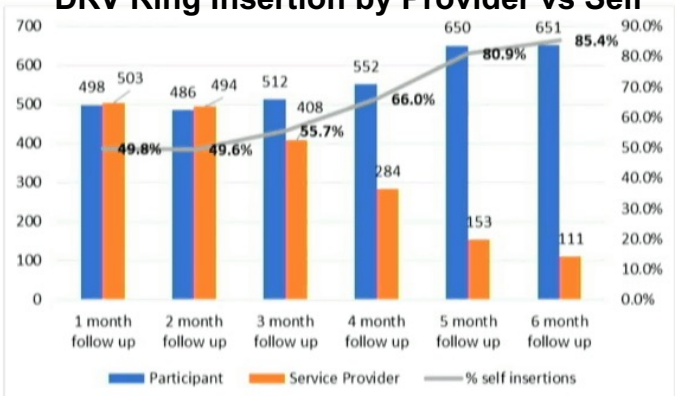
- Mixed methods study in HIV-negative high risk AGYW age 18-25 years in 8 districts in Zimbabwe offered either DPV ring or oral PrEP (n=1206 took DVR, n=390 oral PrEP), FU monthly.



Acceptance of DPV Ring by High Risk AGYW

Location	Setting	Total accepted PrEP	Accepted DPV-VR	% Accepted DPV-VR	95% CIs accepted DPV-VR
Bulawayo	Urban	364	190	52%	46.9 - 57.4
Gweru	Urban	214	130	61%	53.9 - 67.3
Chipinge	Rural	405	368	91%	87.6 - 93.5
Mutare	Rural + Urban	299	257	86%	81.5 - 89.7
Mat South	Rural	314	261	83%	78.5 - 87.1
Total		**1596**	**1206**	**76%**	**73.4 -77.6**

DRV Ring Insertion by Provider vs Self



- High DPV ring acceptability, rural>urban
- Self-insertion of ring ↑↑ over time

HIV Incidence DPV ring vs Oral PrEP

Method	Total number of users	Number sero-converted	% sero-converted (95% CI)	Incidence rate /100 person years (95% CI)
DPV-VR	1,180	9	0.76 (0.35 - 1.44)	2.32 (1.21-4.47)
Oral PrEP	390	2	0.51(0.06 – 1.84)	0.67 (0.17-2.69)

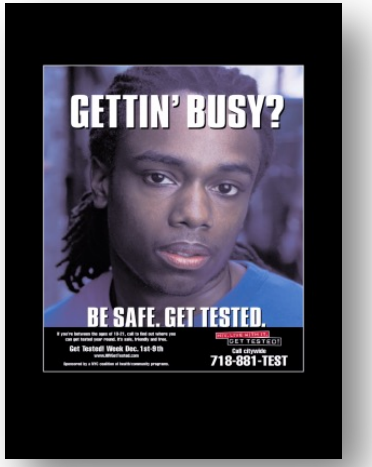
- HIV incidence not significantly different than oral PrEP, similar to HOPE (2.7/100PY)/DREAM (1.8/100PY) studies
- Most seroconversions observed in 1st mo; after 1st mo, pt reported removing the ring and having unprotected sex at some point.

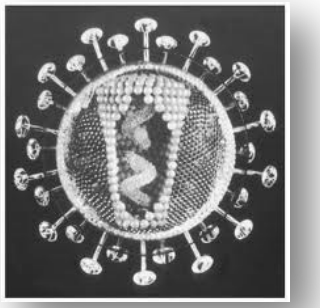
PrEP Continuation Rates DPV Ring and Oral PrEP in AGYW June 2022-June 2023

- PrEP continuation rates better DPV ring than oral PrEP

→ High acceptability of DPV ring by AGYW; higher continuation rates than oral PrEP; comparable HIV seroconversion with oral PrEP cohort with most in 1st mo

Adolescents and HIV





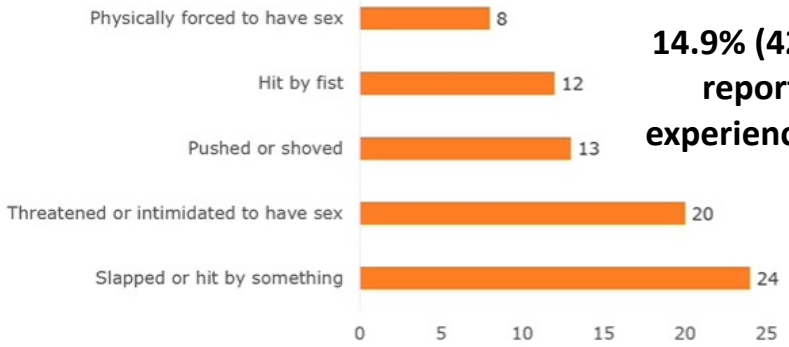
Prevalence Intimate Partner Violence in AGYW Enrolled in DREAMS Project, Zimbabwe 2022

Mudzengerere F et al. AIDS 2023, Brisbane Australia July 2023, Abs. OALBX0202

- IPV: physical, sexual, psychologic harm from intimate partner; reported by 43% AGYW in 2019 Zimbabwe *(Mukahanana 2022)*
- Qualitative study, 282 sexually active AGYW 9-19 yr enrolled in DREAMS in 9 districts, Zimbabwe Aug 2022-Jan 2023

Characteristic		Number of respondents (N=282)
Age	9-14	8
	15-19	274
Marital status	Single	224
	Married	50
	Divorced	8
Residential status	Rural	142
	Urban	83
	Peri-urban	57
School status	In-School	10
	Out of school	272
Education level	Primary	34
	Secondary	242
	'A' Level	6

Reported IPV Sexually Active AGYW



14.9% (42/282) reported experienced IPV

Predictors IPV in AGYW

Variable	Prevalence of IPV	Adjusted Odds Ratio (AOR)	95% CI	P-value
Married	26% (13/50)	2.99	(1.36; 6.57)	0.01
Primary school	26.5% (9/34)	1.58	(0.15; 30.17)	0.70
Less than 15 years old	I out of 8	2.14	(0.15; 30.17)	0.57
Urban and peri-urban	15% (41/274)	0.37	(0.18; 0.78)	0.01
Completed primary pack	16.2% (18/111)	0.98	(0.50; 2.01)	0.98

Actions taken by Community Leaders and Men to protect AGYW from Violence

→Lower prevalence IPV in DREAMS district than prior reports from Zimbabwe, possibly attributable to community interventions to address harmful social norms and practices

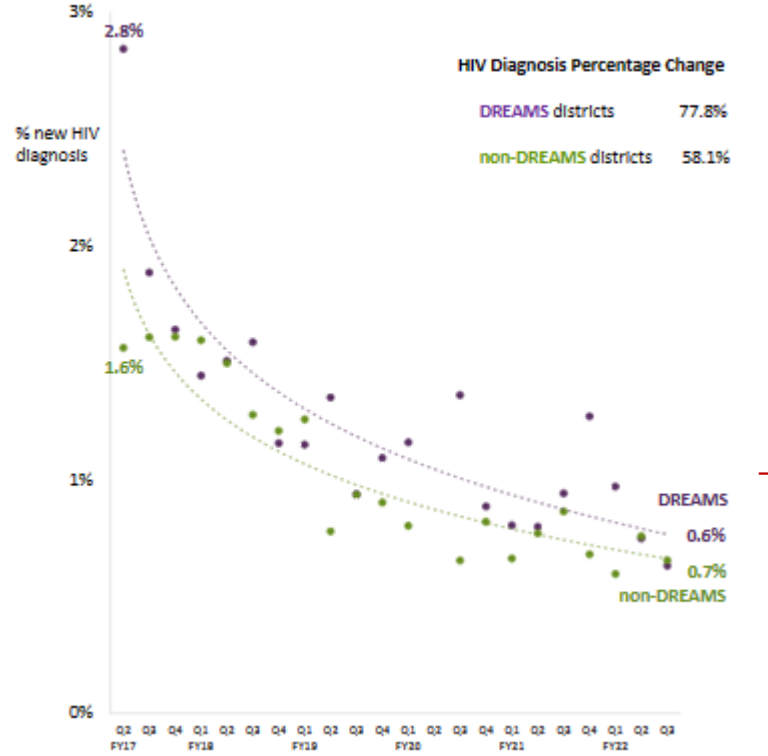
→IPV most common in married women in rural setting

Comparison of New HIV Diagnosis and Teen Pregnancy in DREAMS and Non-DREAMS Districts, Malwai 2017-2022

Banda M et al. AIDS 2023, Brisbane Austraia July 2023, Abs. EPC0432

- Evaluated new infections and teen pregnancies over 5 years (FY 2017 Q2 to FY 2022 Q3) in PEPFAR data in AGYW age 15-19 years, comparing 3 districts participating in DREAMS (n=117,47) to 3 non-DREAMS districts (n=140,000) in Malawi.

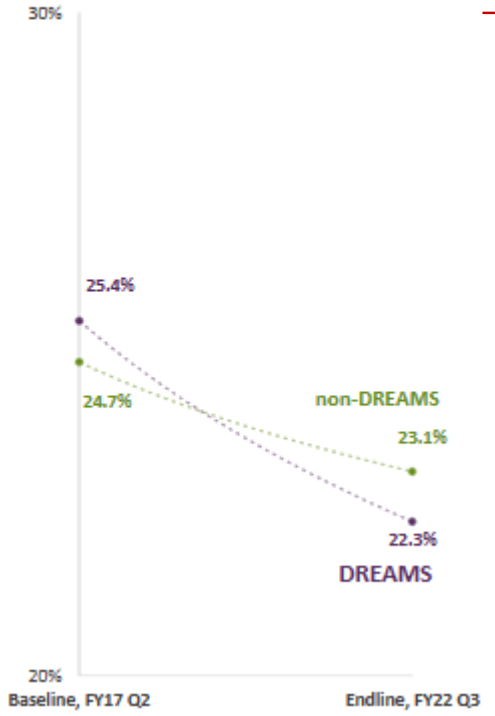
New HIV diagnoses among AGYWs aged 15-19 attending ANC, by DREAMS and non-DREAMS districts



→DREAMS districts had 77.8% ↓ in new HIV diagnoses (from 2.8% at baseline to 0.6% at endline) in AGYW compared to 58.1% ↓ (from 1.6% to 0.7%) in AGYW in non-DREAMS districts

→**Significant difference** in % change in new HIV infections between DREAMS and non-DREAMS districts (p=0.003)

Proportion of teenage pregnancies by DREAMS and non-DREAMS districts



→DREAMS districts had 12.2% ↓ in teen pregnancies (from 25.4% to 22.3%) compared to 6.5% ↓ (from 24.7% to 23.1%) in non-DREAMS districts (difference in % change not significantly different)

Empowering Adolescent School Girls with SKILLZ – 6 Month FU From Cluster Randomized Trial, Zambia

Musonda M et al. AIDS 2023, Brisbane Australia July 2023, Abs. TUPEC18

- Cluster-randomized trial to assess impact of sports-based demand-generating program (SKILLZ) on uptake of HIV testing and contraception by girls; randomized 46 schools in Zambia; randomly sampled Grade 11 girls with self-administered survey at baseline (Mar-Dec 2021), 6 and 12 months.

SKILLZ Intervention

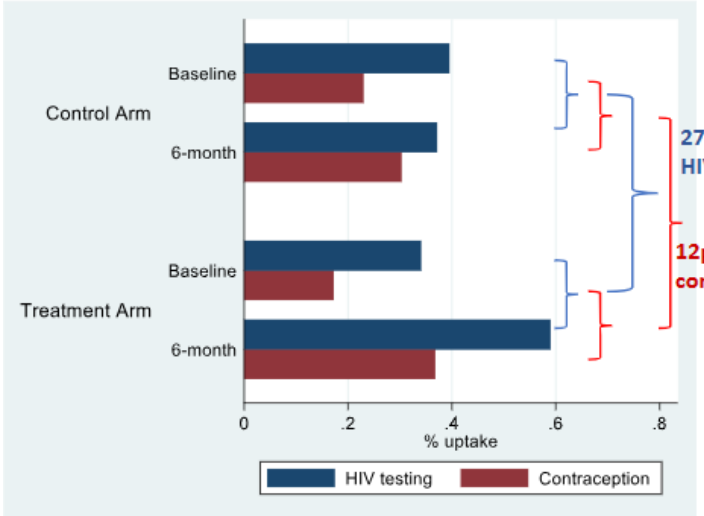
Designed and implemented by Grassroot Soccer

1. **12 after school sessions** of comprehensive sexuality and sexual and reproductive health (SRH) education delivered by trained young adult mentors ("Coaches")
2. Large community **"graduation" soccer event** where HIV testing and contraception are available
3. **Community-based distribution** of HIV self-testing and contraceptives from Coaches and referrals to youth-friendly clinic services as required

Baseline Characteristics of Participants at Control vs Treatment Schools

	Overall (N=1,917)		Control (n=984)		Treatment (N=933)	
	n	%	n	%	n	%
Age	17.29	1.36	17.41	1.47	17.16	1.21
Employed/earns income	486	25%	288	29%	198	21%
Food insecurity	579	31%	327	34%	252	27%
HIV Knowledge (Correct/7)	5.33	1.14	5.36	1.12	5.29	1.16
Ever had sex	461	25%	249	26%	212	23%
Total number of sexual partners	0.72	5.58	0.65	3.08	0.78	7.35
Received money/support from sexual partner	524	42%	275	43%	249	42%
Recent contraception	345	20%	205	23%	140	17%
Ever pregnant	75	4%	44	4%	31	3%
Tested for pregnancy	292	15%	172	17%	120	13%
Friend ever pregnant	1,535	84%	789	84%	746	84%
- Friend ever abortion	749	60%	385	60%	364	61%
Ever STI symptoms	222	12%	128	13%	94	10%
Ever tested for HIV	1,103	58%	597	61%	506	55%
Tested within last 12 months	697	37%	385	39%	312	34%
Tested HIV+	31	3%	17	3%	14	3%
Shreya Empowerment Score (/ 105)	76.43	17.67	77.77	17.11	75.02	18.13

Impact on HIV Testing and Contraception Uptake



3 **SKILLZ Curriculum and Graduation Event**

Contents

→Increase in HIV testing and contraception with SKILLZ program compared to control

Empowering Adolescent School Girls with SKILLZ – Process Evaluation of Intervention Engagement

Chiu C et al. AIDS 2023, Brisbane Australia July 2023, Abs. MOPEE06

- Process evaluation at 23 intervention SKILLZ schools to characterize attendance, changes in HIV and SRH knowledge from pre/post test
- Of 1,135 girls at intervention sites: 79% attended at least one session, of which 90% attended at least 8 of 12 sessions to "graduate"; mean attendance varied by school (50-100%) and by coach but not correlated with prior HIV testing.

SKILLZ Intervention

Designed and implemented by Grassroot Soccer

1. **12 after school sessions** of comprehensive sexuality and sexual and reproductive health (SRH) education delivered by trained young adult mentors ("Coaches")
2. Large community **"graduation" soccer event** where HIV testing and contraception are available
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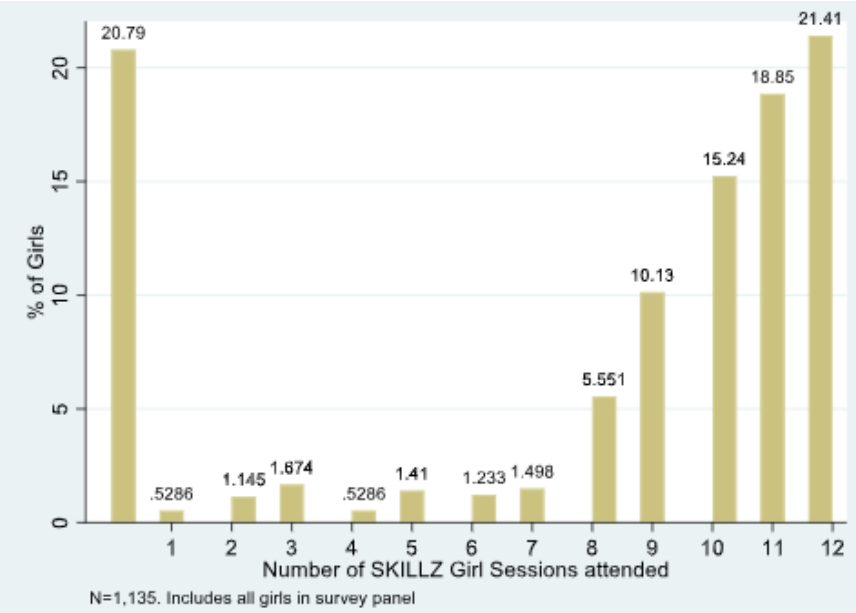
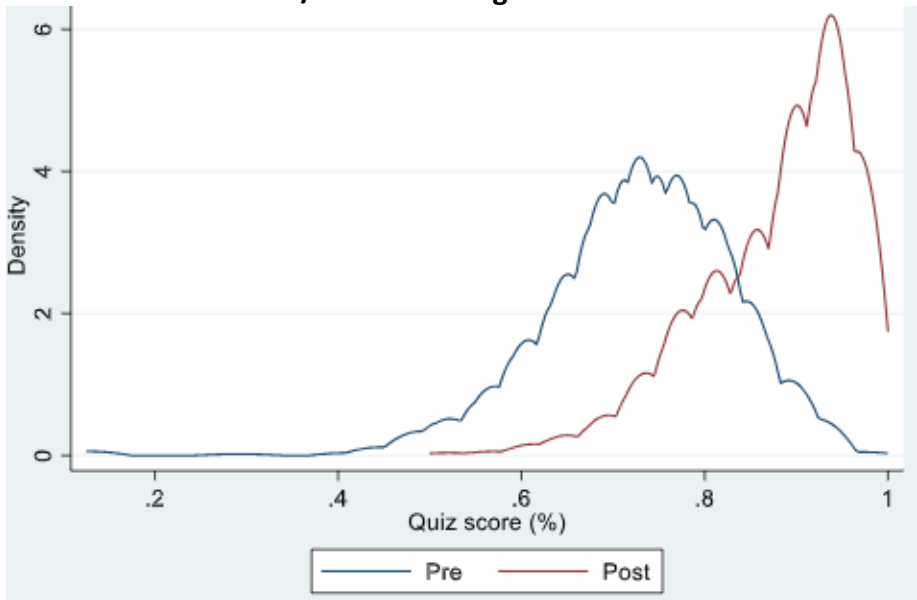
Number of SKILLZ Sessions Attended



Distribution of HIV/SRH Knowledge Scores Pre and Post SKILLZ



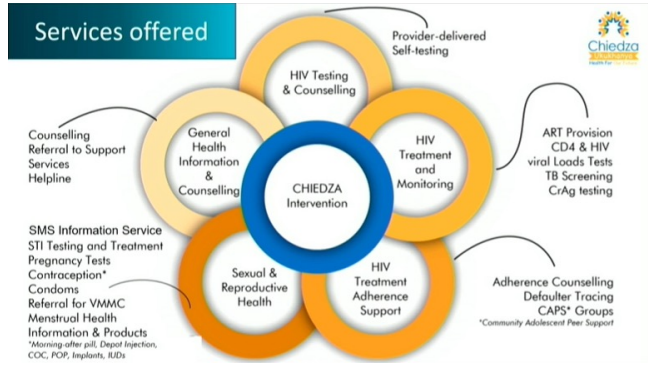
→Program was well-attended and led to large knowledge gains in HIV and SRH (and HIV testing and contraception, prior presentation)

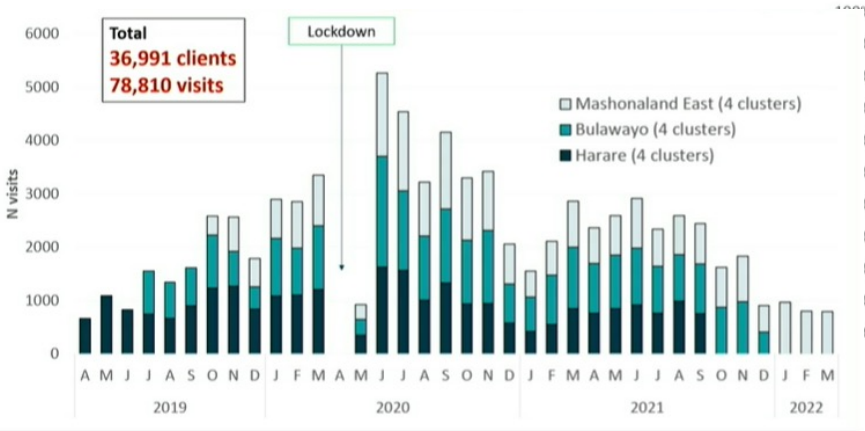
Uptake Integrated HIV and SRH Services for Youth at Community Centers in Zimbabwe – CHIDZA Model

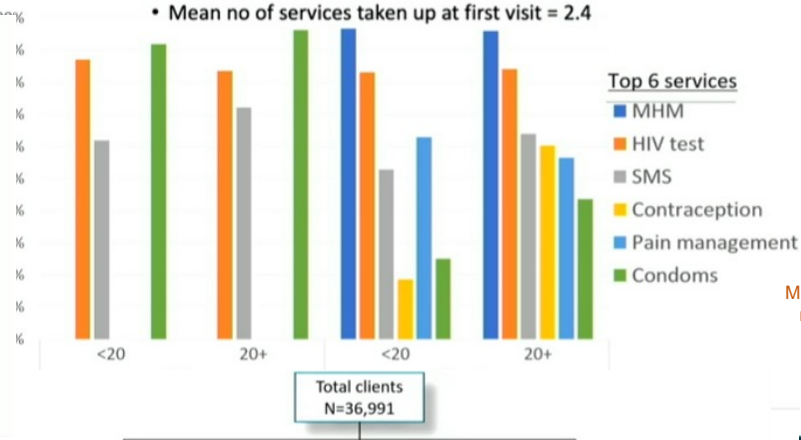
Ferrand R et al. AIDS 2023, Brisbane Australia July 2023, Abs. OAE0204

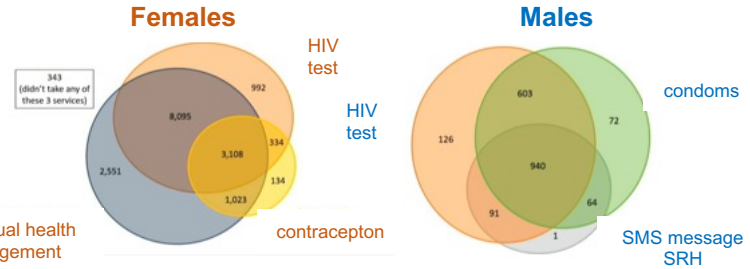
- Cluster randomized trial of community-based integrated HIV and sexual/reproductive health services for youth 15-24 yr in 3 provinces in Zimbabwe - intervention CHIDZA

→High attendance and uptake of multiple services

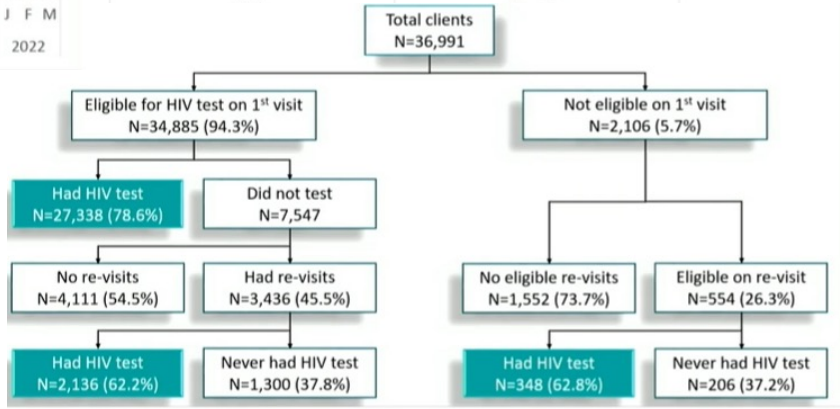








→HIV testing highly accepted by both ♀ and ♂; likely driven by provision and acceptance of other services



Sex	Age	N clients	Ever eligible for HIV test at CHIEDZA	Ever had an HIV test at CHIEZA	Had >1 HIV test at CHIEDZA
Total	Total	36991	35446	29826 (84.1%)	6108 (17.2%)
	16-19	19589	19066	16052 (84.2%)	3289 (17.3%)
	≥20	17402	16380	13774 (84.1%)	2819 (17.2%)
Male	Total	9266	9067	7757 (85.6%)	1713 (18.9%)
	16-19	5160	5068	4413 (87.1)	994 (19.6%)
	≥20	4106	3999	3344 (83.6)	719 (18.0%)
Female	Total	27725	26379	22069 (83.7%)	4395 (16.7%)
	16-19	14429	13998	11639 (83.2%)	2295 (16.4%)
	≥20	13296	12381	10430 (84.2%)	2100 (17.0%)

Leveraging Community and Private-Sector HIV Self-Testing Distribution to Improve Testing and ART for AGYW Uganda

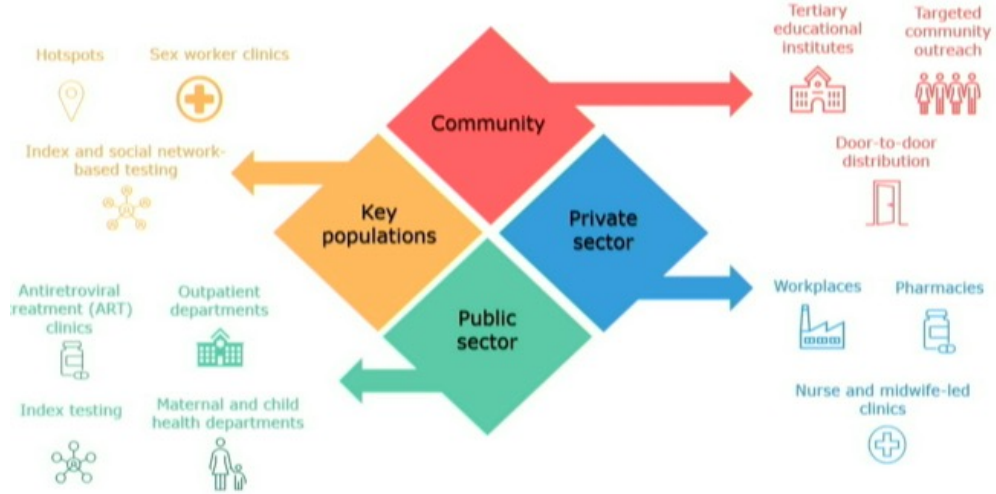
Tumusiime J et al. AIDS 2023, Brisbane Australia July 2023, Abs. OALBA0505

- Introduced HIVST in different distribution models across 3 urban districts Uganda

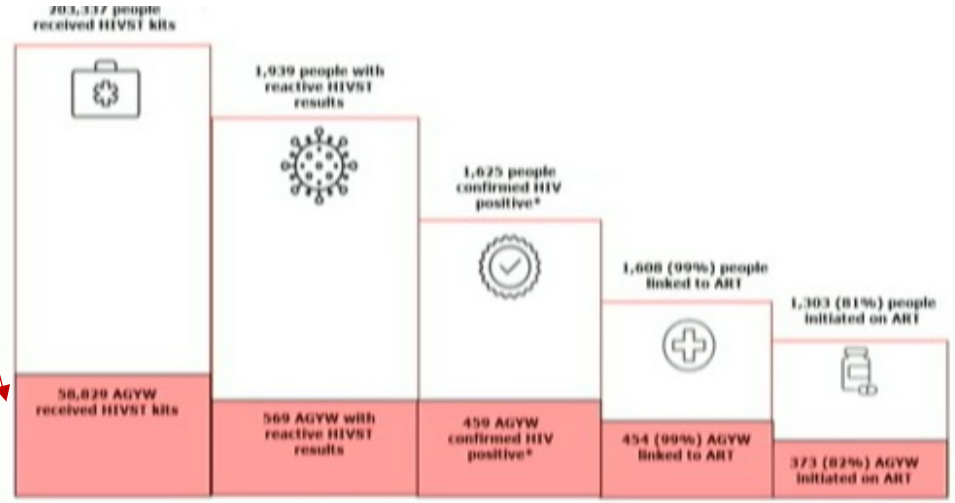
Multiple options for HIVST services: Directly assisted versus unassisted HIVST; oral or blood-based HIVST kits; HIVST use videos available online and through social media for those preferring anonymous access and HIVST options.

Peer-driven demand generation and follow-up: Peers from target population groups (such as AGYW) were identified and trained to lead demand generation and outreach, offer HIVST services, follow-up (via WhatsApp/SMS; telephone call; or home visit) to confirm HIVST results, and link clients to health facilities for confirmatory diagnosis and linkage to ART or prevention services.

Various cadres of health care workers trained to provide HIVST services: In addition to peers, health care personnel at public-sector outpatient and maternal/child health wards; pharmacists; and physicians, nurses, and midwives running specialty clinics were trained and equipped to offer HIVST services and coordinate with peer workers to ensure follow-on confirmatory diagnosis and/or linkage to care or prevention services.



- 203,377 people received HIVST kits→29% distributed to females between 15-24 years of age (AGYW).
- Similar rates for HIVST reactivity, positivity, ART linkage, and ART initiation rates among all individuals who received self-tests and AGYW:
  - **Reactivity**: 0.95% (overall) versus 0.97% (AGYW)
  - **Testing positivity:** 0.8% versus 0.78%
  - **ART linkage:** 99%
  - **ART initiation:** 81% versus 82%

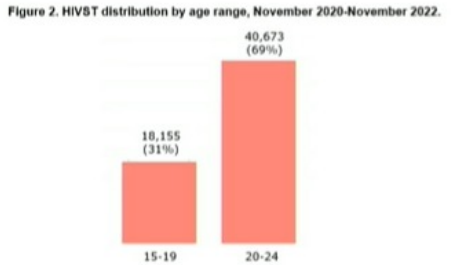


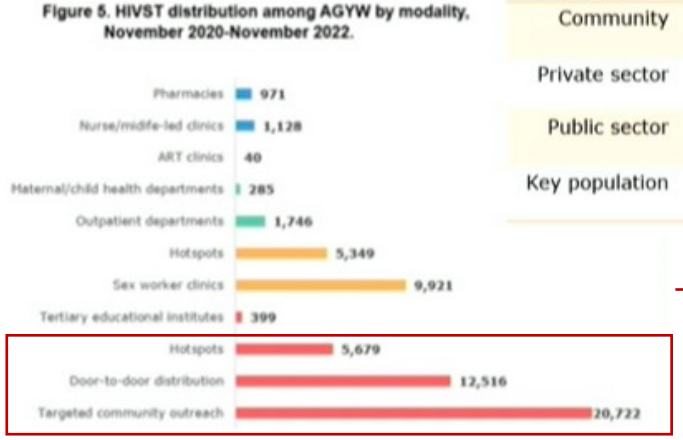
*includes people who received invalid HIVST results and were tested for HIV.

Leveraging Community and Private-Sector HIV Self-Testing Distribution to Improve Testing and ART for AGYW Uganda

Tumusiime J et al. AIDS 2023, Brisbane Australia July 2023, Abs. OALBA0505

- About 2/3 of HIVST kits were distributed to young women aged 20-24; 67% preferred unassisted HIVST; 50% of AGYW who received an HIVST had not tested in past 12 mo, 0.2% never tested before
- Community models had the greatest volume of AGYW with HIV (door-door, 43%, targeted 32%); private sector had highest testing positivity rate (83% of all HIV+ persons were tested at pharmacy)
- Among AGYW who had never tested, 86% were reached through community and private sector models (hotspots, nurse-led clinics)

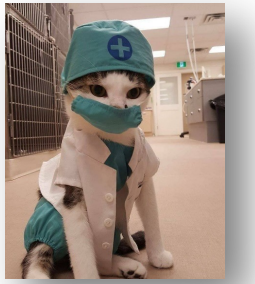




Distribution model	# HIVST distributed	# HIVST used	# Reactive HIVST results	# Diagnosed HIV+	# Linked to ART	# Initiated on ART
Community	39,198	39,087 (99%)	307	251 (0.64%)	250 (99%)	201 (80%)
Private sector	2,098	2,073 (99%)	144	116 (5.6%)	115 (99%)	94 (82%)
Public sector	2,239	2,184 (98%)	39	34 (1.6%)	34 (100%)	28 (82%)
Key population	15,293	15,281 (99%)	79	58 (0.38%)	55 (95%)	50 (86%)

→Community (particularly peer-driven) and private sector models were most effective at reaching AGYW with testing services and ID HIV-positive AGYW; peers to lead FU key to high linkage rates

Thank You For Your Attention!



Questions?