HIV Vertical Transmission Elimination:

The Journey, The Challenges, and The Promise

Elaine Abrams

HIV Impact Network for Vertical Transmission Elimination

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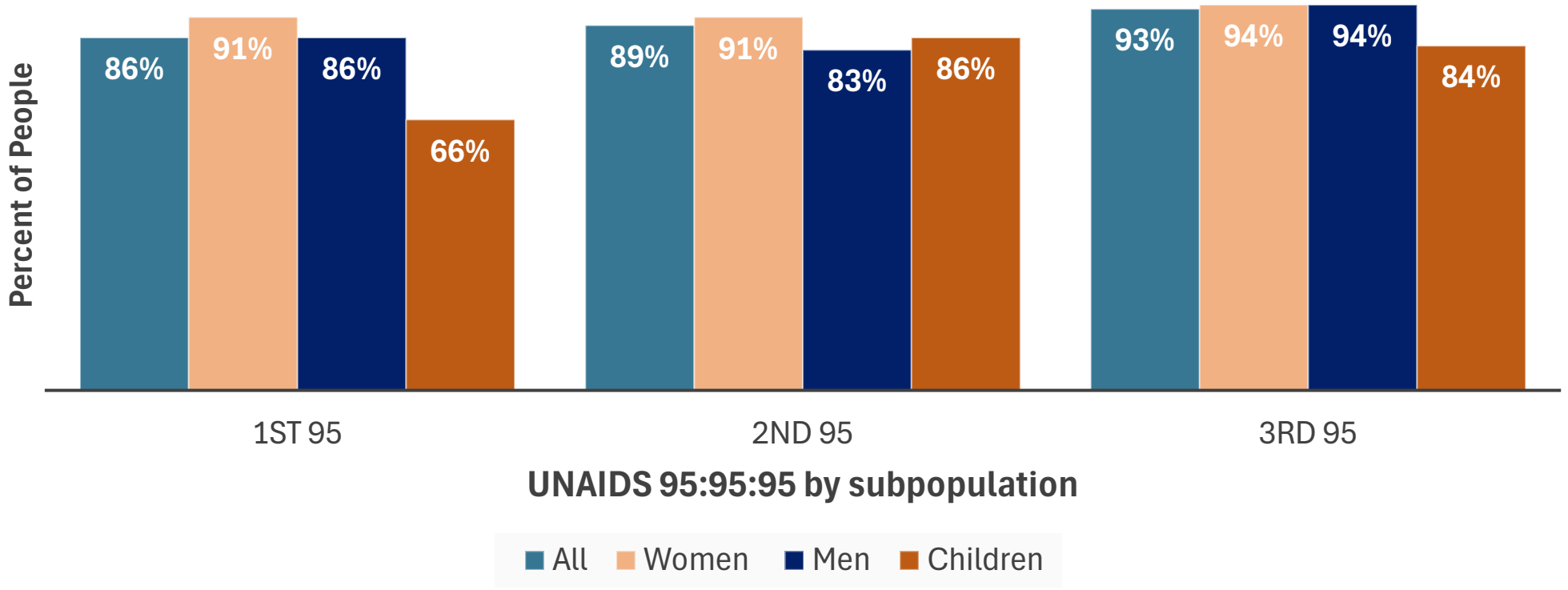
Overview

- **Progress towards ending the HIV epidemic**
- **The journey towards HIV vertical transmission elimination**
- **The challenge**
- **The promise**
  - *Global initiatives aimed at elimination*
  - *HIVE - **H**IV **I**mpact Network for **V**ertical Transmission **E**limination*

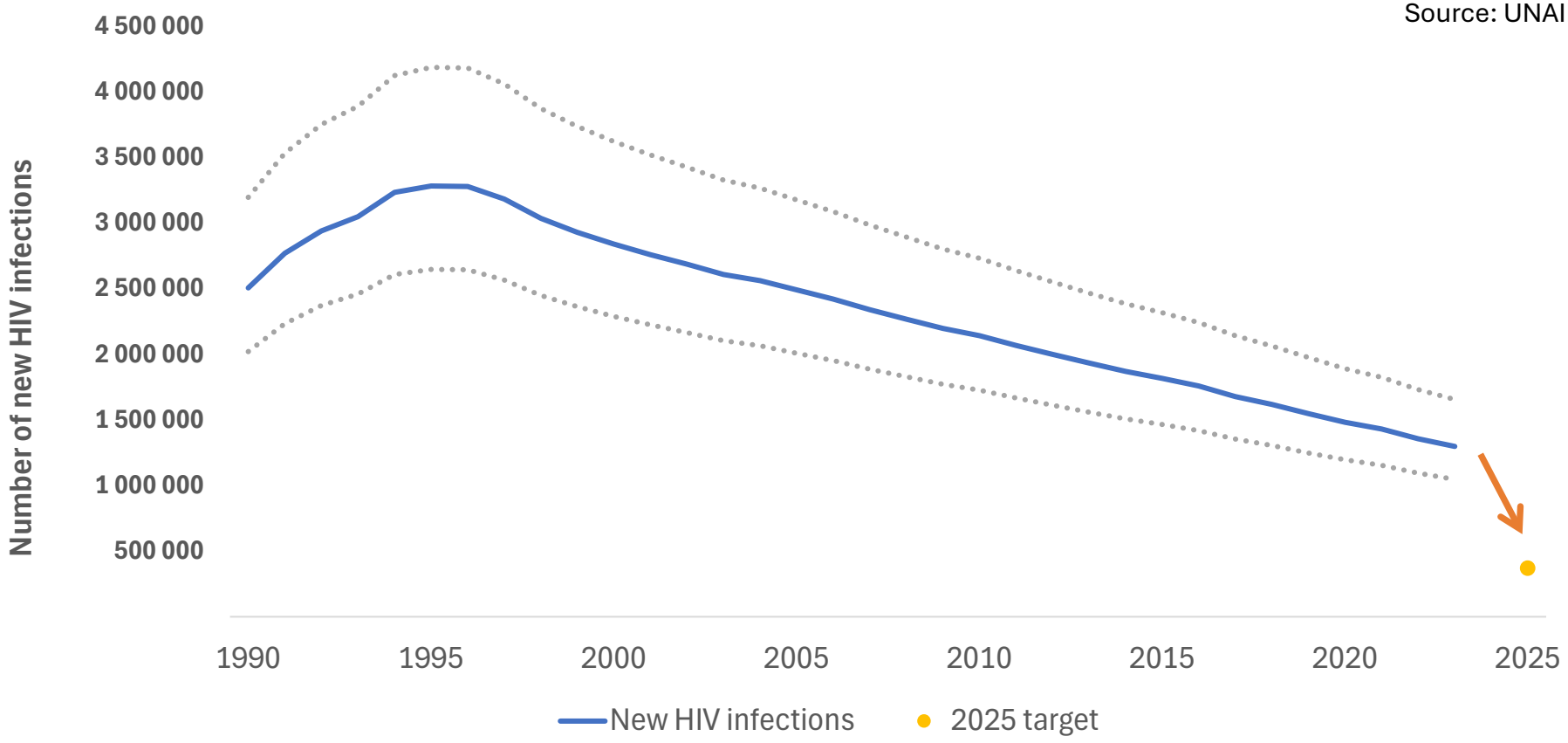
Substantial progress towards 95:95:95

Source: UNAIDS 2024 Report



Steady decline in the number of new HIV infections annually

Source: UNAIDS 2024 Report



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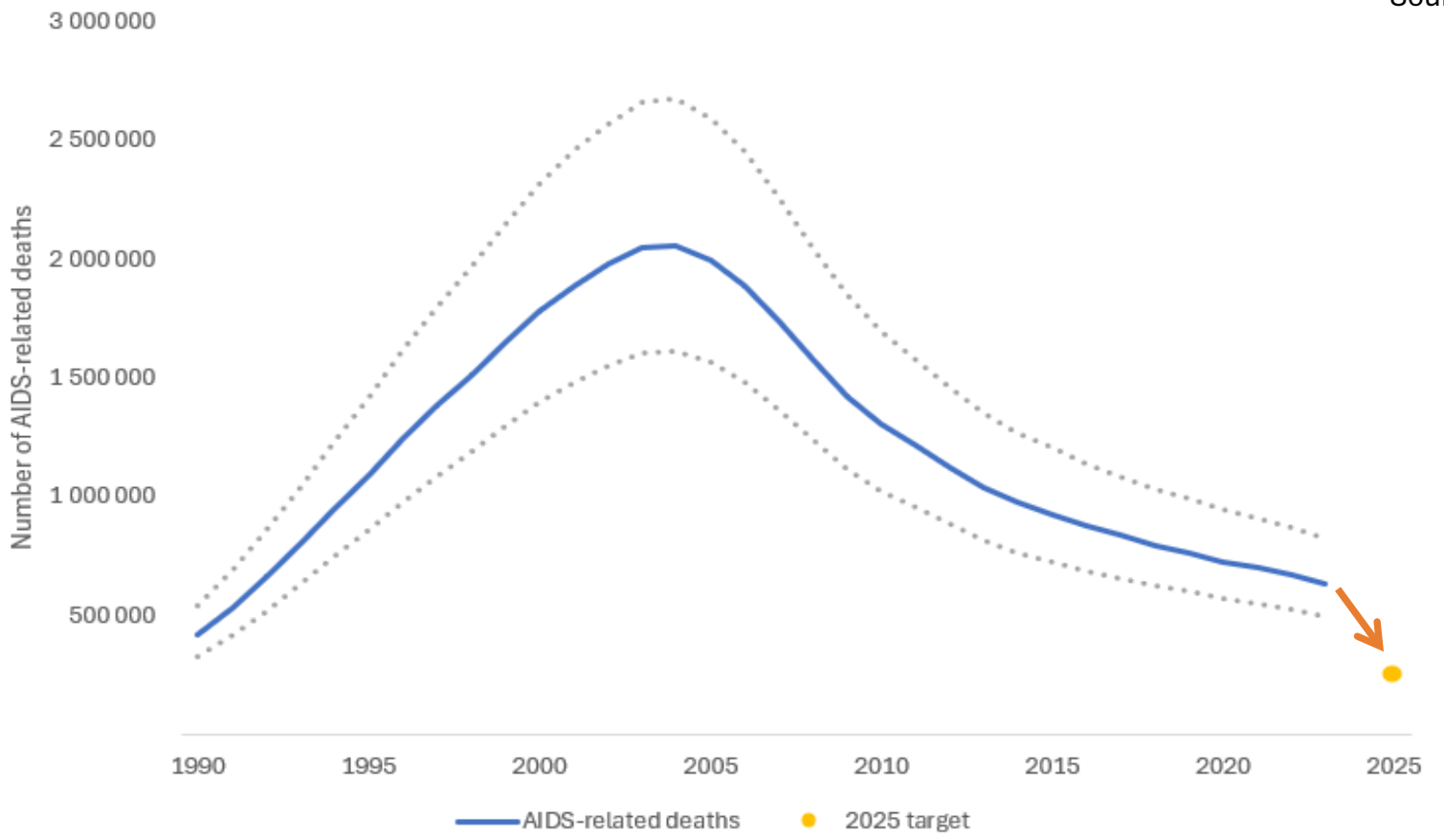
630,000 people died from HIV-related illnesses in 2023

Source: UNAIDS 2024 Report



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But we are here to focus on children

Source: UNAIDS 2024 Report

Global estimates for children (<15 years) | 2023		
Children living with HIV	**1.4 million**	[1.1 million–1.7 million]
New HIV infections	**120 000**	[83 000–170 000]
Deaths due to AIDS	**76 000**	[53 000–110 000]

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The Journey Towards HIV Vertical Transmission Elimination

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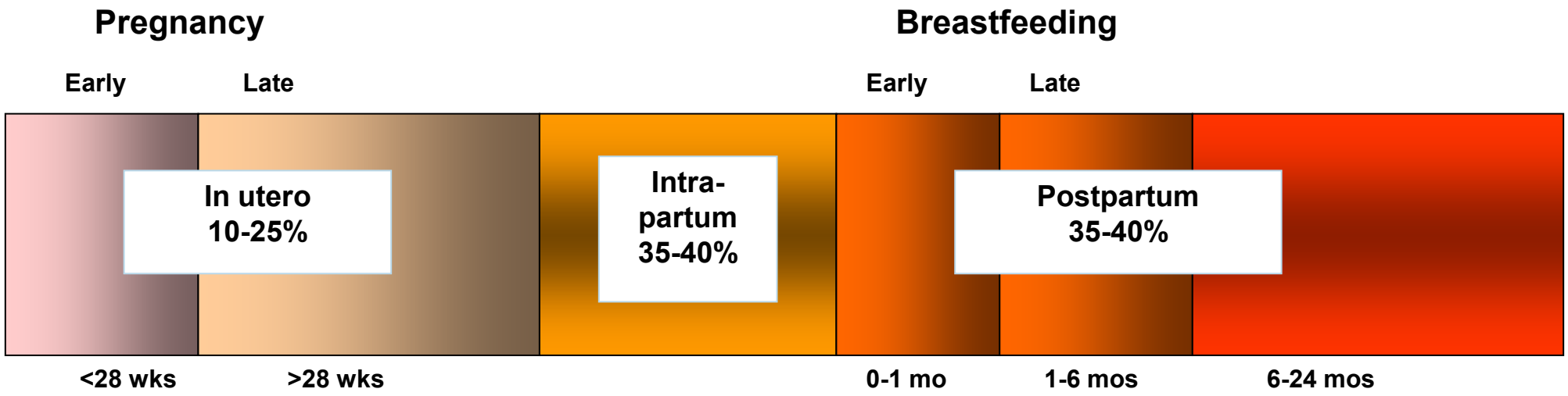
Driven by science and discovery (1)



HIV can be transmitted during pregnancy, during labor and delivery and throughout the period of breastfeeding

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Driven by science and discovery (2)

TABLE 2. RATES OF PERINATAL TRANSMISSION OF HIV-1 ACCORDING TO MATERNAL PLASMA HIV-1 RNA LEVELS AND THE USE OF ZIDOVUDINE THERAPY DURING PREGNANCY.*

ZIDOVUDINE THERAPY	MATERNAL PLASMA HIV-1 RNA COPIES/ml					P VALUE†
	<1000	1000–10,000	>10,000–50,000	>50,000–100,000	>100,000	
	no. of infants infected/total no. (%)					
Yes	0/22	10/83 (12.0)	13/75 (17.3)	5/16 (31.2)	7/34 (20.6)	0.02
No	0/35	22/110 (20.0)	26/108 (24.1)	12/38 (31.6)	19/30 (63.3)	<0.001
Total	0/57	32/193 (16.6)	39/183 (21.3)	17/54 (30.9)	26/64 (40.6)	<0.001

*Values are the geometric means of measurements obtained throughout pregnancy. For each woman, levels were measured up to three times during pregnancy and once at delivery. The treatment status of one woman was not known.

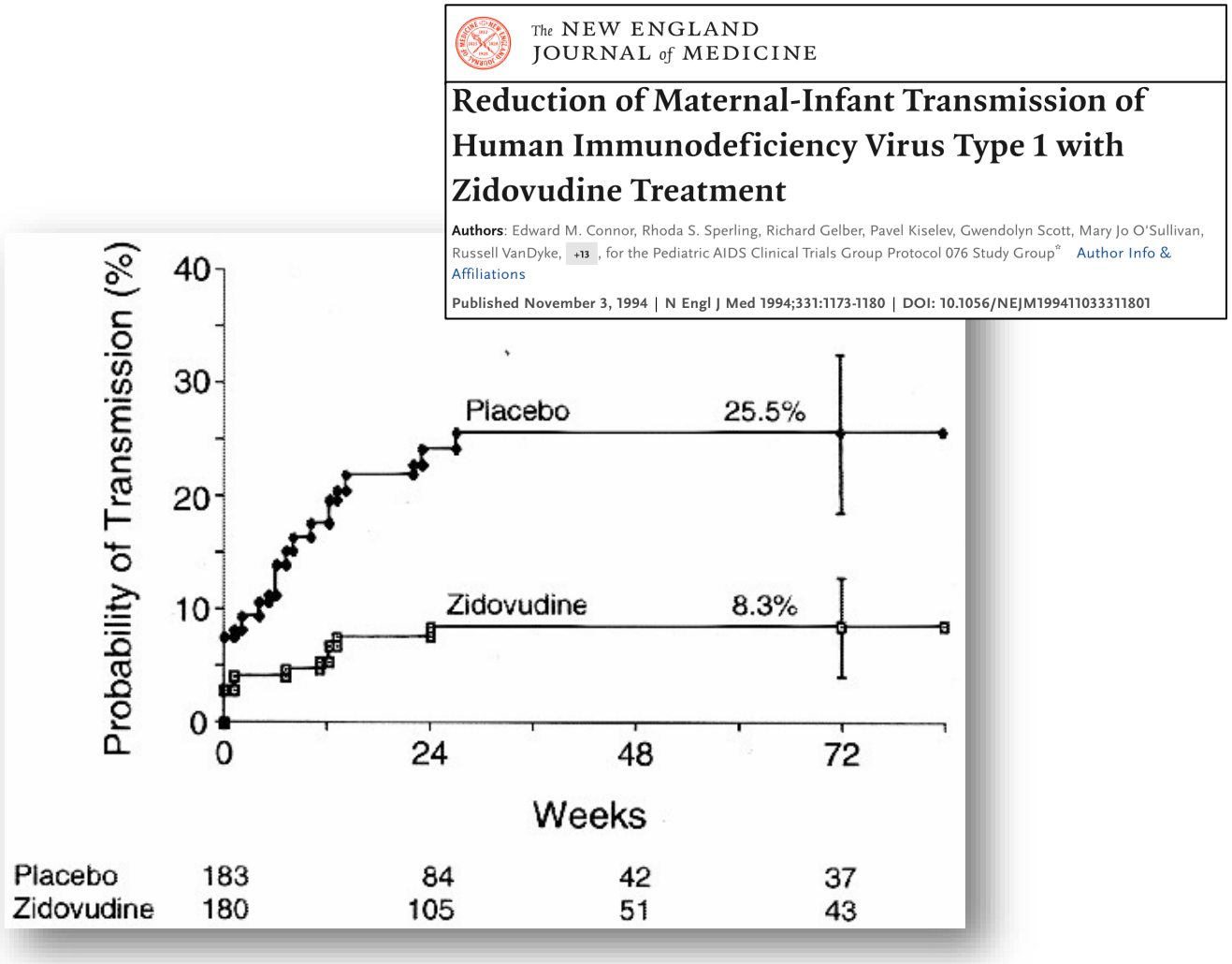
†The P values were calculated with use of the Mantel extension test for trend.

Garcia P et al, NEJM,1999;341;394:402

Risk of HIV transmission to the child is directly related to maternal health status

Maternal viral load (VL) is the major determinant of VT risk

Driven by science and discovery (3)



The NEW ENGLAND JOURNAL of MEDICINE

Reduction of Maternal-Infant Transmission of Human Immunodeficiency Virus Type 1 with Zidovudine Treatment

Authors: Edward M. Connor, Rhoda S. Sperling, Richard Gelber, Pavel Kiselev, Gwendolyn Scott, Mary Jo O'Sullivan, Russell VanDyke, +13, for the Pediatric AIDS Clinical Trials Group Protocol 076 Study Group* Author Info & Affiliations

Published November 3, 1994 | N Engl J Med 1994;331:1173-1180 | DOI: 10.1056/NEJM199411033311801

- In 1994, PACTG 076 demonstrated the efficacy of zidovudine during pregnancy, at delivery and to the infant for six weeks in reducing the risk of vertical HIV transmission
- Over the last thirty years multiple studies have demonstrated the efficacy of antiretrovirals to the mother and to the infant to reduce the risk of HIV vertical transmission

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Driven by science and discovery (4)

2001

4 weeks AZT; AZT+ 3TC; or SD NVP

2004

AZT from 28 wks + sdNVP

ART for CD4 <200

2006

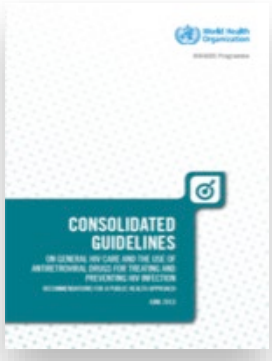
AZT from 28 wks + sdNVP + AZT/3TC 7d

ART for CD4<200

2010

Option A
AZT/sdNVP + infant NVP if BF
Option B
ART preg/BF

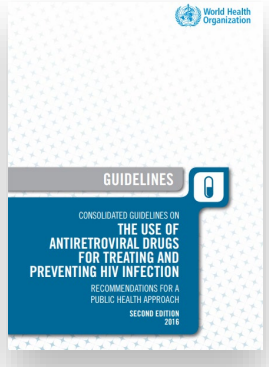
ART for CD4<350



2013

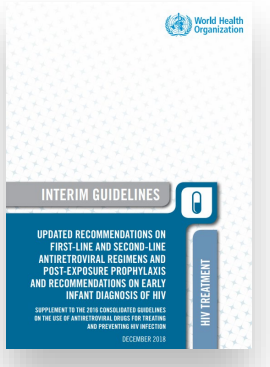
Option B
ART preg/BF
Option B+
Life-long ART

ART for CD4<500



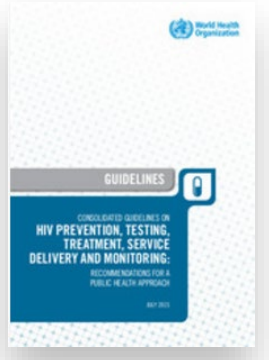
2016

ART in **ALL** people with HIV including PBFW



2018

Treat ALL with dolutegravir-based ART except PBFW



2021

Treat ALL with dolutegravir-based ART including PBFW

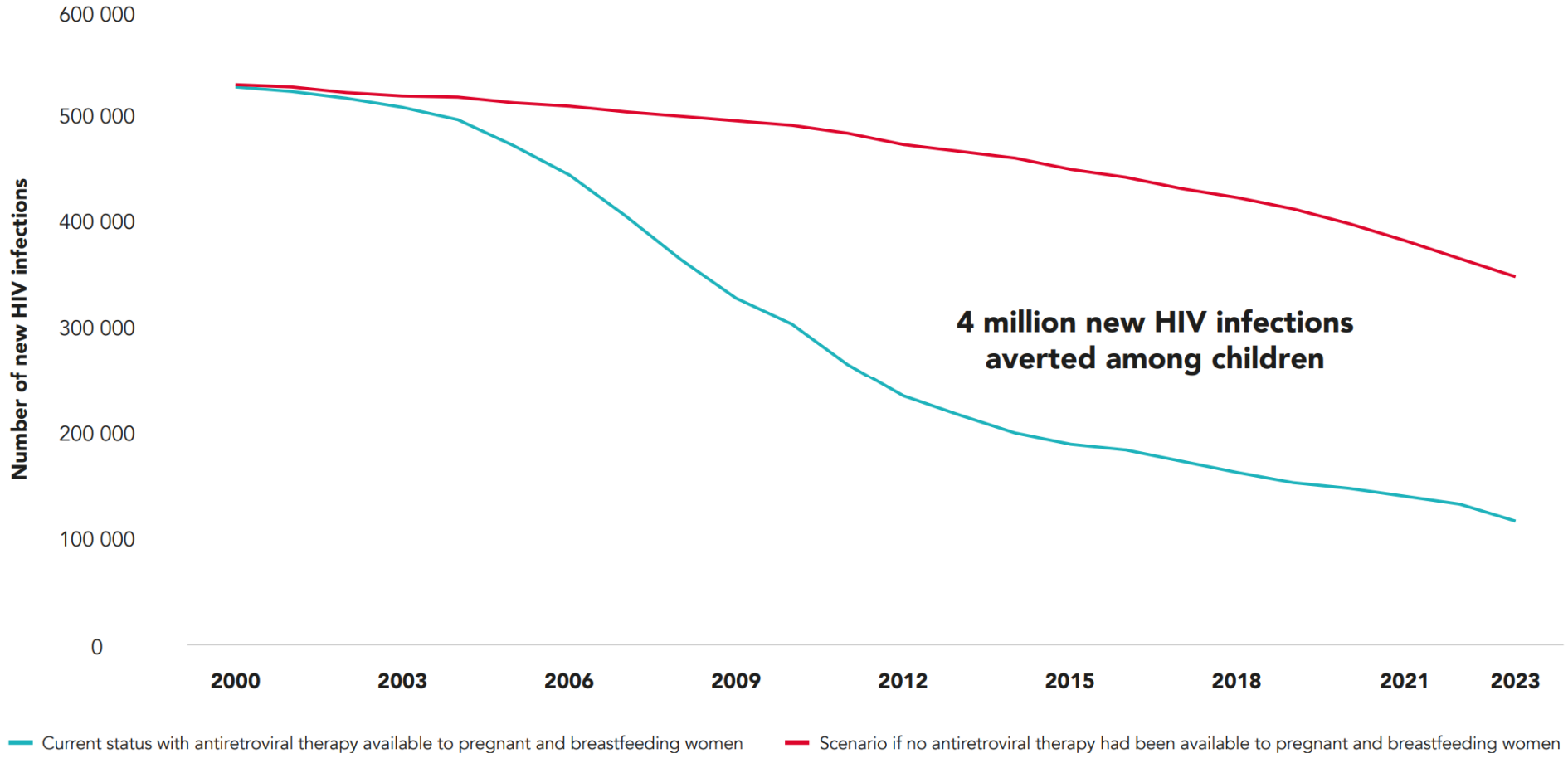
PACTG 076, DITRAME, PETRA, HIVNET 012, PHPT, NVAZ, MASHI, PEPI, SWEN, DITRAME, MITRA, Kesho Bora, Mma Bana, BAN, HPTN 046, PROMISE-NIH, PROMISE-ANRS, PROMISE-EPI, VESTED, DolPHIN, DolPHIN-2

Move to more effective potent antiretroviral drugs, extending coverage throughout perinatal transmission risk period, treatment for the mother's health, increased consideration of operational/program implementation issues

- **Suppressive ART to the mother, coupled with infant ARV prophylaxis, reduces the risk of perinatal transmission, preventing new pediatric infections and preserving maternal health**
- Lowest perinatal transmission rates are among women on fully suppressive ART begun prior to conception
- Sustained undetectable maternal VL is associated with very low risk (<1%) of perinatal infection
- **The most effective way to reach elimination of vertical HIV transmission is by focusing on the moms –preventing new HIV infections among women and effectively treating those with HIV infection**

Over 4 Million New Infections Averted in Children With Maternal ART and Vertical Transmission Prevention Programs Since 2000

Source: UNAIDS 2024 Report



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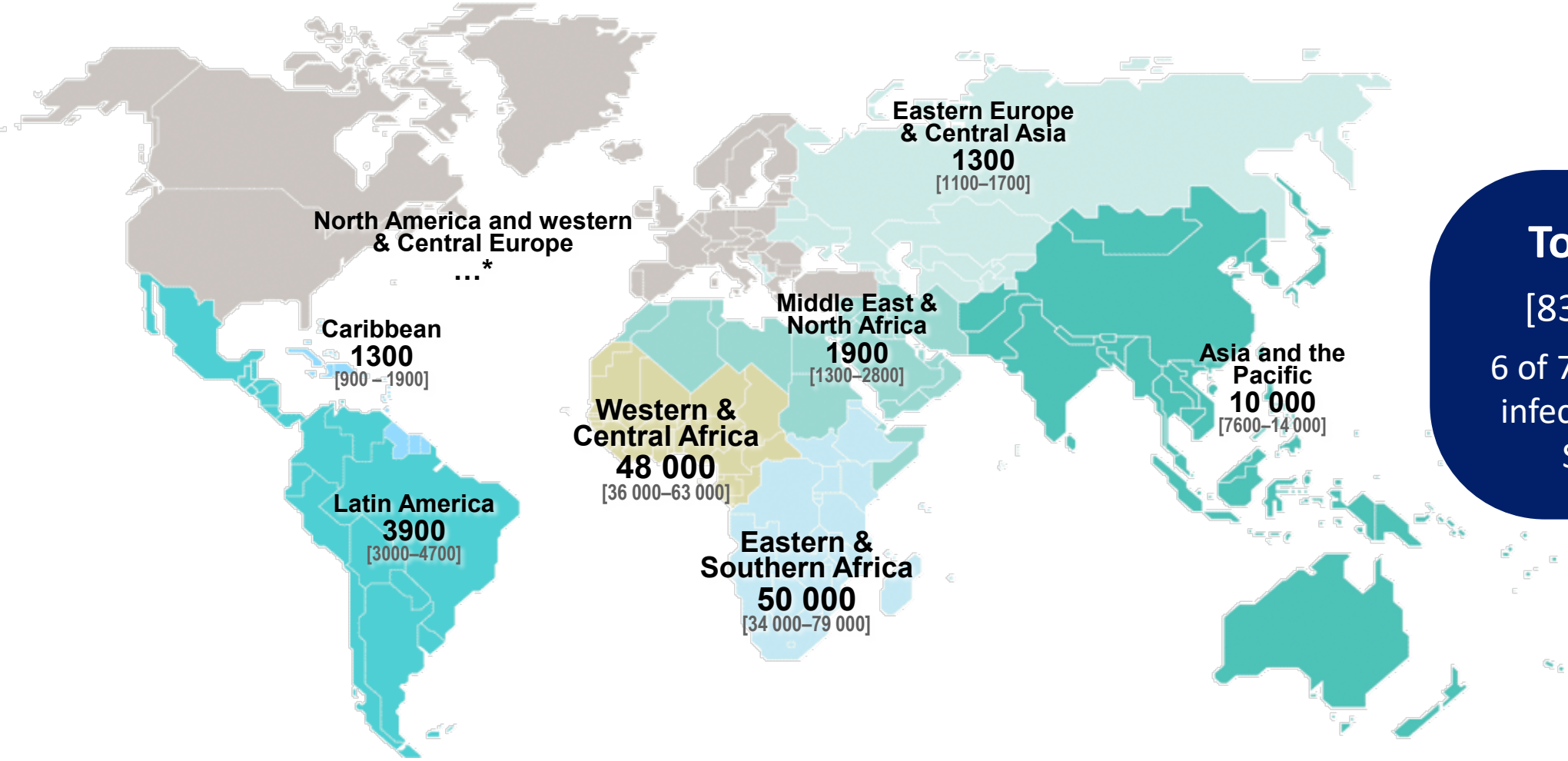
UNAIDS estimated 120,000 New HIV Infection in Children in 2023



Total: 120 000

[83 000–170 000]

6 of 7 new pediatric HIV infections were in sub-Saharan Africa

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The Challenge

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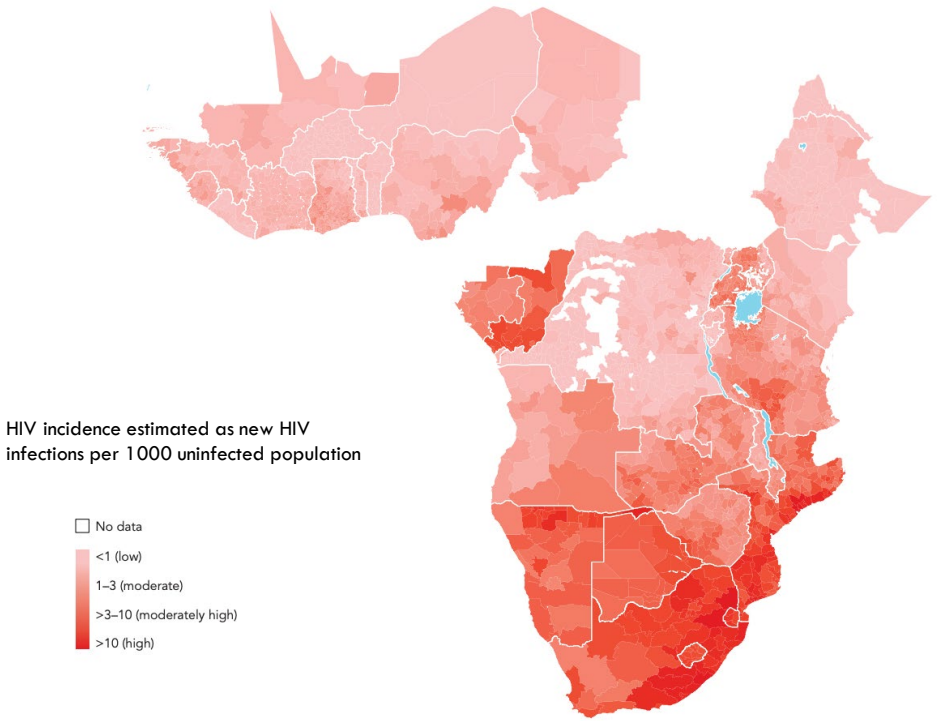
Despite some gains, HIV incidence in adolescent girls and young women remains stubbornly high

Source: UNAIDS 2024 Report

HIV incidence among AGYW, 15-24 years



Source: UNAIDS epidemiological estimates, 2024 (https://aidsinfo.unaids.org/).
Note: HIV incidence estimated as new HIV infections per 1000 uninfected population.

- In 2023, 210 000 [130 000–280 000] adolescent girls and young women (AGYW) acquired HIV globally
  - 17% of new HIV infections occur in AGYW 15-24 years of age
  - PBFW may be at increased risk for HIV acquisition
    - High risk of VT associated with incident maternal infection

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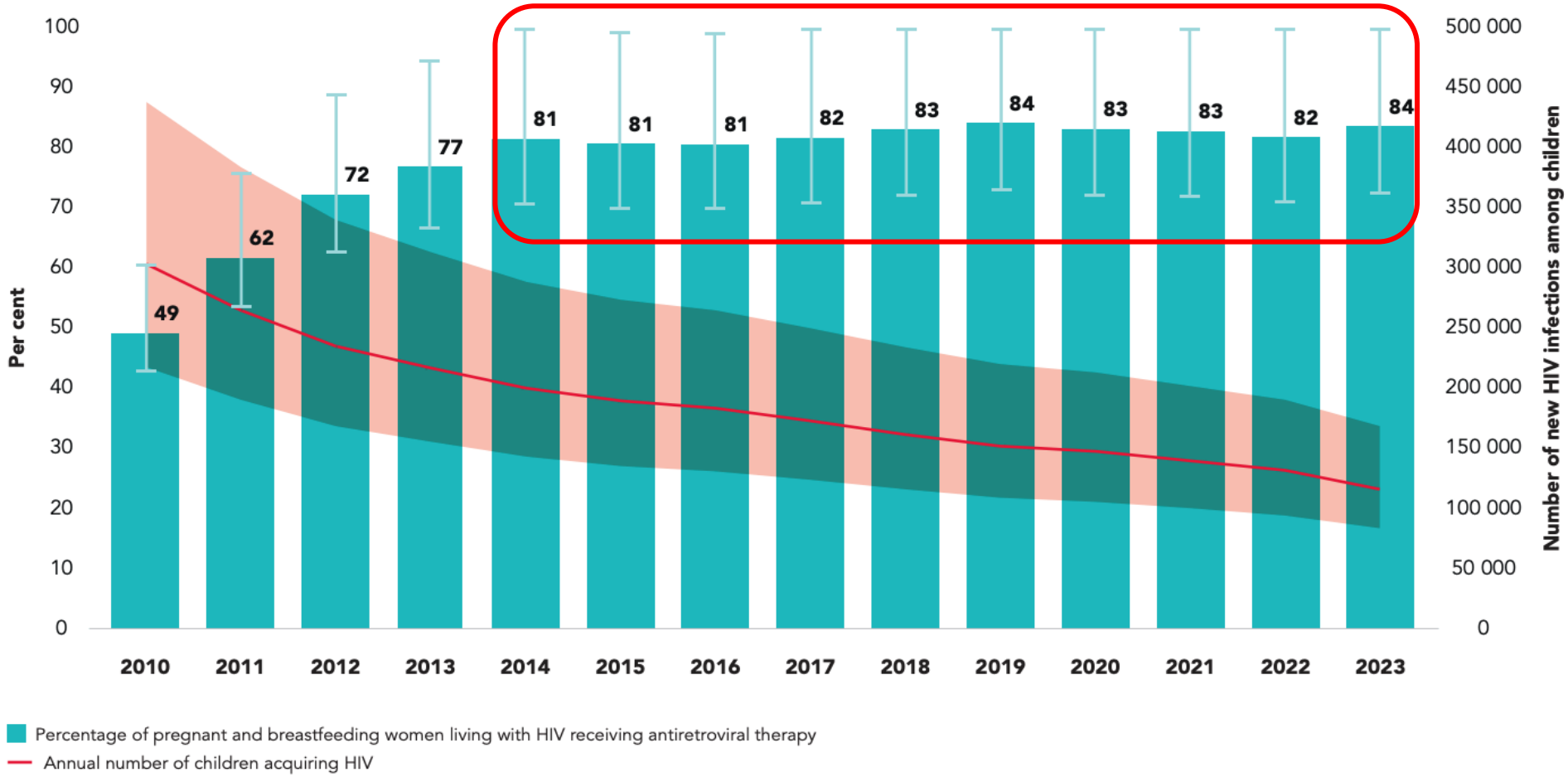
ART coverage among pregnant and breastfeeding women with HIV has stalled

Source: UNAIDS 2024 Report



Coverage rates have remained stagnant at ~82% over the last decade with significant variation by region

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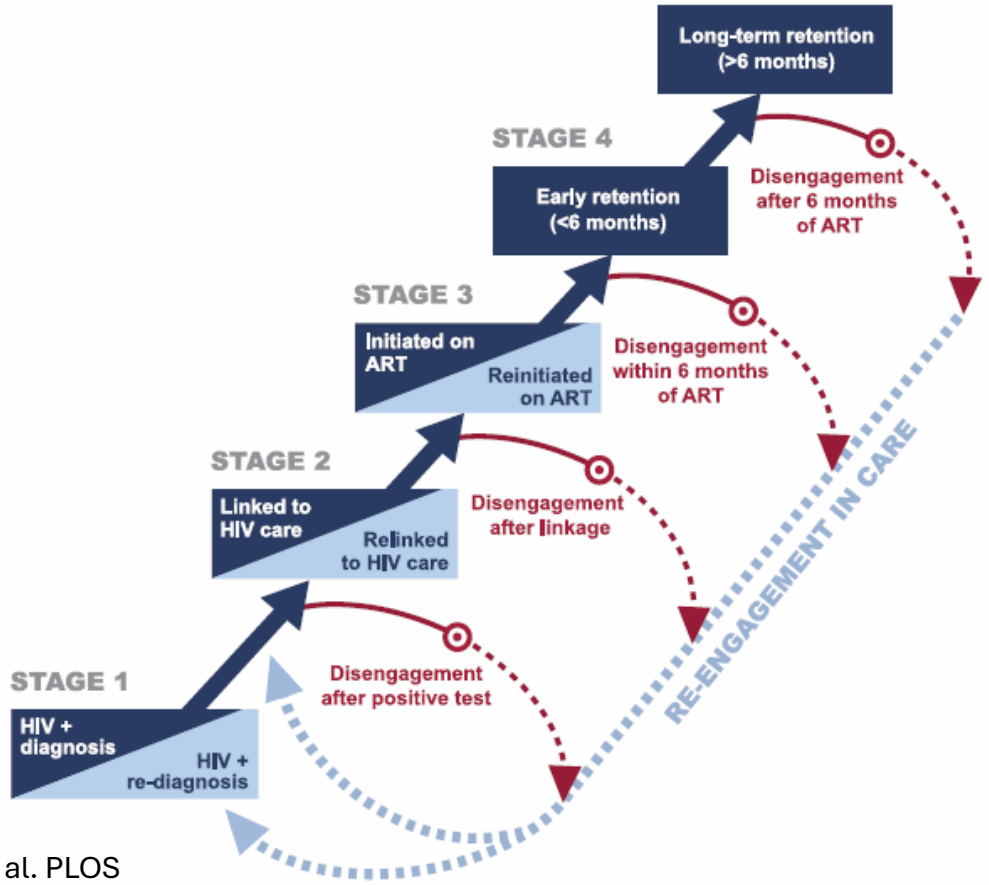
Applying the ‘revolving door of HIV care’ to pregnant and breastfeeding women



Ehrenkranz P, et al. PLOS Med;18(5):e1003651

- As ART programs mature the proportion of people 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

- Transition from pregnancy to postpartum and infant care is a high- risk period for disengagement

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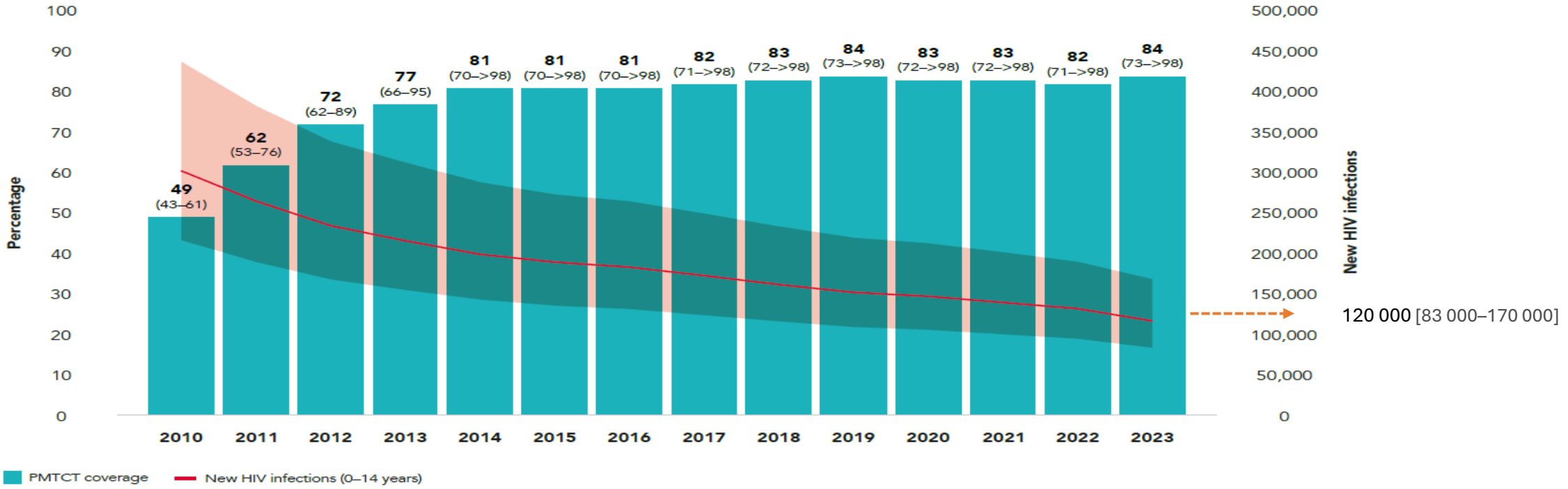
Progress to reduce the number of new infections in children has been slow

Source: UNAIDS 2024 Report

New HIV Infections among Children Aged 0-14 and Antiretroviral Therapy Coverage among Pregnant and Breastfeeding Women Globally, 2010–2023



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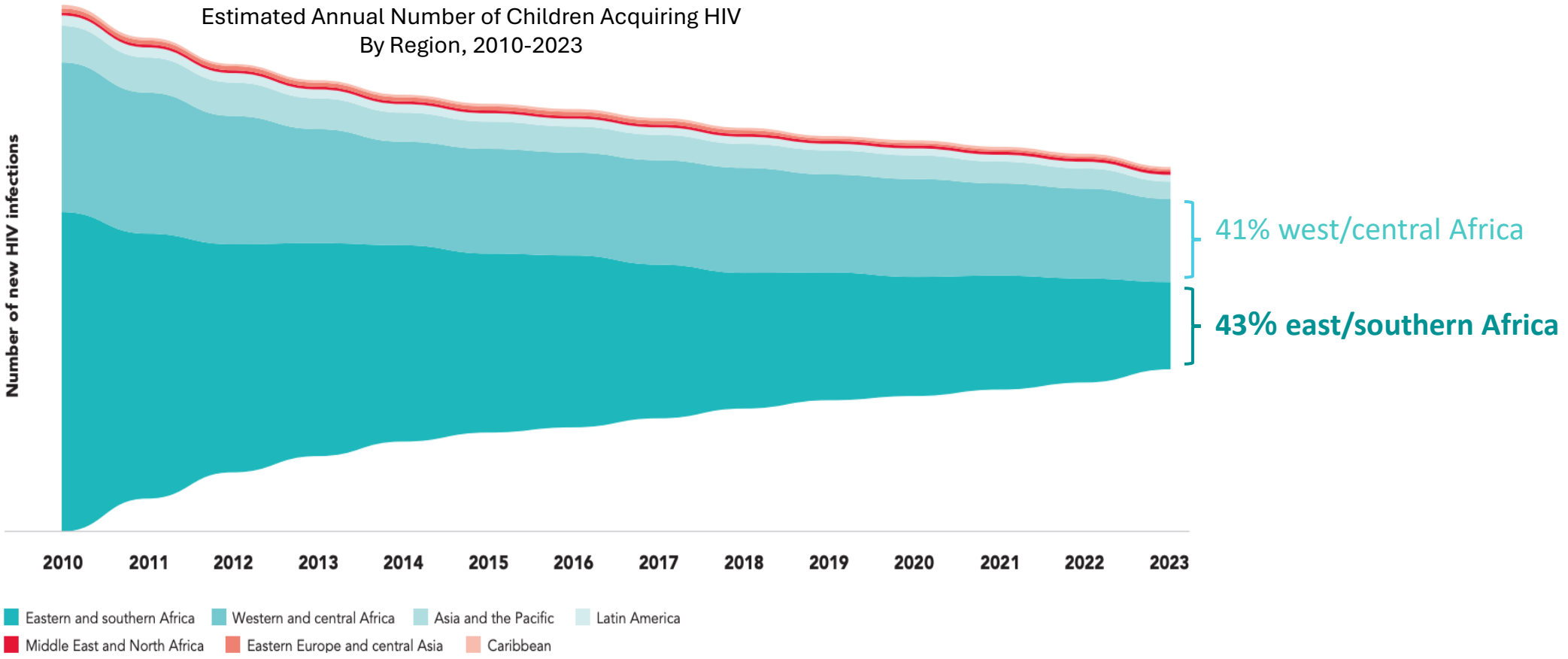
The number of new HIV infections in children has decreased only ~10,000/year since 2015

Source: UNAIDS 2024 Report



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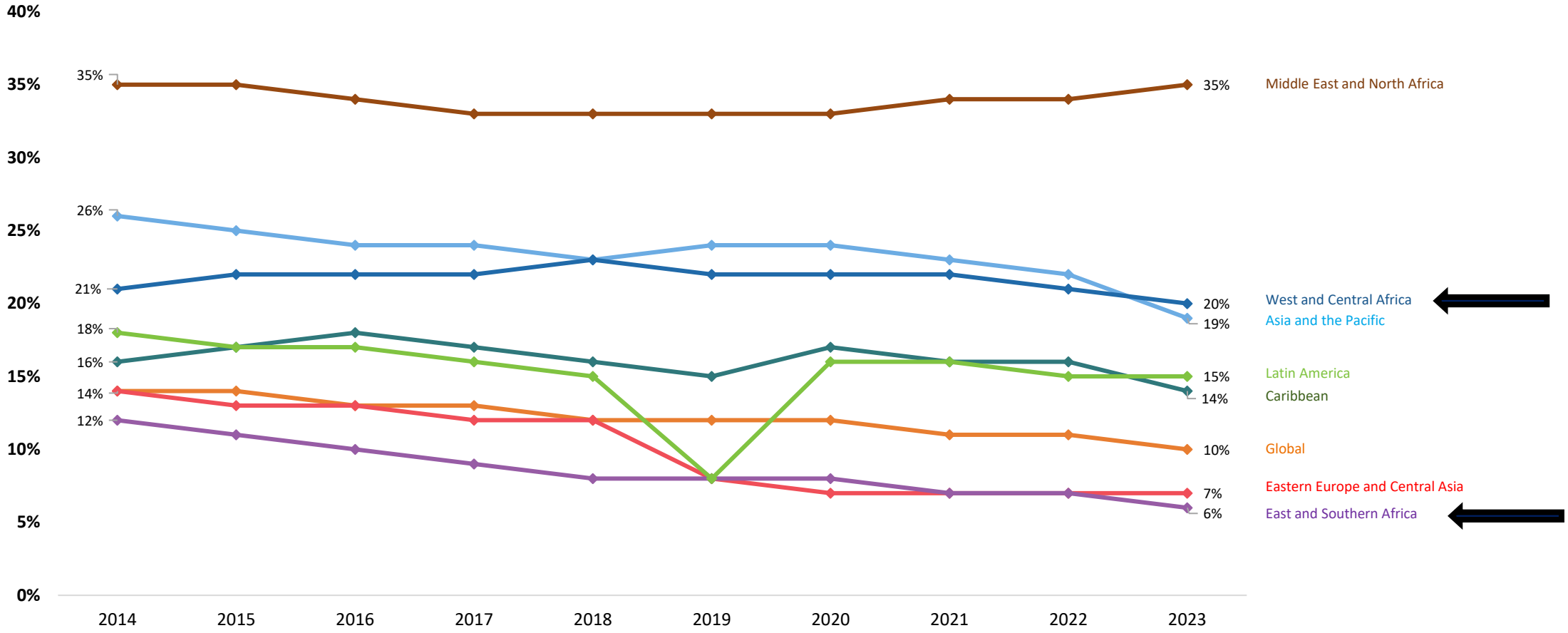
Regional variation in HIV vertical transmission rates

Source: UNAIDS 2024 Report



Source: UNAIDS epidemiological estimates, 2024

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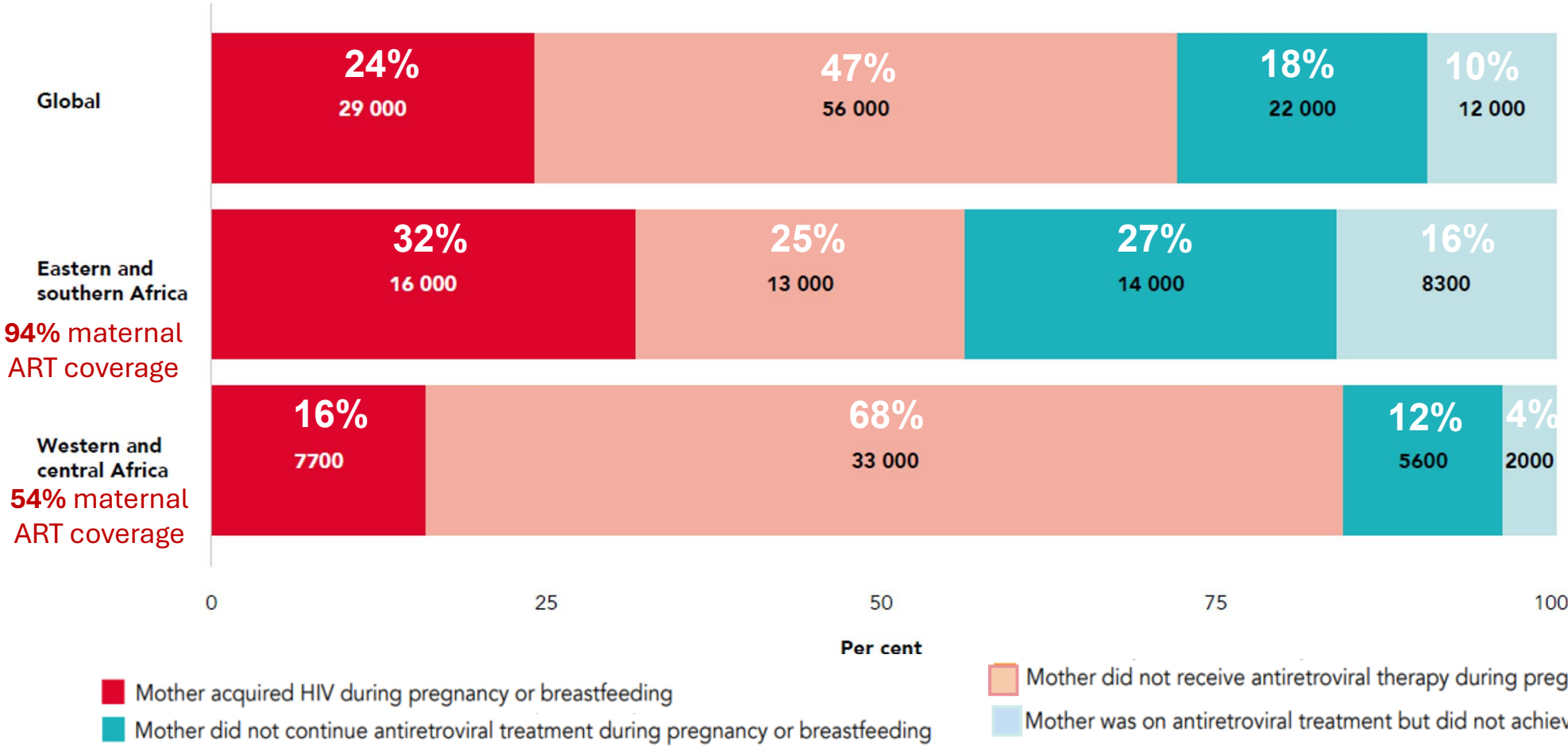
Causes of new child infections 2023 varies by region

Source: UNAIDS 2024 Report



Different primary issues regionally:

→ **Incident infection**

→ **Dropping off ART, or on ART but lack suppression**

→ **Not diagnosed**

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The Promise – Global Initiatives

HIV
Impact Network *for*
Vertical Transmission
Elimination

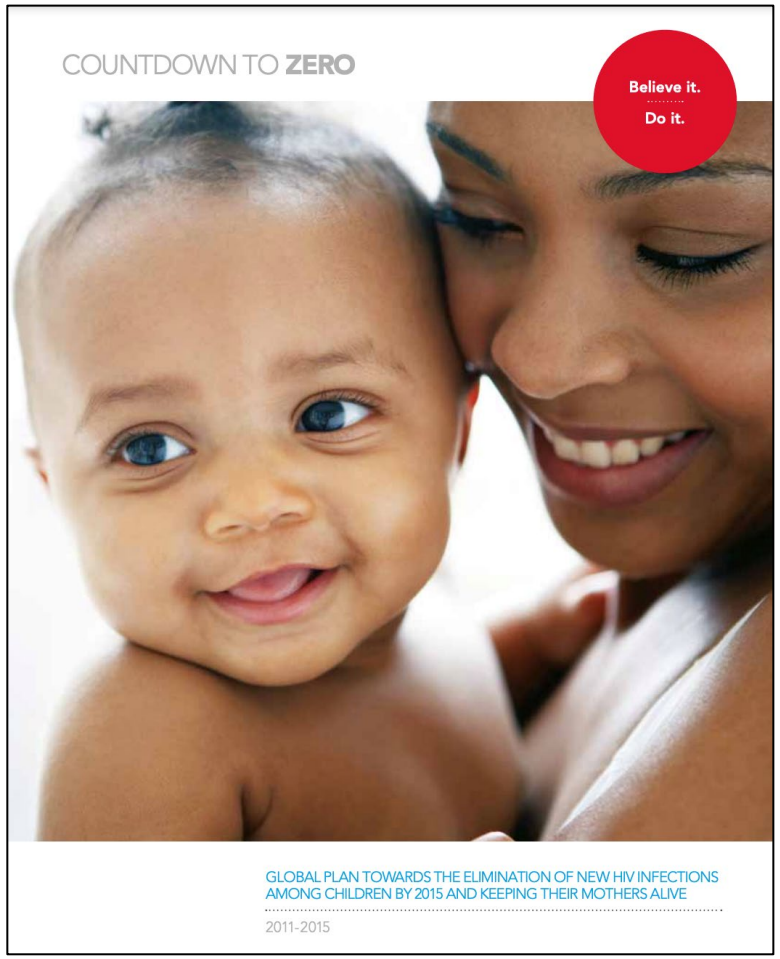
What does it mean to eliminate vertical transmission of HIV?

Vertical transmission elimination definition:

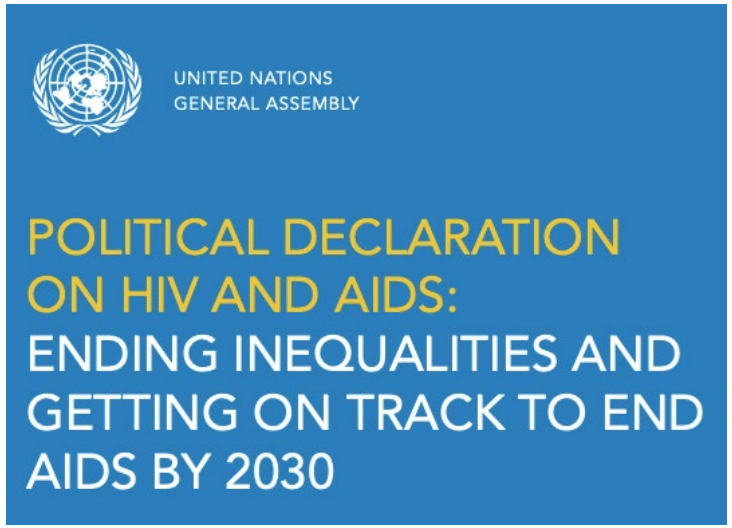
- **Fewer than 50 new HIV infections per 100 000 live births**
- **Vertical transmission rate of HIV of <5% in breastfeeding populations** OR <2% in non-breastfeeding population

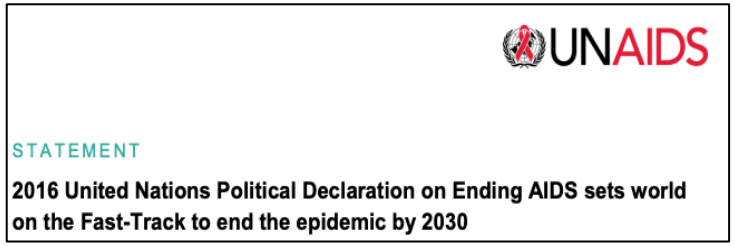
Source: Global guidance on criteria and processes for validation: elimination of mother-to child transmission of HIV, syphilis and hepatitis B virus. Geneva: World Health Organization; 2021

Building on past achievements



A SUPER-FAST-TRACK FRAMEWORK FOR ENDING AIDS IN CHILDREN, ADOLESCENTS AND YOUNG WOMEN BY 2020





FAST-TRACK
ENDING THE AIDS EPIDEMIC BY 2030

Global Alliance to End AIDS in Children

Vision:

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.

i. Early testing and optimized comprehensive, high quality treatment and care for infants, children, and adolescents living with and children exposed to HIV

ii. Closing the treatment gap for pregnant and breastfeeding women living with HIV and optimizing continuity of treatment towards the goal of elimination of vertical transmission

iii. Preventing and detecting new HIV infections among pregnant and breastfeeding adolescents and women and

iv. Addressing rights, gender equality and the social and structural barriers that hinder access to services

Launching HIVE – the HIV Impact Network for Vertical Transmission Elimination

Three HIVE and ICAP countries— Nigeria (17%), South Africa (17%) and Mozambique (16%) **— account for nearly half of all children with HIV living in the 12 Global Alliance countries in 2023**

HIV Impact Network for Vertical Transmission Elimination

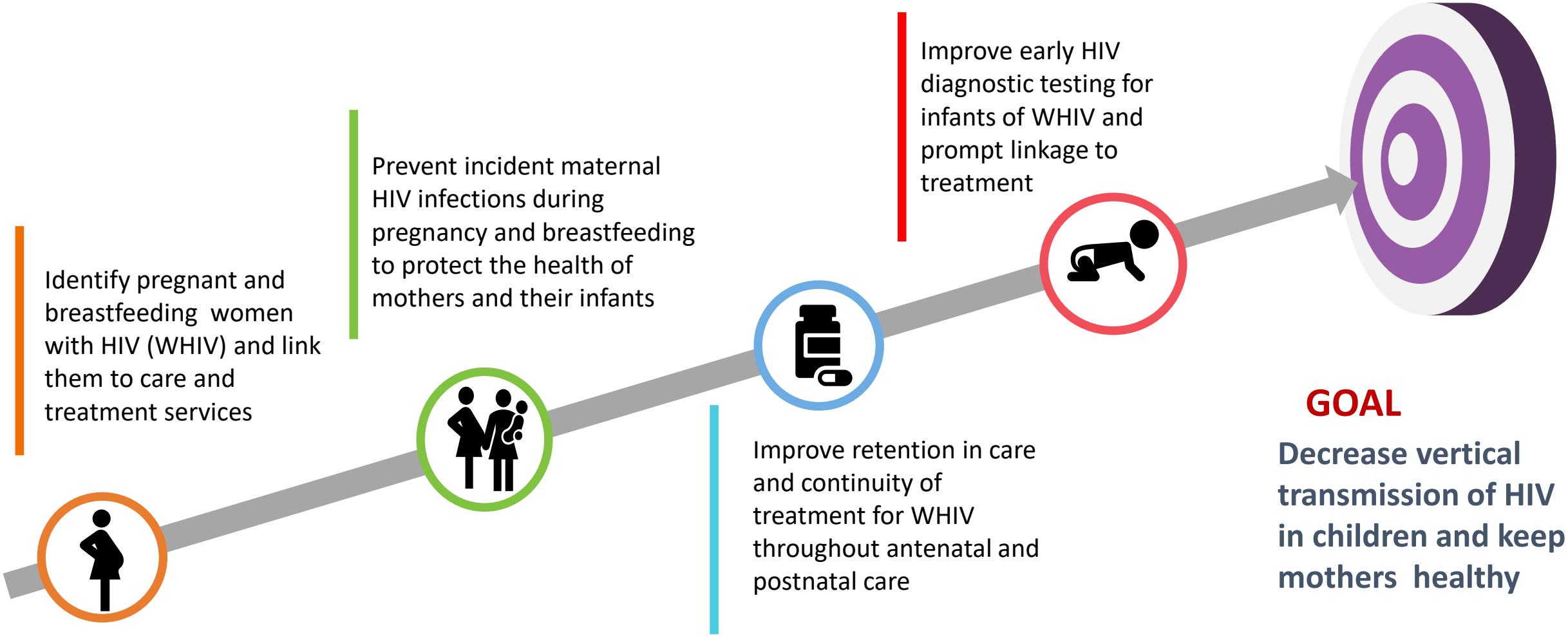
HIVE Project Goal and Objectives

Identify pregnant and breastfeeding women with HIV (WHIV) and link them to care and treatment services

Prevent incident maternal HIV infections during pregnancy and breastfeeding to protect the health of mothers and their infants

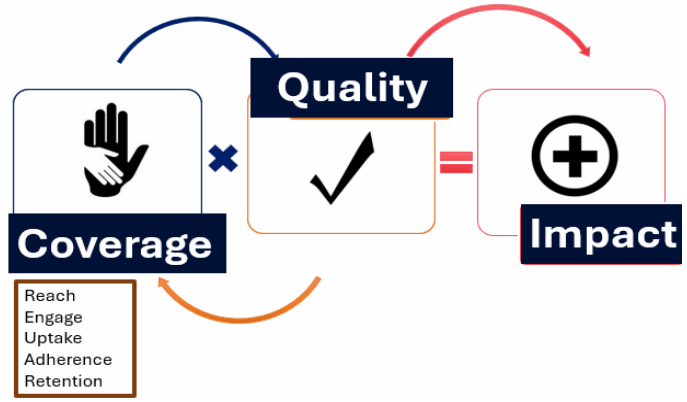
Improve retention in care and continuity of treatment for WHIV throughout antenatal and postnatal care

Improve early HIV diagnostic testing for infants of WHIV and prompt linkage to treatment



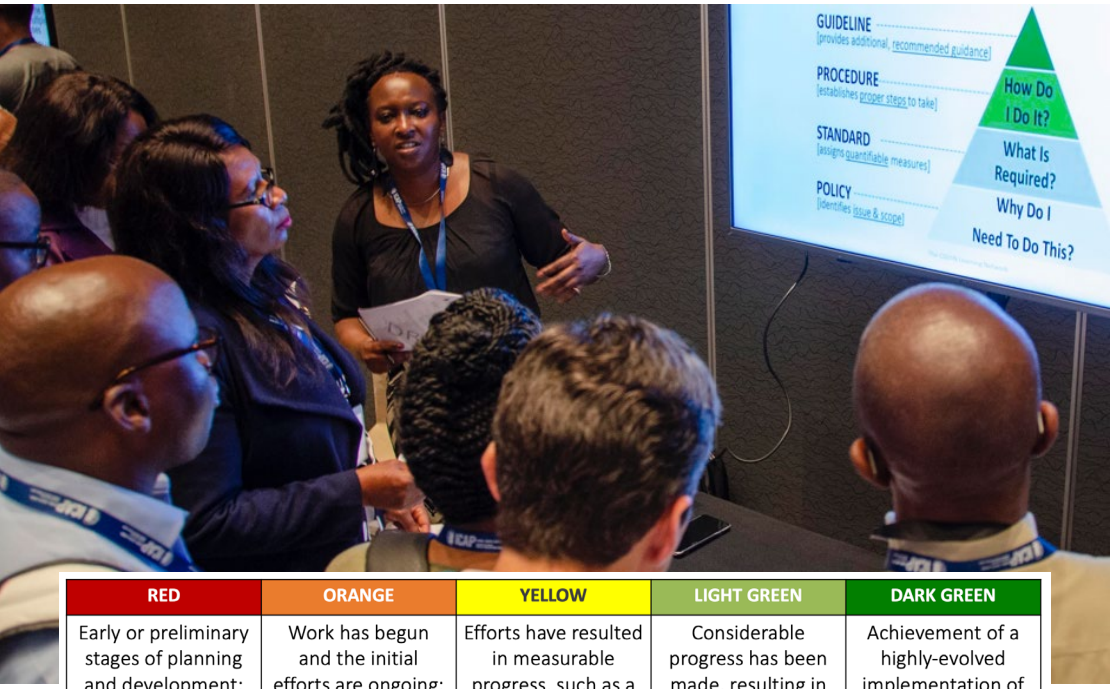
GOAL

Decrease vertical transmission of HIV in children and keep mothers healthy



HIVE Impact Network

- **HIVE is a *knowledge exchange platform* that will catalyze advancement in *coverage and quality of impactful services* designed to prevent vertical transmission of HIV**
  - convenes health system leaders & global stakeholders to participate in joint learning, exchange of best practices and co-creation of tools and resources to support country priorities
  - provides opportunities for experience-sharing and peer-to-peer learning for rapid adoption of best practices and impactful interventions to address gaps
  - supports collaborative problem-solving, and enables member countries to request technical assistance from ICAP and PATA
- **Member countries:**
  - conduct annual self-assessments through a multi-stakeholder participatory process using HIVE capability maturity model
  - determine their priorities, develop action plans and commit to targets, leveraging and supplementing existing country priorities



RED	ORANGE	YELLOW	LIGHT GREEN	DARK GREEN
Early or preliminary stages of planning and development; Useful in identifying next steps to take in the scale-up process	Work has begun and the initial efforts are ongoing; Highlights areas that can prioritized for improvement	Efforts have resulted in measurable progress, such as a draft for review or achievement of more than 25% progress to a target	Considerable progress has been made, resulting in over 50% progress to a target or working systems only in need of finalization	Achievement of a highly-evolved implementation of the domain; Further improvements and refinements can be made as needed

HIV Impact Network for Vertical Transmission Elimination

HIVE Launch: Meeting Agenda & Objectives

- Introduce HIVE's strategic goals, implementation framework, and expected outcomes.
- Engage member countries to document the status of their vertical transmission elimination programs using the HIVE capability maturity model (CMM).
- Discuss best practices, lessons learned, and gaps/needs related to elimination of vertical transmission
- Support the development of country-specific action plans and projections for 2025 that align with gaps identified and their global alliance country priorities
- Identify common gaps, challenges, and opportunities for future joint learning; co-creation of tools and resources; to facilitate country-to-country exchange visits; to enhance collaboration among member countries; and technical assistance support.
- Orient subnational level vertical transmission prevention leads to the CMM and initiate plans for development and implementation of a subnational CMM.

Thursday, December 5	Friday, December 6
Daily Registration	**Daily Registration**
Session 1: Welcome / Introductions	Session 5: Recap/Keynote
Session 2: Vertical Transmission Elimination Global Landscape	Session 6: Paired country breakout session
Tea Break (10.00-10.30am)	**Tea Break (10-10:30am)**
Session 3: Country Updates on VTP - Nigeria, South Africa, Mozambique, Kenya, Tanzania, Zambia	Session 7: Parallel Session
Lunch (12:30-2pm)	**Lunch (12:30-2pm)**
Session 4: Staging of Country Status on Vertical Transmission Prevention Using HIVE CMM	Session 8: Country breakout session for action plan development
	Tea Break (3:30 - 4pm)
	Session 9: Closing Session
End at 5pm	End at 5pm

Pre-Meeting Survey Results

December 4-6, 2024 | Johannesburg, South Africa

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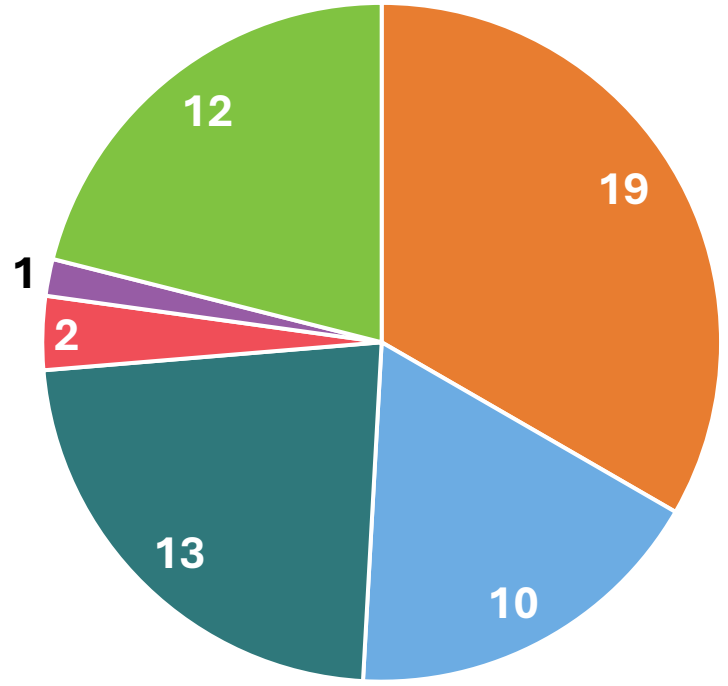
Number of participants per agency (N=57)

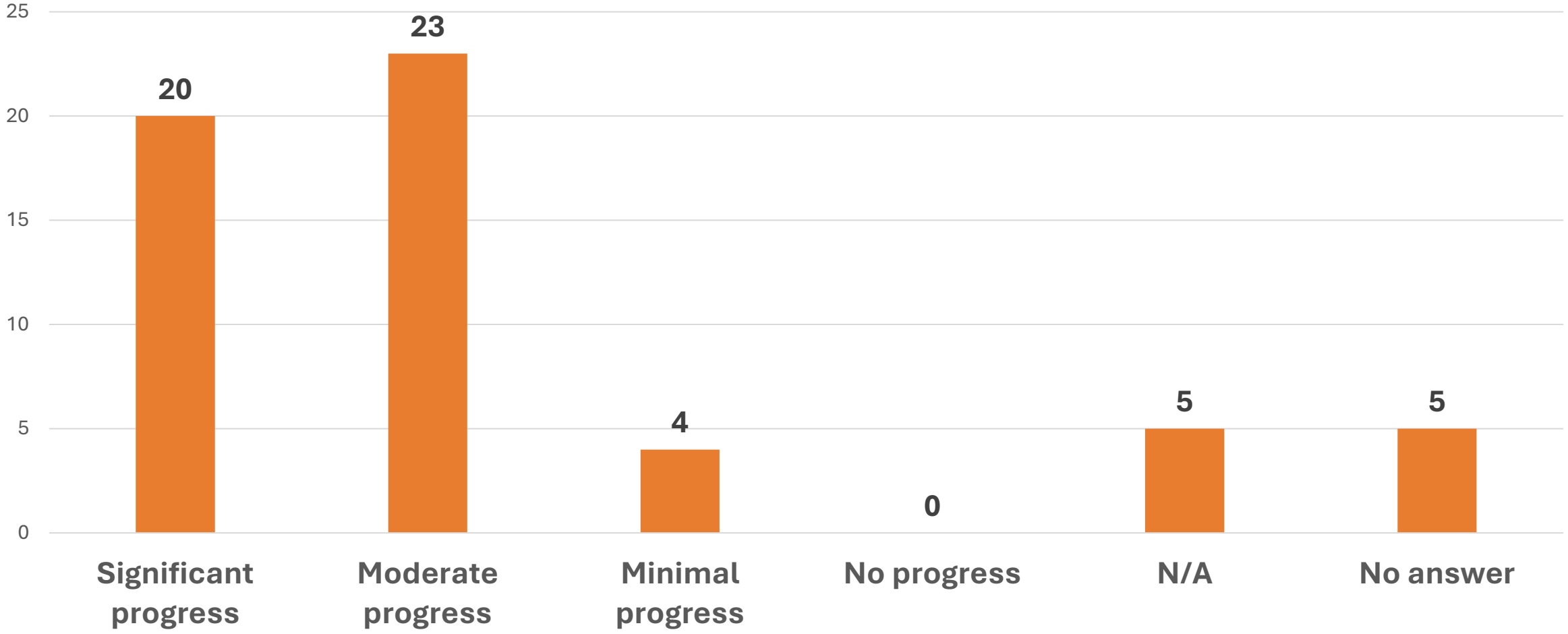


Other:
UNAIDS (3)
WHO (3)
ICAP (2)
CDC-Kenya (1)
AMREF Health in Africa (1)
UN (1)
Collaborating partner (1)

Ministry of Health
US Government
Implementing Partner
Civil Society
Academic Partner
Other

HIV Impact Network for Vertical Transmission Elimination

Progress in scaling up VTP services over the past 12 months



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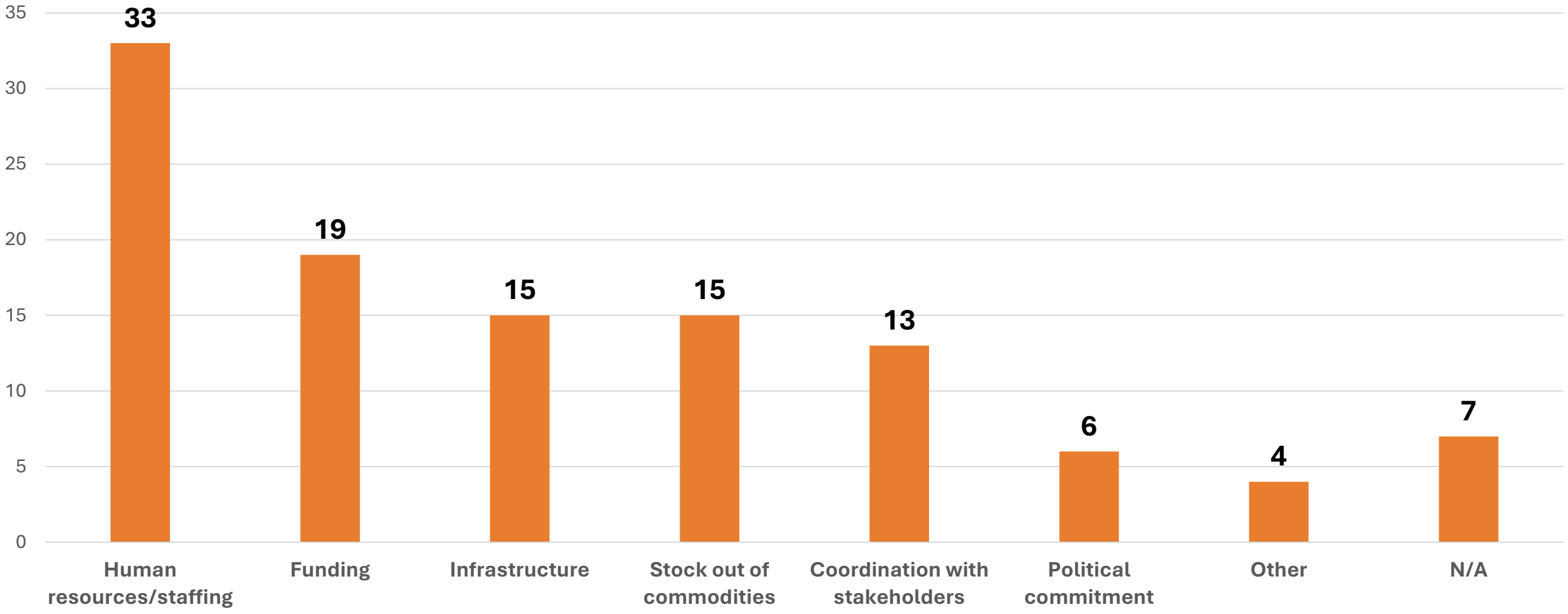
Challenges encountered in scaling up VTP services



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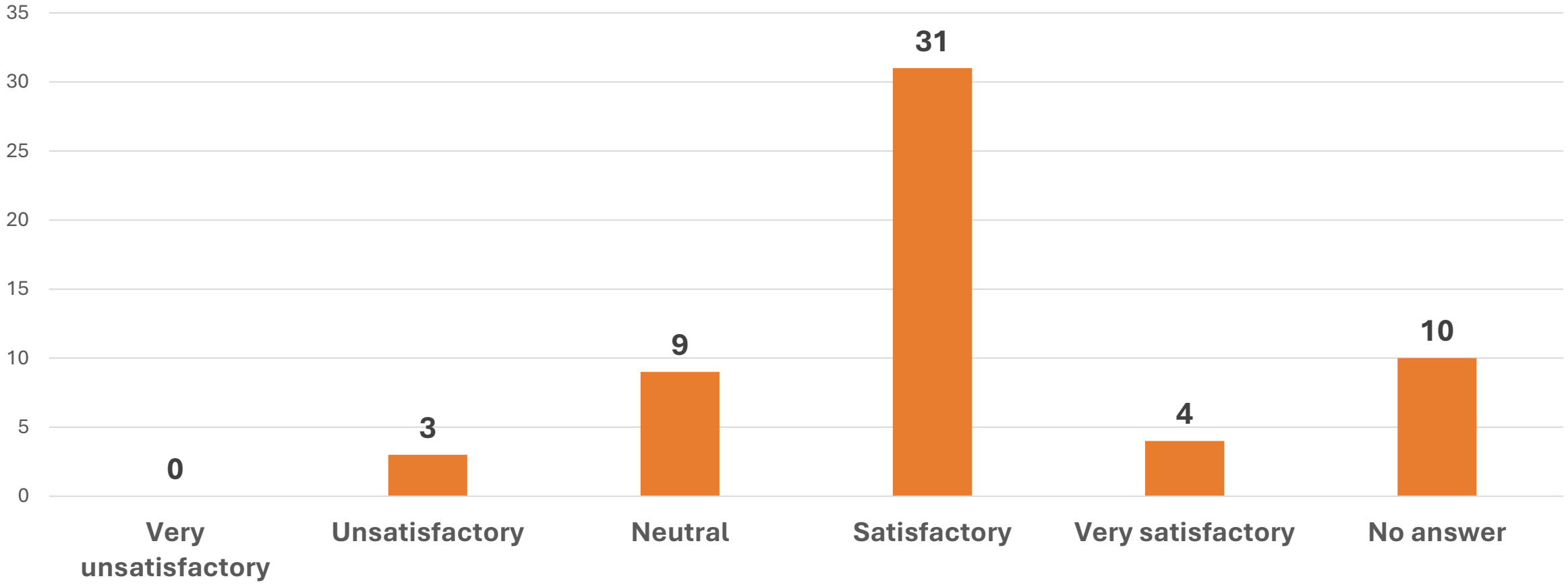
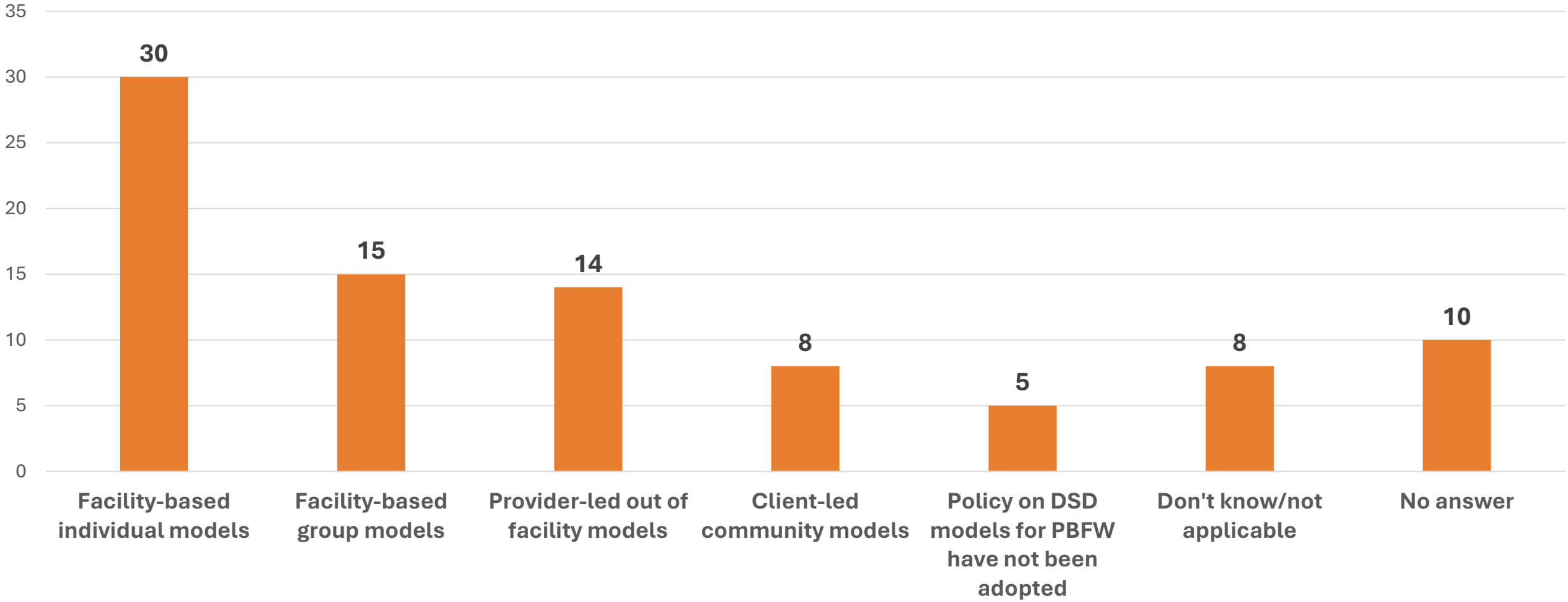
How would you describe current efforts to identify and put all PBFW with HIV on ART?



HIV Impact Network for Vertical Transmission Elimination

What DSD model(s) is your country implementing to improve continuity in care for PBFW with HIV?

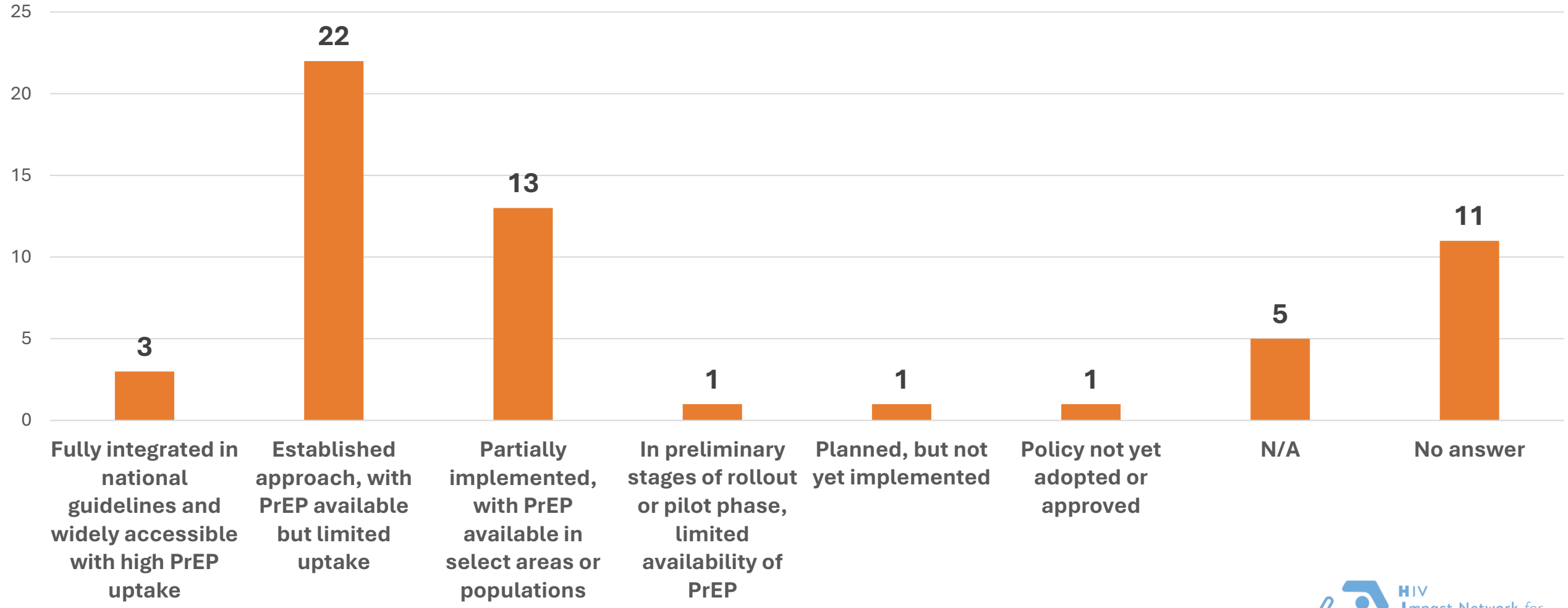


HIV Impact Network for Vertical Transmission Elimination

Barriers to continuity of treatment for PBFW with HIV and their infants

1. Stigma and discrimination
2. Inaccessibility of health services (distance, cost)
3. Nondisclosure of HIV status to partners or caregivers
4. Cultural and religious beliefs

How would you describe your country's current strategies for preventing new HIV infections during pregnancy and breastfeeding, particularly through the use of PrEP?



HIV Impact Network for Vertical Transmission Elimination

Thank You!

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