

Prevention and treatment of pediatric HIV infection – where do we go from here?

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Prevention and treatment of pediatric HIV infection – where do we go from here?

- Celebrate achievements
- Identify gaps
- Explore opportunities to close these gaps to accelerate an end to the pediatric HIV epidemic

I propose that the learning, experience and approaches contained within this room, extending coverage, quality and impact, is what is needed to reach this long elusive goal

Important achievements preventing and treating pediatric HIV infection

- **Over 3 million new pediatric infections averted with ART and Prevention of Vertical Transmission (PVT) programs**
- **Substantial drop in the deaths among children (0-14 years) attributed to HIV**
- **Rapid and successful roll-out of optimized dolutegravir-based ART regimens to pregnant people and children**
 - Early evidence of higher rates of viral suppression among children with dolutegravir-based ART
- **Substantial reduction in incidence and prevalence of children orphaned by HIV**



Global estimates for children (<15 years), 2022

Children living with HIV

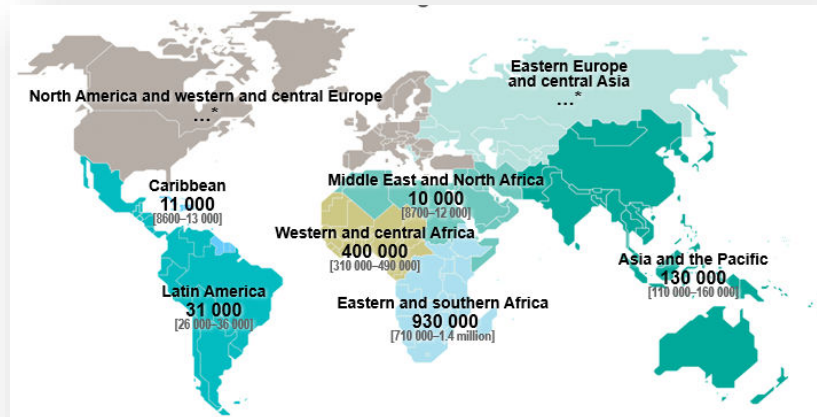
1.5 million [1.2 million–2.1 million]

New HIV infections

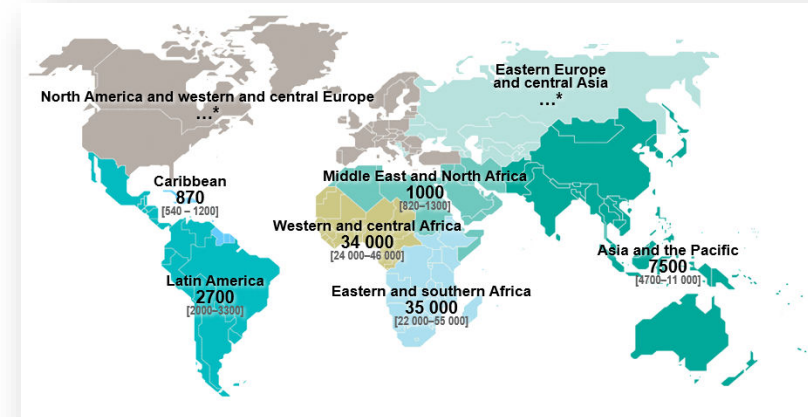
130 000 [90 000–210 000]

Deaths due to AIDS

84 000 [56 000–120 000]

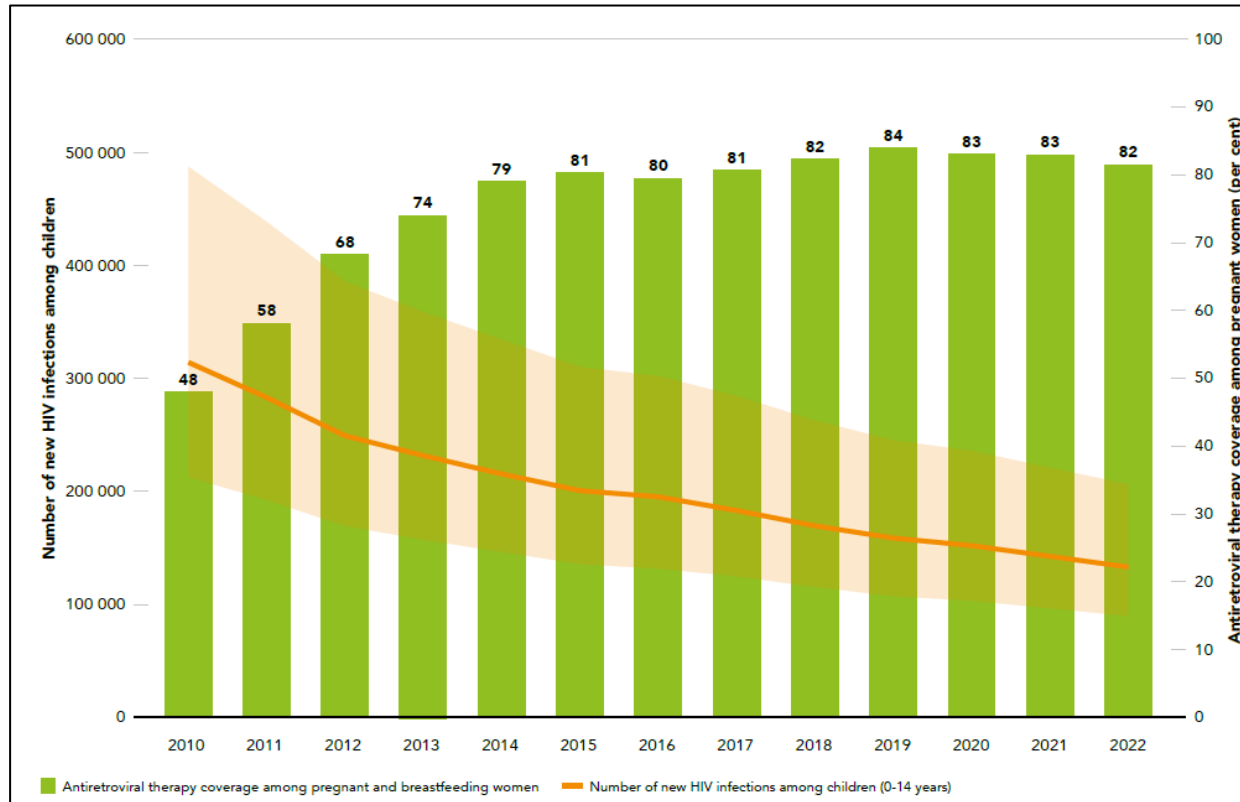


Children (<15 years) estimated to be living with HIV | 2022



Estimated deaths in children (<15 years) from AIDS | 2022

New HIV infections among children (0-14 years) and ART coverage among pregnant and breastfeeding people, globally, 2010-2022



82% of pregnant people with HIV received ART in 2022: unchanged for 8 years

130,000 new pediatric HIV infections: 58% decline since 2010, 10,000/year

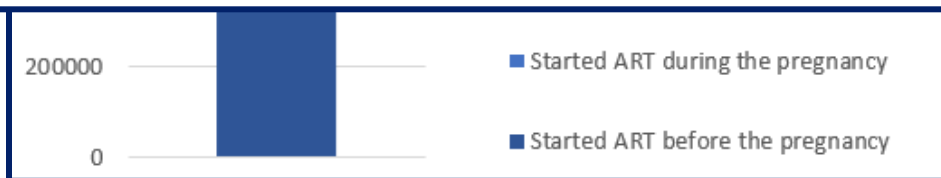
It will take more than a decade to reach the 2020 target of 20,000 new pediatric infections

When, where and why do we continue to have new pediatric HIV infections?

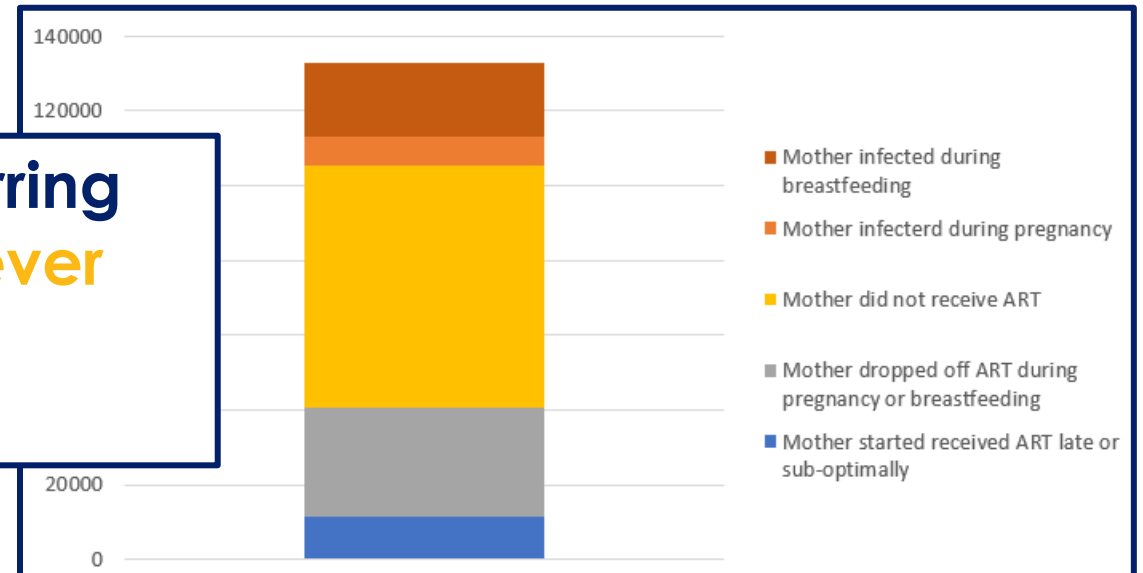
Number of pregnant women global | 2022



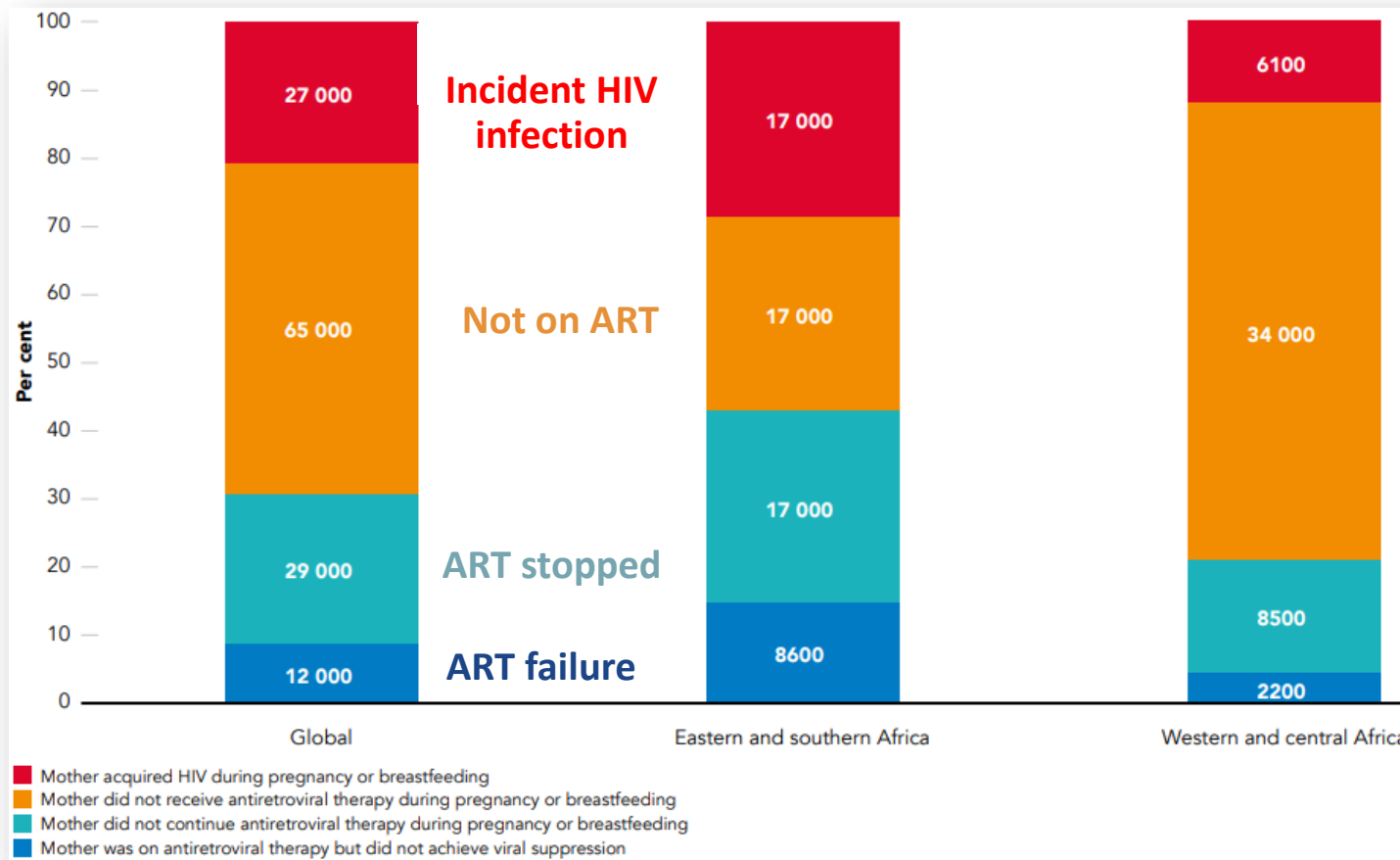
Most new pediatric infections are occurring among children born to women who **never started ART** or who stopped ART during pregnancy or breastfeeding



Number of child infections | 2022



Causes of new pediatric infections globally and by region



Causes of new pediatric HIV infections globally by region | 2022

- In East/Southern Africa, new HIV infections are due to lack of maternal ART (29%), incident infections during pregnancy/breastfeeding (29%) and women disengaging from care (29%) in equal measure.
- In West/Central Africa, 67% of new infections are due to lack of maternal ART and only 12% due to incident infection during pregnancy/breastfeeding



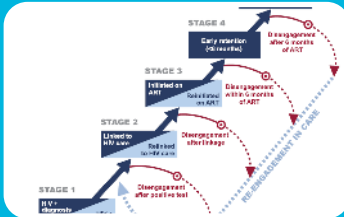
Incident Infection during pregnancy and breastfeeding

- The risk of HIV acquisition may be elevated during pregnancy and breastfeeding
- High risk of vertical transmission secondary to high viral load during acute infection
- Ongoing efforts to prevent HIV in AGYW must include women who are pregnant and breastfeeding



Not on ART

- Close to 50% of all new pediatric infections still occur because pregnant women are not diagnosed and started on ART



ART stopped

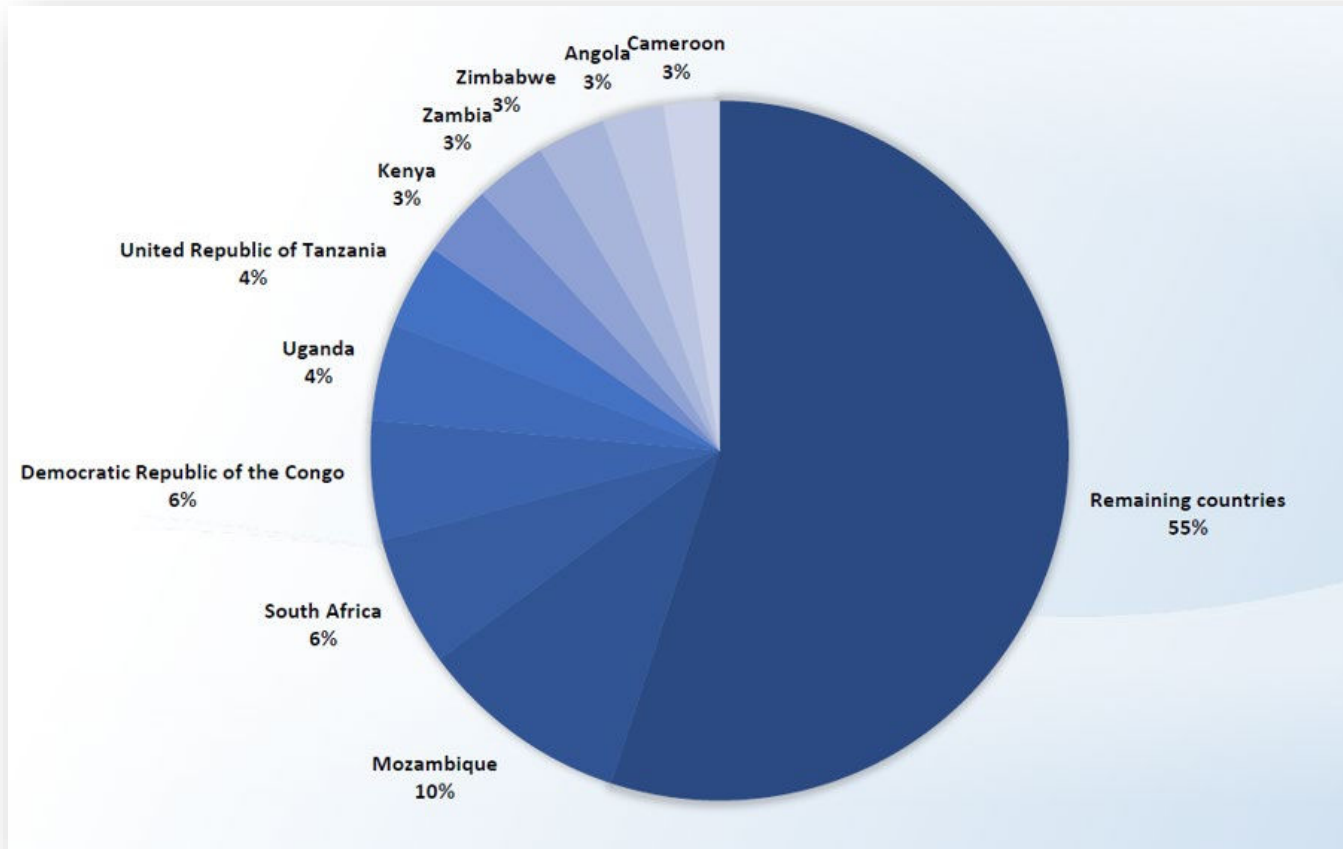
- Transition from pregnancy to postpartum and infant care is a high-risk period for disengagement
- As ART programs mature the proportion of people living with HIV becoming pregnant and entering ANC services is shifting to a treatment experienced population subject to similar cycles of engagement, disengagement, and re-engagement in care



ART Failure

- Delayed transition to TLD among pregnant populations

Contribution to new pediatric HIV infections by country | 2022

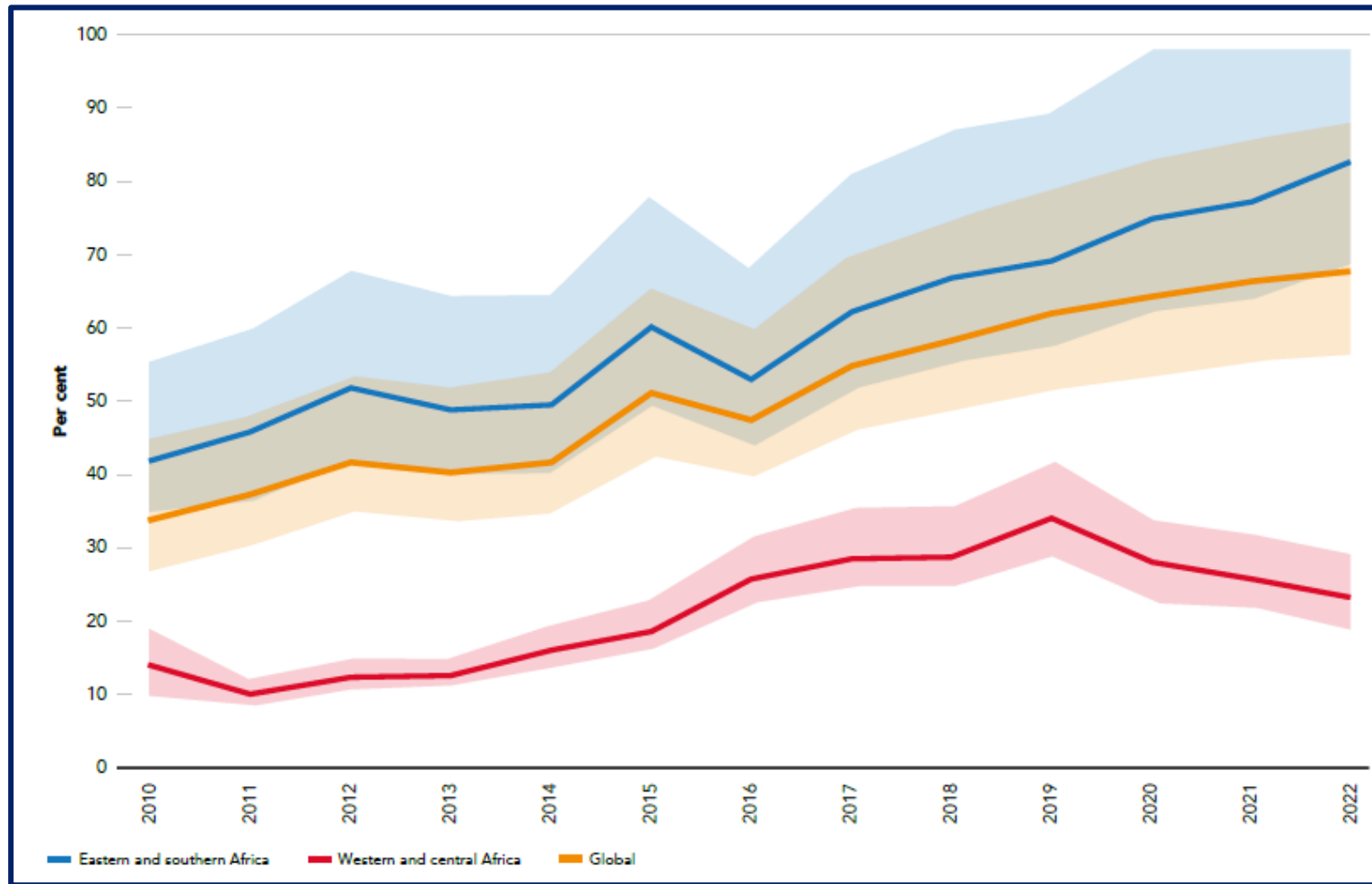


A number of high-burden countries have reduced vertical transmissions by more than 70% over the last decade, including Zimbabwe, South Africa, Uganda, Kenya and Cote d'Ivoire

New HIV infections in children have decreased most rapidly in Eastern and Southern Africa though Mozambique, has had slower progress and now contributes 10% of new pediatric infections

Progress has been slower in most Western and Central African countries where HIV prevalence is generally lower, and access to MCH services can be less robust.

Globally only 68% of infants had an HIV early diagnostic test by 2 months of age, 2022



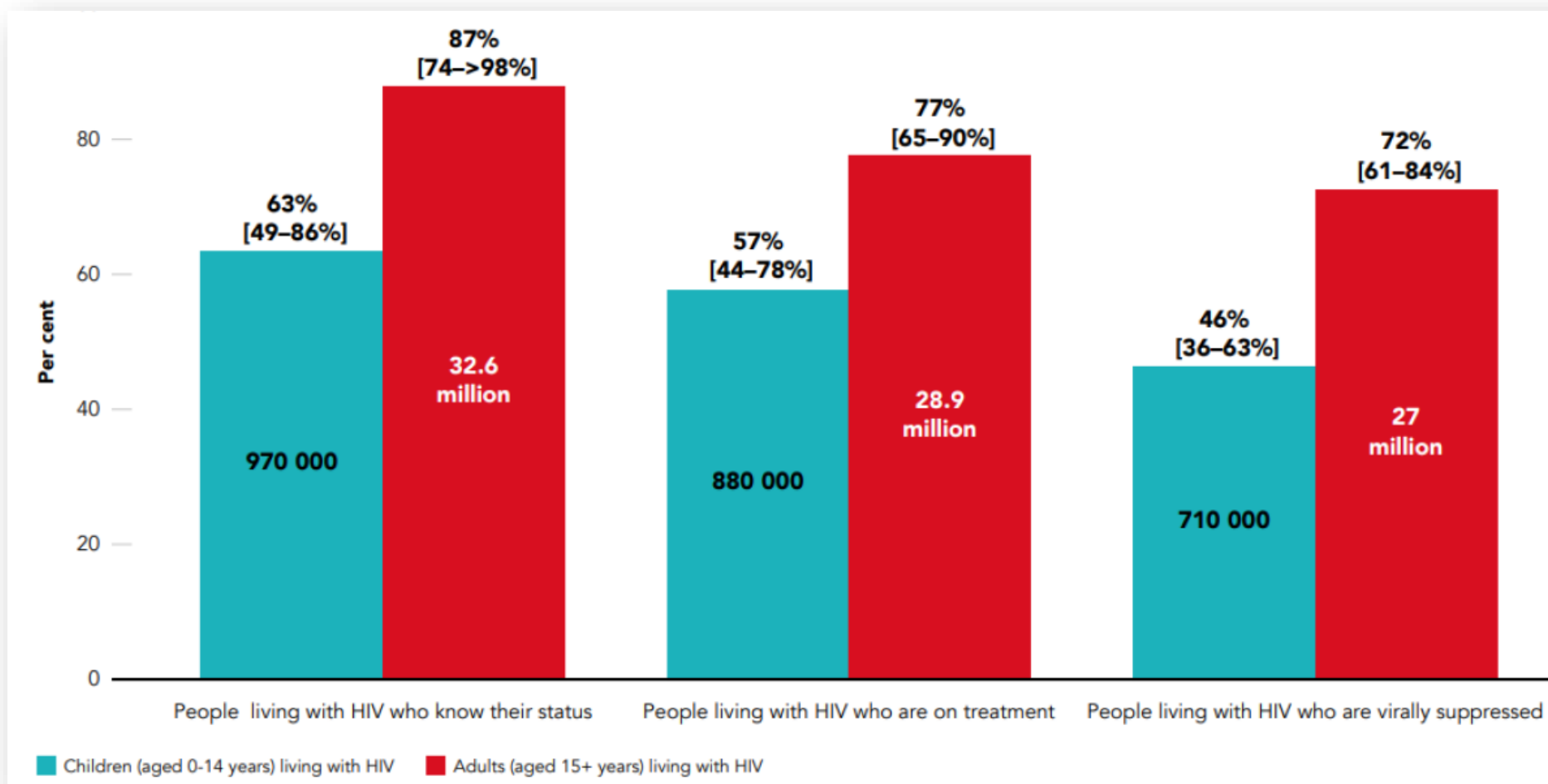
~83% East/Southern Africa

~68% Global

~23% West/Central Africa

Percentage of HIV-exposed infants tested for HIV by two months of age, global and selected regions, 2010-2022

In 2022, only an estimated 57% of children living with HIV < 14 years of age received ART



Infants and children with advanced HIV disease (AHD) often go unrecognized

- Around 30% of children and adolescents with HIV in LMIC present with severe immunosuppression at HIV diagnosis
- Mortality is high in children starting ART who are hospitalized.
 - Among 310 hospitalized infants, mean age 4.5 months, enrolled in a study to optimize pneumonia treatment in 6 African countries; 70% diagnosed with HIV on admission; survival was only 50% at 12 months.

Frigati L et al, JIAS 2023 <https://doi.org/10.1002/jia2.26041>
Passanduca A et al CROI 2023; Abstract #810



Definition of AHD in children:

In children > 5 years with WHO stage 3 or 4 or CD4 cell count <200cells/mm³

All children younger < 5 years are considered to have AHD

Those receiving ART for >1year and clinically stable should not be considered to have AHD

<https://www.who.int/publications/i/item/9789240008045>

Where do we go from here?



A focus on families

- Children are almost always part of families with the mother-child dyad at the center
 - Person-centered = Child-centered = Family-centered care
- Keeping mothers living with HIV healthy is key to achieving an end to the pediatric HIV epidemic and ensuring the health and wellbeing of the child irrespective of HIV status.

MTCT Plus Initiative Sites



- Cameroon
- Côte d'Ivoire
- Kenya
- Mozambique
- Rwanda
- South Africa
- Thailand
- Uganda
- Zambia

A New Approach Brings Hope


MTCT Plus

Launched in 2003, this landmark project defies the skeptics and opens the door to HIV care and treatment in sub-Saharan Africa and Thailand

Groundbreaking program uses prevention of mother-to-child transmission as entry point to comprehensive HIV care and treatment for families

Fundamentals of MTCT-Plus

- Comprehensive HIV primary care inclusive of antiretroviral therapy
- **Family-centered care**
 - **Inclusive of children**
- Emphasis on long-term retention in care and adherence to treatment
- Multidisciplinary care teams
- Attention to psychosocial and environmental issues
- Involvement of persons with HIV and outreach to community resources



We have many tools



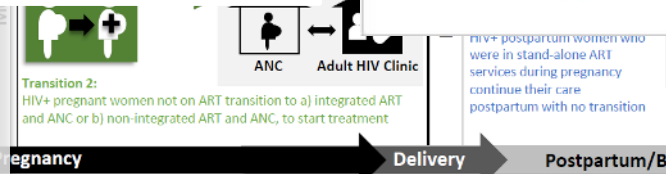
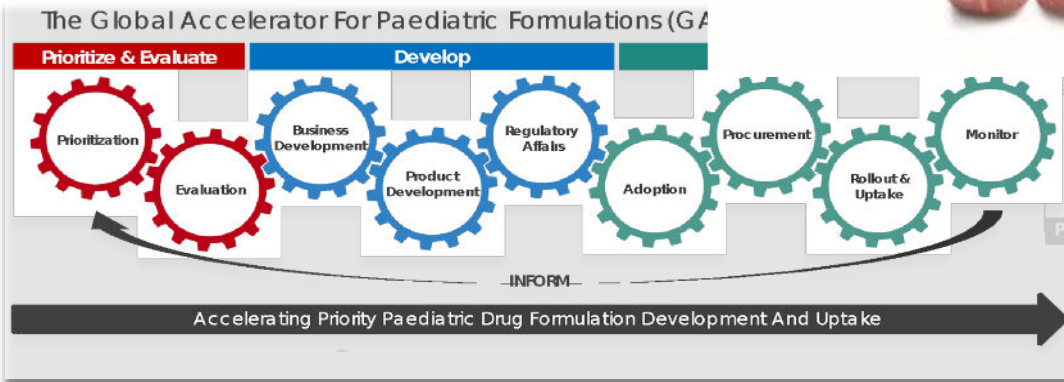
Key Considerations for Introducing New HIV Point-of-Care Diagnostic Technologies in National



PAEDIATRIC DTG IMPLEMENTATION CONSIDERATIONS FOR NATIONAL PROGRAMMES
APRIL 2022



Formulation	WHO-Recommended Daily Dosing						
	3 – 5.9kg	6 – 9.9kg	10 – 13.9kg	14 – 19.9kg	20 – 24.9kg	25 – 29.9kg	≥ 30kg
ABC/3TC 120/60mg scored dispersible tablet	1	1.5	2	2.5	3	-	-
DTG 10mg scored dispersible tablet	0.5	1.5	2	2.5	{ DTG 10mg or transition to 1 DTG 20mg tablet }	-	-
ABC/3TC/DTG 60/30/5mg (pALD) dispersible tablet	-	3	4	5	{ pALD or transition to ABC/3TC + DTG 50mg }	-	-
ABC/3TC 600/300mg tablet	-	-	-	-	-	1	1
DTG 50mg film-coated tablet	-	-	-	-	1	1	{ transition to TDF }
TDF/3TC/DTG 300/300/50mg tablet	-	-	-	-	-	-	1



Successful innovations: HIV testing



Novel testing approaches to identify pregnant people outside of the facility:

- ICAP Nigeria RISE Program implemented community PMTCT (cPMTCT) to provide HTS and ART initiation at TBA, private maternity homes and non-PEPFAR supported health centers
 - Rapidly increased the number of pregnant women identified living with HIV infection and initiating ART
- Community-based programs such as the faith-based Baby Shower intervention were trialed in Benue State, Nigeria to improve testing (a prayer ceremony, group education, music, gifting of a "mama pack" with safe delivery supplies, and HIV testing with ART linkage support for HIV-positive pregnant women) (Montanden et al, PLoS ONE 2021)



Novel approaches to identify children with HIV infection beyond traditional facility-based testing

- Family index case testing
- Home use of HIV self-test kits
- Know 'the mother's status'

Point of care (POC) nucleic acid testing for early infant diagnosis

- Plethora of evidence that POC EID decreases result turn around time, time to ART initiation and early mortality
 - Infants were nearly 9 times more likely to start treatment within 60 days with POC testing compared to SOC testing (Luo et al, Lancet 2022)

Successful innovations: integrated mother-child HIV care

In most settings integrated HIV and antenatal services are routinely provided as the standard of care.

Transition from pregnancy to postpartum care is a high-risk period for disengagement for women living with HIV.

Centering on the mother-child dyad and integrating maternal HIV care postpartum with infant HIV and well child-care has been demonstrated to improve both maternal and child outcomes including maternal viral suppression, retention, EID and immunizations.

Table 1. Maternal Viral Load (VL) monitoring coverage and suppression and infant testing in postnatal clubs and historical controls [37].

	Historical controls n = 221	Postnatal clubs n = 141	Risk ratio (95% CI) [Club/controls]
Infants			
9 months rapid uptake (8-10mth)	112/221 (51%)	114/141 (81%)	1.6 (1.4-1.9)
18 months rapid uptake (17-19mth)	70/220 (32%)	90/140 (64%)	2.0 (1.6-2.6)
Seroconversions ^a	2	1	
Mothers			
0-12 months VL monitoring coverage	149/221 (67%)	140/141 (99%)	1.5 (1.3-1.6)
0-12 months VL suppression	141/149 (95%)	134/140 (96%)	1.0 (0.96-1.1)
12-18 months VL monitoring coverage	65/221 (29%)	107/141 (76%)	2.6 (2.1-3.2)
12-18 months VL suppression	63/65 (97%)	101/107 (94%)	0.97 (0.9-1.0)

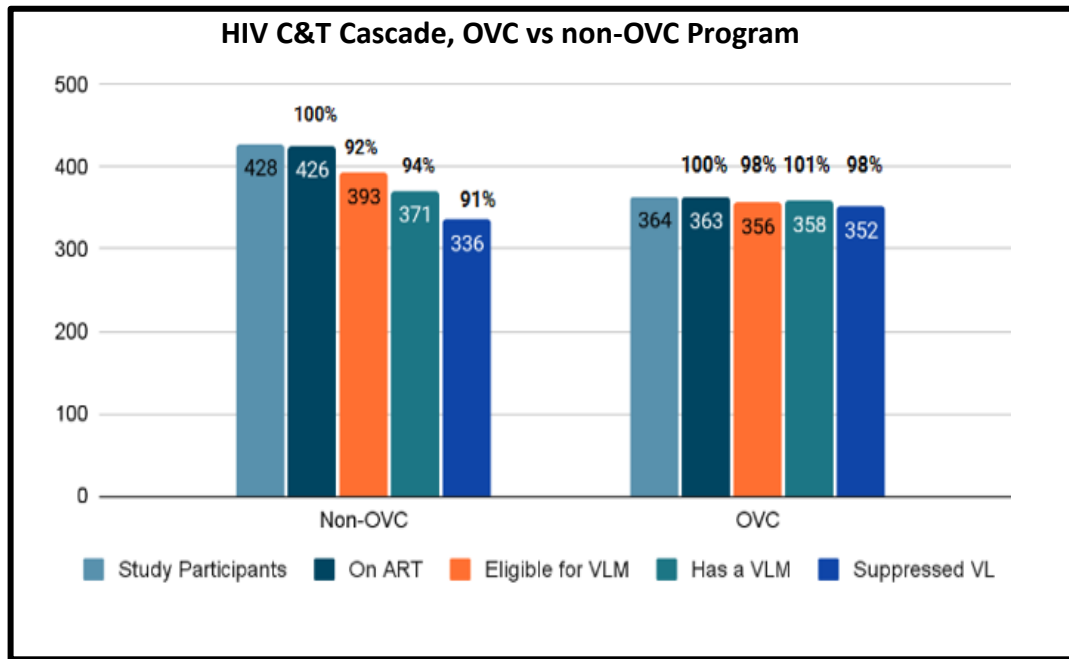
^a Control group: two infants seroconverted before 18 months. Postnatal club cohort: one infant seroconverted after exiting the club before their 18 months test

MIP in the postnatal clubs showed better PMTCT outcomes than historical controls with high levels of retention in care in South Africa.

Nelson et al, PLoS ONE 2023

Successful innovations: OVC services

Increasing evidence demonstrating the impact of comprehensive packages of health and socioeconomic services for children living with HIV.



Compared to children in routine 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 increased VL measurement.

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

Package of Services and Interventions for Children and Adolescents Living with HIV

Guidance for Orphans and Vulnerable Children Programs



We have tools, innovations and commitments

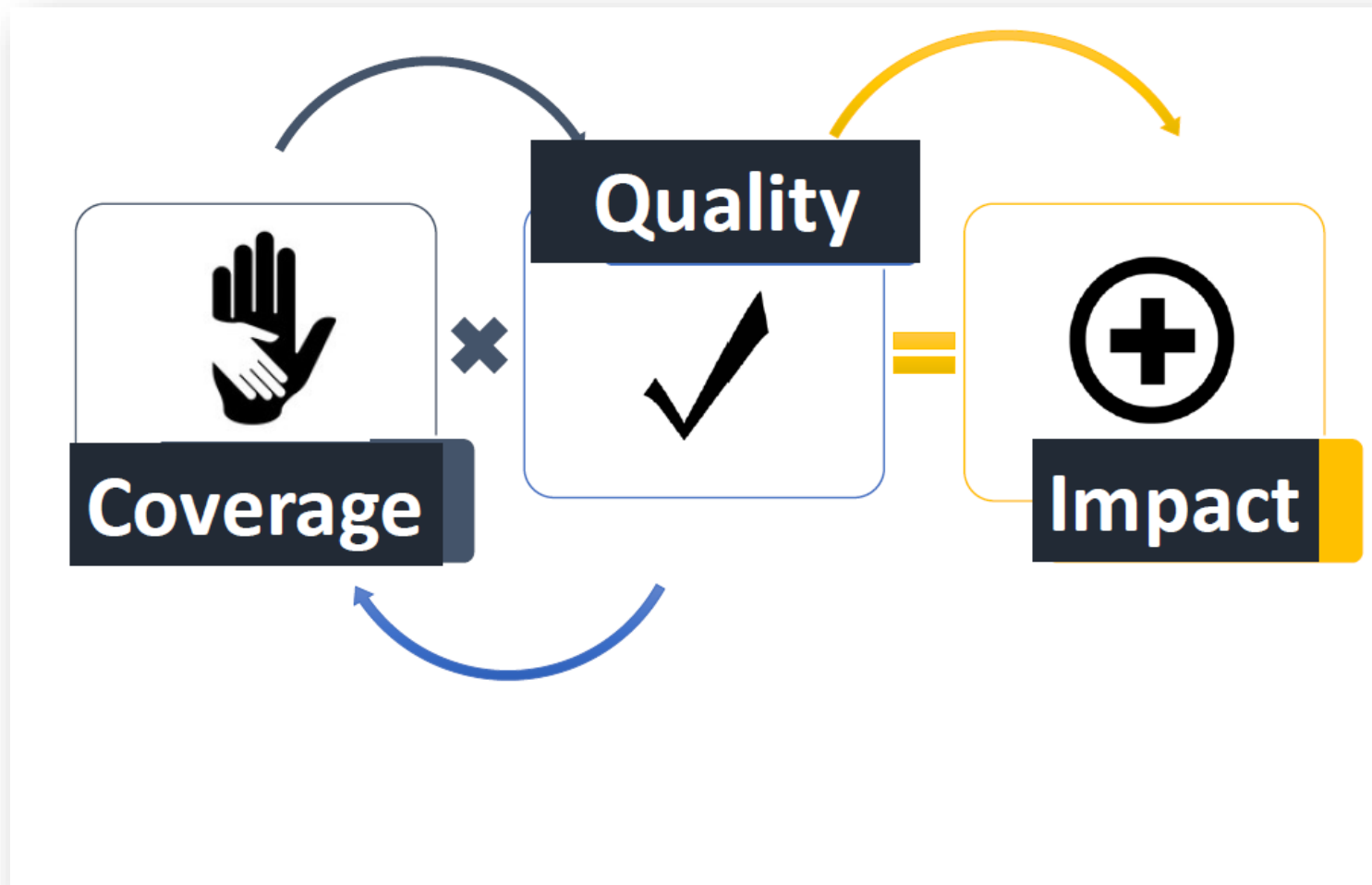
A dedicated group of partners, organizations, institutions and individuals who have been working diligently in this space for decades and have brought us to where we are today

The Global Alliance to End AIDS in Children by 2030: An end to AIDS in children, achieved through a strong, strategic and action-oriented alliance of multisectoral stakeholders at national, regional and global levels that works with women living with HIV and their families, national governments and partners to mobilize leadership, funding and action to end AIDS in children by 2030.

Accelerating Progress in Pediatrics and PMTCT (AP3) Initiative: The AP3 program aims to: 1) reduce new child infections in children <10 years through addressing gaps in the PMTCT program by 50% globally; 2) rapid identification, linkage, and treatment of children not yet on ART to increase coverage, including those lost to care; and 3) increase rates of pediatric viral load suppression to 95% and reduce mortality

Safe Births, Healthy Babies: The goal of Safe Births, Healthy Babies will be to accelerate progress to eliminate MTCT in high HIV burden countries over two years.

What will it take to end the pediatric HIV epidemic?





We can end the pediatric HIV epidemic

Focus on families, center on children

Guided by Recipients of Care

Lead by national governments

Build on learning and incorporating innovation

Carefully measure and monitor outcomes

I've seen it done in the US and I know it can be done here as well!